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October 26, 2019

Centric Partners, LLC
2921 Eastlake Avenue E.
Seattle, WA 98102

Attention: Mr. Michael Pollard

Subject: Remedial Investigation Summary Report
104 -124 12th Avenue & 1209 E. Fir Street
Seattle, Washington

Dear Mr. Pollard:
As you have authorized, ***Whitman Environmental Sciences, (WES)*** has completed remedial investigations of the above referenced property in order to meet due diligence requirements and prepare for environmental cleanup. The work includes a Phase I Environmental Site Assessment, and Phase II environmental site investigations of the site due to past uses of the property and neighboring sites that had a potential to result in recognized environmental conditions.

The enclosed report summarizes the observations, conclusion and data review performed during this assessment.

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

Respectfully submitted,

Whitman Environmental Sciences

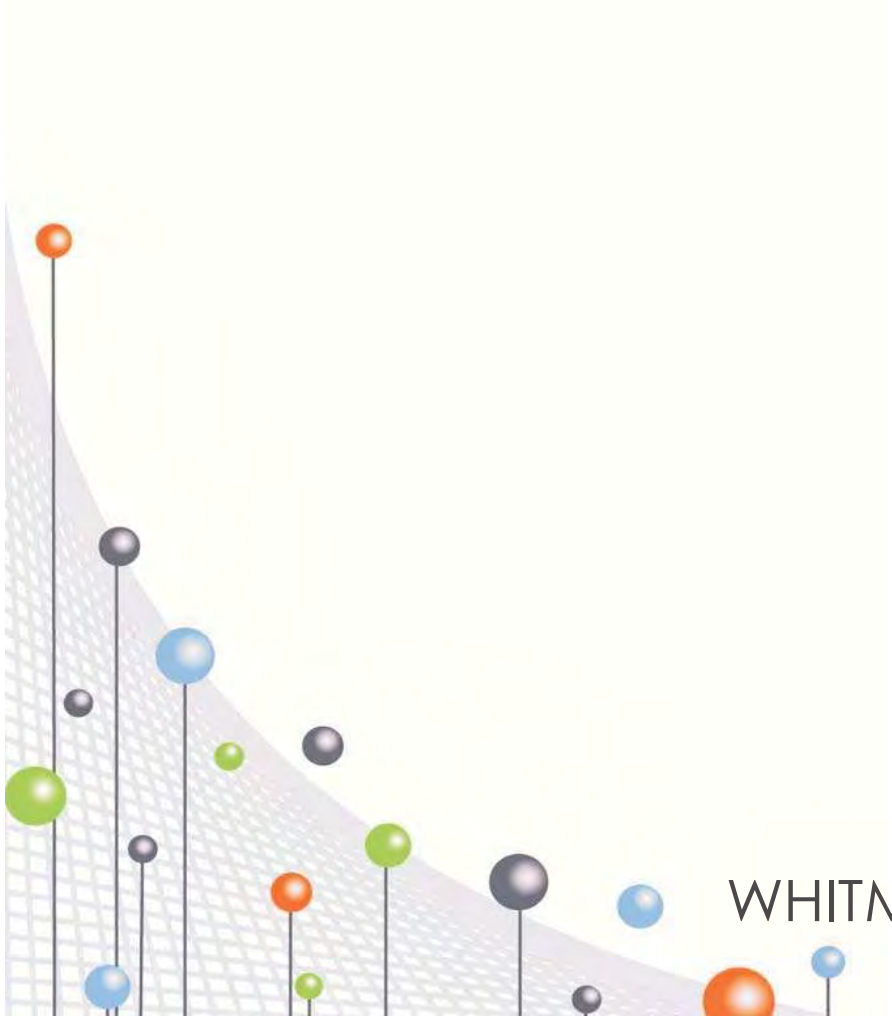


Daniel S. Whitman
Principal

REMEDIAL INVESTIGATION SUMMARY REPORT

POTENTIAL REDEVELOPMENT PROPERTY
104-124 12TH AVENUE & 1209 E. FIR STREET
SEATTLE, WASHINGTON 98122

October 26, 2019
Project No. WES-1591



WHITMAN Environmental Sciences

REMEDIAL INVESTIGATION SUMMARY REPORT

POTENTIAL REDEVELOPMENT PROPERTY
104-124 12TH AVENUE & 1209 E. FIR STREET
SEATTLE, WASHINGTON

EXECUTIVE SUMMARY

Whitman Environmental Sciences (WES) was retained by Mr. Michael Pollard of the Seattle Land Use Co. to conduct remedial investigations on a property on the eastern side of 12th Avenue, extending from the intersection with E. Yesler Way to E. Fir Street, in the Yesler Terrace neighborhood of Seattle, Washington. The property consists of approximately 47,433 square feet of land developed with three older commercial buildings in generally poor condition.

As of the date of this report all of the site buildings have been vacated and will be demolished in preparation for new development. The site will be redeveloped with a six-story mixed-use building with approximately 280 residential units, 16 live-work units and about 10,000 square feet of ground floor commercial spaces. There will be two levels of below-grade parking which will excavate the western part of the site to an elevation of 186, depths of as much as 32 feet below the current ground surface.

During the course of this assessment, historical information identified historical site uses that would be considered potential sources of recognized environmental conditions. Surrounding area properties were also found to have had past uses that had the potential to impact the subject properties. Site investigations have been conducted, drilling 73 soil borings throughout the property and surroundings, installing 19 monitoring wells and submitting 104 soil, 90 groundwater and five soil vapor samples for laboratory analyses.

This assessment has revealed the following evidence of recognized environmental conditions in connection with the property:

- The properties have been developed since the 1920s with a variety of site uses, some of which inherently managed, used or disposed of hazardous or regulated materials. Three auto repair areas were identified; 1209 E. Fir Street (the former location of TD Auto, from about 1949 to 2019), a former gas station that operated on the northwestern portion of the property from about 1941 to 1989 and a former auto repair that operated in the lower level of the building at 104 12th from about 1926 to the mid-1950s. Other on-site uses with the potential to be sources of contamination include a former screen printing shop and a dry cleaner that each operated for a limited time in the currently vacant tenant space at 118 12th Avenue. The current and former site uses indicated site specific soil and groundwater sampling was warranted.

- Properties in the surrounding area were identified as potential sources of impacts to the subject site due to historical site uses or known conditions with the potential to migrate toward the properties. These include former dry cleaning facilities that were located at 113 12th Avenue and 160 12thAvenue; former service stations and auto repair facilities at 150 and 151 12th Avenue and a number of historical laundries and dry cleaners to the south of Yesler Way. The current and former uses of nearby properties indicated site specific soil and groundwater sampling was warranted.

- Site investigations identified fill soils over much of the property, apparently deposited from the original regrading of 12th Avenue during the early 20th century. These soils are relatively soft and contain organic topsoil deposits and debris. Fill soil extends to depths of about 16 to 19 feet in the higher, northern part of the site along 12th Avenue, with lesser amounts throughout the property.

- Groundwater was encountered at depths ranging from about three to 16 feet below the ground surface with a general gradient to the southeast, approximating the local topography. Groundwater seepage was limited and variable, consisting of relatively discontinuous perched water conditions within the fill and sandier horizons in the underlying native soils.

- Soil samples collected as part of the remedial investigations identified six areas of the site where impacts by petroleum constituents or lead exceed current Washington State Model Toxics Control Act (MTCA) Method A cleanup criteria. Each of these are distinct and separate areas, with estimated volumes ranging from approximately 100 to 800 cubic yards of contaminated soil. A total volume of 1,800 to 2,800 cubic yards of impacted soil is estimated, extending to a maximum depth of approximately 18 feet below the ground surface. Five of these areas are in the portions of the site where redevelopment excavation will extend to depths that exceed the deepest identified contamination. One small area in the southeastern parking lot will be need to be excavated beyond the extent of digging planned for redevelopment.

- Groundwater samples taken during the remedial investigations encountered impacts by petroleum constituents and chlorinated solvents that exceed MTCA Method A groundwater cleanup criteria. Remedial investigations have included 42 reconnaissance samples taken from temporary wells and 19 permanently installed monitoring wells that have been subject to periodic sampling.

  Gasoline, diesel and motor oil-range total petroleum hydrocarbons (TPH), tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (C12DCE), vinyl chloride (VC) and 1,2,4-trimethylbenzene have been detected at concentrations that exceeded MTCA Method A or B groundwater cleanup levels. Petroleum-related exceedances have been found in the former gas station area in the northwestern corner of the property and at two areas in the basement of the 104 12th Avenue building.

  PCE is a common dry cleaning solvent and the other detected compounds are common degradation products that result from the breakdown of PCE in the environment. A cluster of chlorinated solvent detections in the southeastern parking lot define a plume of contaminated groundwater that appears to enter the site from beneath the adjacent King County Archives warehouse to the north. The most widespread compound is vinyl chloride, which has been encountered at eight sampled locations across the site at concentrations ranging from 0.2 to 1.9 ug/l, at or above the MTCA Method A cleanup criteria of 0.2 ug/l. TCE was detected at two sampled locations in the southeastern lot exceeding the MTCA Method A groundwater cleanup level of 5 ug/l. At one of those locations PCE also exceeded the 5 ug/l MTCA Method A cleanup criteria. One sample from a monitoring well in the basement of the 104 12th building contained a reported detection of 17 ug/l of cis-1,2-dichloroethene, which exceeded the MTCA Method B standard formula value of 16 ug/l for that compound.

- Sub-slab soil vapors from below the 104 12th Avenue building contained trace levels of petroleum-related volatile compounds and several chlorinated solvents. Three detected compounds exceeded Washington State's draft sub-slab soil vapor screening levels; naphthalene, chloroform and bromodichloromethane. Of these compounds, only naphthalene would likely be associated with releases at the subject site. Chloroform and bromodichloromethane are both compounds that can be generated from municipally-treated drinking water. This building is no longer occupied and will be demolished, so vapor intrusion into the structure is not at issue.

- A Tier I assessment was conducted to evaluate the potential for vapor intrusion into future structures. Reported deep soil vapor and groundwater concentrations of volatile compounds were compared to screening levels established in the Department of Ecology draft manual *"Guidance for Evaluation Soil Vapor Intrusion in Washington State: Investigation and Remediation"* (Publication No. 09-09-047 as revised to April, 2018), updated Table 1B and subsequent implementation memoranda.

  Reported maximum groundwater concentrations within the southeastern parking lot plume exceeded screening levels for TCE and VC. Deep soil gas concentrations exceeded deep soil gas screening levels for naphthalene and vinyl chloride. A vapor barrier will be installed beneath any slab-on-grade portions of the building as an additional protective measure, even after cleanup reaches MTCA Method A standards.

- Current development plans involve widespread excavation of the western parcels of the property to depths that would remove all of the identified soil and groundwater impacts in that area. The southeastern parking lot will be partially excavated for cleanup of a limited area and for geotechnical ground improvements and foundations, but there will not be basement or below grade parking in this area. The anticipated first floor level will be at approximately the current site grade. In-situ groundwater remedial actions will be needed to manage the plume that extends from beneath the adjacent King County Archives warehouse.

A full cleanup action plan has been prepared that outlines the most feasible approaches to removal or degradation of contaminants and proper management of wastes. That document should be referenced for further information.

This summary is for introductory purposes only, and should be used only in conjunction with the full text of this report.

REMEDIAL INVESTIGATION SUMMARY REPORT

POTENTIAL REDEVELOPMENT PROPERTY
104-124 12TH AVENUE & 1209 E. FIR STREET
SEATTLE, WASHINGTON

October 26, 2019
Project No. WES-1591

Prepared for:

Centric Partners, LLC
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REMEDIAL INVESTIGATION SUMMARY REPORT

REDEVELOPMENT PROPERTY
104-124 12TH AVENUE & 1209 E. FIR STREET
SEATTLE, WASHINGTON

1.0 INTRODUCTION

Whitman Environmental Sciences was retained by Mr. Michael Pollard of the Seattle Land Use Co. to conduct remedial investigations on a property on the eastern side of 12th Avenue, extending from the intersection with E. Yesler Way to E. Fir Street, in the Yesler Terrace neighborhood of Seattle, Washington. The property consists of approximately 47,433 square feet of land developed with three older commercial buildings in generally poor condition. At the time of our initial site reconnaissance the buildings were in active use as a curtain manufacturing company, a restaurant, and an auto repair shop. There was also a vacant tenant space in the restaurant building and two portions of the property used as parking lots. Currently, all of the buildings have been vacated and are slated for demolition.

The purpose of these remedial investigations have been to identify the presence or likely presence of any hazardous substances or petroleum products in, on or at a property due to release to the environment.

1.1 Limitations

No environmental assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Environmental conditions and regulations are subject to constant change and reinterpretation. Current conditions or regulatory status should not be assumed to represent conditions at some future time.

WES does not guarantee that the site is free of hazardous or potentially hazardous materials or conditions, or that latent or undiscovered conditions will not become evident in the future. This report represents the professional opinions and judgements of WES, prepared in accordance with commonly practiced environmental investigation procedures. No other warranties, representations, or certifications are made.

WES obtained, reviewed, and evaluated information available from subcontracted analytical laboratories, the property owner and local, state, or federal agencies. WES' conclusions, opinions, and recommendations are based, in part, on this information. Where possible, WES has made efforts to identify mistakes or insufficiencies in the information provided, but verification of all of the information provided is beyond the scope of a remedial investigation.

1.2 User Reliance

This report was prepared for the exclusive use of the Centric Partners LLC, Seattle Land Use Company, their agents, assigns and lenders, specifically for evaluating the current conditions of this property. WES will not be responsible for the interpretation of its data or conclusions by others.

2.0 SITE DESCRIPTION

2.1 Location, Legal Description and Zoning

The subject property is located in a mixed-use area in central Seattle, King County, Washington. The property and surrounding area are indicated in Figure 1, a Site Location Map, included in Appendix A. The site is bordered by E. Fir Street on the north, warehouses operated by the King County Archives to the east, E. Yesler Way on the south and 12th Avenue on the west. The property consists of four adjoining tax parcels totaling 47,433 square feet. Table 1 identifies the parcels which make up the subject property. All parcels are currently owned by Centric Partners LLC.

Table 1
Subject Property Parcels

Street Address	***King County Parcel ID***	***Approximate Area (Sq. ft.)***
104 12th Avenue	806100-0025	10,000
No address – Parking lot only	806100-0035	14,000
110 12th Avenue	806100-0015	10,000
124 12th Avenue	806100-0005	13,433

The 124 12th Avenue parcel includes a gravel surfaced parking lot and a building addressed 1209 E. Fir Street.

The legal description of the property includes portions of Lots 1 through 8 and part of Lot 12 of Block 1 of the Struves Addition. A title report should be consulted for a complete legal description. The property is in the NE ¼ of Section 5, T. 24 N., R. 4 E. Willamette Meridian.

The site is currently zoned NC3P-65 for neighborhood commercial uses with a 65-foot height limit. Current site uses do not represent the highest and best use of the properties under this zoning category. This study was conducted to assess the property in preparation for redevelopment within the constraints of the zoning. The proposed building will be a six-story mixed-use building with approximately 280 residential units, 16 live-work units and about 10,000 square feet of ground floor commercial spaces. There will be two levels of below-grade parking which will excavate the western part of the site to depths of as much as 32 feet. The southeastern parcel, currently a parking lot, will not have below grade parking, so only partial excavation is planned in that part of the site.

2.2 Site and Vicinity Characteristics

Figure 2, a Site Vicinity Map, indicates the shape of the property and its relationship to adjacent lands. The property is at the intersection of major arterials, with E. Yesler Way crossing east-west through the area and 12th Avenue crossing north-south. There are small-scale commercial properties aligned along parts of 12th Avenue and major mixed-use residential developments are occurring in the surrounding area, replacing smaller-scale low income housing and single family homes. To the south, across Yesler Way is a school (Bailey Gatzert Elementary School).

The site and surrounding area slope generally downward to the southeast from First Hill, a local high area that crests about 2,000 feet to the northwest.

2.3 Description of Site Development

2.3.1 Site Structures

There are currently three structures on the property, summarized below.

104 12th Avenue

The building addressed 104 12th Avenue is a two-story reinforced concrete building with a footprint of about 10,000 square feet, built in 1926. The main entrance to the upper floor is near the northwestern corner of the building along 12th Avenue. An entrance and truck ramp on the south side of the building, along Yesler, accesses the basement. The building has generally open floor plans with large work areas. It is heated by a central gas-fired boiler enclosed in an isolated room in the basement.

The basement served as an auto repair facility from the 1920s to about 1939. There is historical record of one underground storage tank associated with the building; reportedly a 550-gallon gasoline tank installed outside the south wall, beneath the current sidewalk. Survey records from City of Seattle archives show the former location of the tank and note it to have been installed in 1929 and removed in 1933. No other tanks are known. At some point in the building's history a new layer of concrete floor was poured in the basement, so there is a potential that additional tanks, hydraulic lifts, sumps or other features may be present and unseen below the current floor.

110-118 12th Avenue

The building at 110-118 12th Avenue is a one-story wood-framed multi-tenant structure with a walk-out basement or crawl-space accessed from the rear of the building. The building was constructed in 1940, has about 9,000 square feet of rental space and is in poor condition. It is currently divided into two tenant spaces, one of which housed an Ethiopian restaurant until 2019. The northern half of the building has been vacant for a number or years. In the past, this building has been divided into as many as five smaller spaces. Tenant history is discussed in Section 2.5 - Past Uses of the Property, below. The building does not have a central heating plant. There are no reported or observed underground storage tanks associated with the building.

1209 E. Fir Street

The building addressed 1209 E. Fir Street is located on the northern-most parcel of this property. The parcel itself is addressed 124 12th Avenue in current King County Assessor's records. It is an older auto repair garage of masonry block construction built in about 1949. There is a small office area and two garage bays used for auto repair. A storage room addition was built on the south end of the structure in about 1988. Later, that addition was used as a paint booth for auto body repairs. The building has no reported or observed below-ground hydraulic lifts or underground storage tanks. There is a limited amount of paved parking on the east side of the building with a storm drain catch basin fitted with a crude oil/water separator.

2.3.2 Utilities

Utilities are available in the adjoining right-of-ways. There is currently gas servicing the 104 and 110 12th Avenue buildings from the 12th Avenue right-of-way. There are overhead electric service lines bordering the property on the south and west sides. Sanitary sewers have been available in this area since it was initially developed, so there is no reason to expect septic systems on the subject property. City water appears to have been available throughout the development history of the area, so no prior drinking water wells are known on or adjacent to the subject site.

2.3.3 Parking and Undeveloped Areas

There are two separate parking areas on the property, a large paved parking lot in the southeastern portion of the property associated with the 104 12th Avenue building and a smaller gravel surfaced parking lot on the northwestern corner of the block. The lots are accessed from Yesler, 12th Avenue and E. Fir Street. The northwestern gravel parking lot was formerly a gas station, which was active from about 1941 to 1989. King County Assessor's records indicate the building burned and was then demolished. Underground storage tanks were removed in 1990 and 761 tons of petroleum contaminated soil was excavated in 1991.

There is a large central area of the property behind the 110-118 12th Avenue building that is undeveloped and overgrown with weeds.

2.4 Current Use of the Property

The site is currently unused and all buildings are vacant. A contractor is preparing the 104 12th Avenue building for demolition and using it for limited storage. At the time of our initial site visits in 2017, all three of the site buildings were in active use. Seattle Curtain Manufacturing Co. operated in the building at 104 12th Avenue, in environmentally benign uses. The 110 12th Avenue building was a restaurant, with a large vacant space on the north end of the building. The auto repair building at 1209 E. Fir Street was active, but poorly maintained and cluttered with autos, parts and debris. The operator had been subject to several site inspections by the Washington Department of Ecology and Seattle King County Department of Health, as discussed further in Section 3.0, the Records Review section of this report.

2.5 Past Uses of the Property

Historical records, aerial photographs, King County records and commercial city directories provide some information about the development history on the property. Copies of some of the available references are included in Appendix B. The earliest readily ascertainable references to the property date to an 1893 Sanborn Fire Insurance Rate Map, which shows that by that date the street right-of-ways were laid out in approximately their current alignment and like many parts of the city, the street names were different than their current nomenclature. At that time Yesler Way was already known as Yesler Street, but 12th Avenue was identified as Kenney Street, and E. Fir Street was known as Lake Street. Sections of all of these roads were shown to be "Not Opened" indicating unimproved right-of-ways. Undated street grading profiles obtained from the City of Seattle show the approximate current and former ground surface profiles for these surrounding streets. Adjacent to the property, 12th Avenue was filled by as much as 16 feet of soil, while a high area was removed from the areas to the north of Fir Street. This is consistent with the depth of poorly consolidated fill material found during our site investigations, discussed below.

By 1905 another Sanborn Map shows the property was still undeveloped, but street names were changed to the current system. Some development was occurring in the surrounding area, with several residential multi-unit buildings shown to the west of 12th Avenue. From about 1907 to 1913 most of the property was used as a baseball stadium by the Seattle Giants, with grandstands built along Yesler. These were removed in about 1913 when the team moved to another park.

King County Assessor's records show the two-story concrete building at 104 12th was the first major development on the subject properties, constructed in 1926. The lower level has been accessed from Yesler and during much of its history and typically had different occupants than the upper floor. The earliest Assessor records note that the building was a combination of residential apartments and business. As early as 1928 a city address directory lists the basement to be the Yesler Auto Paint Shop.

An historical aerial photograph from 1937 still showed the building as the only development of the property. The earliest photograph of the building is from Assessor's records, dated about 1937. The upper floor of the building was nondescript, with no signage. The lower floor along Yesler was painted with signs for an auto garage, for "Storage", "Washing", "Repairing" and "Auto Painting". Currently, there is still signage visible on the rear of the building for Yesler Garage (later painted over to be Modern Garage), addressed 1206 Yesler. It includes a Shell Oil logo and notes gasoline and motor oil.

In the basement, auto repair continued until about 1939. In 1940 a city directory identifies the basement as "Coles Horticultural Products Co, fertilizer mfrs", but by 1943, the basement was vacant. No other records have been identified that include specific information about Cole's uses of the building. A Sanborn Fire Insurance Rate Map from 1950 identifies autos and general storage in the basement, but no other records suggest active auto repair was going on at that time.

In 1951 the basement was identified in city directories as Atlas Salvage and Surplus Foods; it continued as a grocery store under various names until at least 1980. The parking lot to the east of the building was paved at about the time the grocery operations began. Starting in about 1980 the curtain manufacturing company occupied the entire building.

Uses of the upper floor of the building include a roller rink (1940) junk dealers (1943), a basket dealer and the State Department of Social Security (1948), Training Center for the Blind (1950) and other environmentally benign uses, including the Seattle Curtain Manufacturing Company from 1966 to 2018.

King County Assessor's records indicate the commercial building at 110-118 12th Avenue was built in 1940, immediately to the north of the 104 12th Avenue building. The upper floor at street level was divided into small storefronts. The lower level is unfinished or crawlspace and may have been used for basic utilities, but does not appear to have been suitable for tenant uses. Throughout its history the building was divided into as many as five small tenant spaces with mostly environmentally benign uses. City directories identify two historical uses at the north end of the building which inherently used hazardous or regulated materials. From about 1958 to 1962 the space at 118 12th Avenue was a screen print shop. Screen printers use a variety of inks, solvents and cleaning chemicals that are potential sources of recognized environmental conditions if mismanaged. From about 1966 to 1972 Polk directories identify Robertson's Laundry & Dry Cleaners in the 118 12th Avenue tenant space. Dry cleaning inherently uses solvents (either

petroleum-based or chlorinated, most likely tetrachloroethene (PCE)). It should be noted that these tenant uses were most likely limited to the upper floor which is not in direct contact with the ground. No specific information was found during this study that identified the layout of equipment or waste management practices of either the screen print or dry cleaning tenants.

A small service station was built on the northwestern corner of the property in 1941. It was initially a Maxwell Petroleum gas station with a small auto repair building addressed 130 12th Avenue. It had a single pump island holding three gas pumps. It is unclear how many tanks were originally installed, but later records suggest up to five tanks may have been on the property, ranging from 1,000 to 4,000 gallons in capacity. Maxwell Petroleum was a predecessor company that can be traced to ExxonMobil. The service station was updated and renamed many times over its history, but remained in place until about 1989, when the building burned. The station building and five underground storage tanks were removed in 1990 and a partial cleanup was conducted in 1991. The property has remained as a gravel surfaced parking lot since that time. Additional information about the former service station is addressed in Section 3.2 of this report.

Since 1989, the site has remained relatively unchanged. There have been no other tenant changes that suggest other site uses with a potential to be sources of recognized environmental conditions.

Identified Past Site Uses of Potential Concern
The site history identifies prior site uses on three of the four subject parcels that are potential sources of recognized environmental conditions. Auto repair and painting was conducted in the lower level of the 104 12th Avenue building. Later, that space was used by a fertilizer company. The 118 12th Avenue tenant space was used for screen printing and as a dry cleaner. The northern parcel has previously held a gas station with underground storage tanks and has a building that has a long-term history of auto repair that continued until earlier this year. These noted site uses warrant additional investigation of soil and groundwater conditions, as discussed below.

2.6 Current and Past Uses of Adjoining Properties
The site is located in a mixed-use area, with commercial and institutional development along 12th, Yesler Way and on adjoining property to the east. The intersection of 12th and Yesler has been a minor commercial center since development began in the 1920s. There were a series of small storefront businesses located on the northwestern corner of that intersection, to the west of the subject property. Beginning in the 1920s it served as the Finnish Steam Baths, but was later a drug store, general merchandise market and Laundromat (from about 1963 to 1980).

More notable, there is a long history of dry cleaning operations at addresses located on the west side of 12th Avenue on the adjacent block, across an 80-foot right-of way from the subject property. The dry cleaner was active from about 1930 to about 2005. The businesses operated under the names Crane's Cleaners, Nu Way Cleaners and Dick's Central Cleaners, with address listings varying among 113, 115 and 117 12th Avenue. Assessor's records show 113 12th building as a long narrow commercial structure, while the 115 and 117 addresses appear to have been residences (possibly converted to commercial use). This site underwent cleanup by the Seattle Housing Authority in 2009-2010, in part using Federal brownfields grant money. The site was redeveloped as part of a mid-rise residential complex that occupies the southern portion of the adjoining block to the west of 12th Avenue. The cleanup was sufficient for the Washington Department of Ecology to make a determination that no further action would be required.

Other cleaners, service stations and auto repair were also historically located in the surrounding area. To the north and northwest, several addresses were identified in historical records as potential sources of recognized environmental conditions. At the northeastern and northwestern corners of the intersection of 12th and E. Fir Street, both properties had a history of use for service stations and auto repair. About 150 feet to the north on the adjacent block was another dry cleaner at 160 12th Avenue, that operated from at least 1928 to 1994. Identified as Peerless Laundry, Quality Laundry, Washrite Laundry, Shirts Inc., and Star Laundry, it has been identified by the Washington Department of Ecology as a confirmed contaminated site awaiting cleanup.

To the east is property owned by King County, used as warehouses for the County archives. The warehouses were built in about 1954 on property that was previously a small 1940s housing project. There were five long, narrow row-house buildings visible in an aerial photograph from 1946 and shown in a 1951 Sanborn Fire Insurance Map. Polk directories list home addresses on two streets (12th Place and Larch Court) from 1941 to about 1949, with no business listings for any of the homes. By the date of a 1953 aerial photograph the homes had been removed in preparation for the warehouse construction, but the long narrow foundations and floor slabs were still in place.

Although this study found no record of commercial operations at these homes, the south end of the westernmost row-house matches closely with the suspected source area of a plume of chlorinated solvents that have been identified in the southeastern parking lot of the subject site. Polk directories identify cleaners and laundries in residential buildings along Yesler Way and other surrounding areas, so it is possible that this location was also used as a makeshift cleaner or used PCE for other purposes.

The warehouse directly north of the southeastern parking lot was identified as a records vault in early Assessor's records and identified as the warehouse for voting machines in Polk city directories in the 1960s. However, there is likely to have been building maintenance and possibly equipment repair occurring in the warehouses.

To the south is Bailey Gatzert Elementary School, built in 1989 on land that had previously been an ARCO service station, a Far West Taxi depot and a number of single-family residential properties. Polk directories show that some of the prior buildings at the Bailey Gatzert site were used as small storefronts, and included former laundries or dry cleaners located at addresses of 1203, 1207, 1219, 1307, 1313 and 1317 Yesler Way. Little due diligence appears to have been conducted at the time the school was constructed.

One 1986 report from City of Seattle archives (Hart Crowser, 1986) indicates there were as many as six underground storage tanks on the former ARCO and Taxi facilities, but does not include a site plan showing their location. Five were fuel tanks ranging from 5,000 to 15,000 gallons in capacity and the remaining tank was a waste oil tank of unknown size. The report addressed tank tightness testing in preparation for their removal, but no further documentation of the tanks or assessment during removal could be found as part of this study. In 1986, underground storage tanks were not yet fully regulated and assessment procedures were not well established.

Based on the local topography and current redeveloped status, all of the former cleaners and tanks on the Bailey Gatzert site would be considered downgradient of the subject property with respect to groundwater migration, so are not likely to be sources of recognized environmental conditions fro the subject site.

To the southwest at 101 Boren Avenue is a former service station (Lloyd's Rocket) that is identified as a leaking underground storage tank site awaiting cleanup. Based on it's relative location, it would also be considered downgradient or cross-gradient, so is not likely to be sources of recognized environmental conditions to the subject site.

Identified Past Uses of Off-Site Properties of Potential Concern
The businesses noted above, the past uses of the King County warehouse and the former developments that pre-date the warehouse are potential off-site sources of contaminants. In particular those former facilities to the north and northwest, including Star Laundry and the King County warehouse are in upgradient positions with respect to groundwater or contaminant migration and should be considered potential sources of migrating contaminants.

As discussed below, WES conducted additional records review of files at the Washington Department of Ecology and recommended additional site investigation both on the property and in surrounding right-of-ways to identify potential soil or groundwater contaminants.

3.0 RECORDS REVIEW

To complete this investigation WES was provided full access to the property and prior environmental reports or data summaries regarding one or more of the subject lots and surrounding area. The previously available reports are identified in Section 9.0, the References section of this report. These documents include a 1992 report addressing the cleanup of petroleum contaminated soil from the former gas station, a 2014 Phase II site investigation of the former service station area, a 2016 Phase I Environmental Site Assessment of the 104 12th Avenue building, and undated data summaries from a follow-up Phase II Site Investigation of the 104 12th building property. A 2014 proposal for a Phase II assessment of the 110-124 12th Avenue properties was also made available, but the work was apparently never completed. The proposal included a summary of findings of another prior Phase I Assessment, but the full Phase I report was not available to this current study for reference.

Prior WES reports regarding the individual phases of investigation are also summarized in this Remedial Investigation Summary Report. These include a 2017 Phase I & II Environmental Site Assessment (WES 2017a), a 2017 Additional Off-Site Environmental Investigation Report (WES 2017b), and a 2018 summary of June-July 2018 Groundwater Monitoring Results (WES 2018).

The above documents were reviewed and information used to supplement the discussions throughout this report.

3.1 Environmental Databases and Ecology File Reviews
One address associated with the subject property was identified in environmental databases. TD Auto Repair at 1209 E. Fir is listed on the Washington State Hazardous Sites List, having been identified by Ecology as a confirmed contaminated site after receiving complaints about illicit dumping. The agency completed a Site Hazard Assessment in 2001.

TD Auto Repair was subject to two site inspection visits by Ecology or the Public Health-Seattle & King County conducted in 1993 and 2001. During the 2001 visit, Ecology's inspector took three near-surface soil samples at the south end of the building and had them analyzed for diesel and

motor oil-range total petroleum hydrocarbons, volatile organic compounds and a list of metals. One of the three samples contained a concentration of 3,200 mg/kg of heavy oil and 1,000 mg/kg of lead, results that exceeded MTCA Method A cleanup levels. Although this sampling is the first indicator of potential pollutants, the scope of sampling was extremely limited. The Site Hazard Assessment Ecology uses to rank the priority of hazardous sites scored the site as a three on a scale of one to five, indicating it was a moderate priority for agency attention and resources. No additional assessment or cleanup actions appear to have been taken to address the conditions noted at that time.

Identified Surrounding Area Sites

Databases also identified contaminated sites in the surrounding area with the potential to be sources of contaminants to the subject property. Star Laundry, on the block to the north of the subject property is awaiting cleanup of releases of tetrachloroethene (PCE) and Nuway Cleaners, at 113 12th Avenue, directly west of the subject site was the subject of an extensive petroleum and PCE cleanup by the Seattle Housing Authority in 2009. In addition the King County Youth Service Center at 12th & Alder Street about 750 feet to the north of the subject site has also reported an extensive plume of PCE contaminated groundwater.

Star Laundry

The Star Laundry site, located at 160 12th Avenue is a former dry cleaning facility that has been confirmed to have had releases of PCE to groundwater. According to publicly available records, the facility was reported to Ecology in 2015, although an earlier investigation in 2004 identified groundwater contamination by PCE, vinyl chloride and cis-1,2-dichloroethene. The source of contamination is apparently a former sump or tank in the southeastern corner of the 160 12th Avenue building, where high concentrations have been reported. That location is about 150 feet north of the subject property 1209 E. Fir St. building. According to a groundwater monitoring report (CRA, 2015), groundwater gradients at the Star property are to the northeast, which is away from the subject property. However, this does not agree with local topography which trends more to the southeast, or the southeasterly gradients confirmed by our subsequent on-site groundwater investigations and other surrounding area documentation. Ecology has conducted a site hazard assessment and listed the property on the Hazardous Sites List. The Star Laundry site ranked three on a scale of one to five, indicating a moderate priority.

Nuway Cleaners

The Nuway cleaners site at 113 12th Avenue underwent extensive cleanup as part of the redevelopment of the property by the Seattle Housing Authority. The Nuway building and adjoining properties have been redeveloped as a 120 unit apartment complex. Approximately 6,081 tons of contaminated soil and 105,000 gallons of water were removed to address releases of solvents from underground storage tanks. Reports regarding the cleanup (GeoEngineers 2009, 2010) identified the contaminants to be stoddard solvent (a petroleum based dry-cleaning fluid), PCE and related breakdown products. Their confirmation sampling was limited to on-site soil and groundwater testing. Although the site was granted no further action status by the Department of Ecology in 2010, the decision was based on very limited groundwater data from only three monitoring wells, with no testing conducted beyond the property boundaries to evaluate whether or not contaminants extended into adjacent right-of-ways.

King County Youth Services
There is also a known plume of PCE further to the north, at 1211 Alder Street, at the King County Youth Services complex. This plume extends to the southeast beyond that property's boundary and the full extent remains unknown. The source area soil has been removed during redevelopment of that property. Based on the distance it is not likely to have migrated to the subject property, but the southern limits of the plume remain unknown.

Based on these potential on-site and off-site sources, WES recommended a Phase II Site Investigation. Site Investigations have continued from 2017 to the present.

3.2 Prior Environmental Site Investigation Reports
Some limited environmental cleanup has been conducted on the former gas station portion of the property and various prior environmental studies have been conducted on parts of the property. Data from prior investigations is included in Appendix E.

1992 RZA-AGRA Level III Site Remediation Report
The former service station on the northwestern corner of the property was demolished in 1990 and five underground storage tanks were removed from the site. Contaminated soil was identified and an unknown volume of petroleum contaminated soil (PCS) was removed from the site before backfilling the excavation with "aggregate fill materials". No direct documentation of the tank removal or that part of the cleanup has been identified by our current study.

In 1991, RZA-AGRA documented additional excavation of PCS (RZA, 1991). Their report summarized their available information about the prior tank removal and initial 1990 cleanup. They conducted further excavation to remove a total of 761 additional tons of PCS. Their report notes that diesel-contaminated soils were encountered near the southern end of the service station lot, extending to a depth of about 20 feet. (This correlates to an elevation of about 195 feet, about nine feet shallower than the proposed redevelopment excavation). They excavated to within 18-20 feet of the adjacent building to the south (110-118 12th Avenue). They encountered gasoline contamination as the excavation proceeded to the north. Their report notes that "gasoline contaminated soils were encountered at depths ranging from approximately 8 to 17 feet below the existing ground surface, assumably in the area of the former gasoline storage tanks and/or product lines." The excavation was extended to within 9 to 10 feet of the sidewalk on the western side of the property and within 25 feet of the north end of the property. The approximate extent of the excavated area is shown in Figure 3.

RZA-AGRA conducted confirmation sampling of the excavation base and sidewalls, as well as stockpiled soil. Nine excavation samples found no residual concentrations of total petroleum hydrocarbons, benzene, toluene, ethylbenzene, xylenes (BTEX) or lead exceeding regulatory limits.

2014 Cardno ATC Phase I ESA, 124 12th Avenue and 1209 E. Fir Street
In 2014, Cardno ATC evaluated the northern parcels including 110 12th Avenue, 124 12th Avenue and the shop addressed 1209 E. Fir Street. Although this report was not available for review as part of this current study, Cardno ATC prepared a proposal for a Phase II Site Investigation that summarized their Phase I findings. They identified the gravel parking lot as a former gas station and found records of five underground storage tanks, including four 1,000 gallon tanks and one 4,000 gallon tank. They found no records of tank removal and apparently did not have access to

the 1991 RZA report. They identified the 1209 E. Fir building as an auto repair since at least 1949 and noted it appears in regulatory databases as "awaiting cleanup" under the TD Auto name. They noted oily water in an oil/water separator near the entrance to the 1209 E. Fir parking lot and surficial staining of floors in the building. They also identified a former dry cleaner in the 118 12th Avenue tenant space. They noted off-site potential sources of contamination to the north, northwest and west. These findings are consistent with the information developed during this current study. It does not appear that Cardno ATC was selected to conduct the Phase II investigation outlined in their proposal.

2014 AEG Phase II Site Investigation, 124 12th Avenue Parcel
Later in 2014, Associated Environmental Group, LLC (AEG) conducted a Phase II Site Investigation limited to the former service station area in the northwestern corner of the property. They conducted a ground penetrating radar (GPR) survey in an attempt to identify tanks and drilled six soil borings in the gravel parking lot, obtaining soil and groundwater samples for laboratory testing.

The GPR survey did not find any remaining tanks, but appeared to locate a disturbed area in the central part of the property. This location is consistent with RZA's site plan showing the extent of excavation and the potential former tank locations based on the known layout of the building and pump island. Their soil sampling found three locations with detectable petroleum hydrocarbons or fuel-related volatile organic compounds. At two of those locations the reported concentrations exceeded Washington State Model Toxics Control Act (MTCA) Method A soil cleanup levels.

Groundwater samples were obtained from five of the six borings. Two of those contained concentrations of gasoline-range total petroleum hydrocarbons (TPH-G), benzene, and xylenes. At both locations the reported benzene concentration exceeded MTCA Method A groundwater cleanup levels. At one location, the groundwater contained a very high concentration of TPH-G; 14,000 ug/l compared to a MTCA method A groundwater cleanup level of 800 ug/l. The impacted soil and groundwater areas correspond to the former pump island area of the service station and the southern part of the parcel, adjacent to the suspected former diesel tank area. Although these findings identified a reportable quantity release, the information was apparently not submitted by the property owner to the Department of Ecology, as required by law.

2016 Farallon Phase I and II Site Investigations, 104 12th Avenue Building and Parking Lot
In 2016, Farallon Consulting conducted a Phase I ESA and Phase II Site Investigation on the 104 12th Avenue building and adjacent parking lot to the east. The Phase I report and draft data summaries from the Phase II were made available for this current study. Farallon identified the prior 104 12th Avenue building uses for auto repair and fertilizer manufacturing, as well as the off-site uses of adjacent properties as potential sources of recognized environmental conditions.

Farallon conducted a Phase II Site Investigation that drilled 12 soil borings and installed six groundwater monitoring wells on the two parcels. Soil and groundwater samples were analyzed for petroleum and solvent related volatile organic compounds. It is unclear if a final report of their findings was prepared. WES was provided with draft diagrams showing the sampled locations where soil or groundwater contained detectable contaminants, and a draft groundwater contour diagram indicating a general gradient to the southeast across the parking lot parcel. No actual laboratory reports, bore logs or other data summaries were available.

Farallon reported concentrations of diesel and oil-range total petroleum hydrocarbons (TPH-D and TPH-O) in soil near a small oil/water separator in the southwestern corner of the building and one sample from near the northwestern corner of the building containing a low but detectable concentration of cis-1,2-dichloroethene (C12DCE). C12DCE is typically encountered as a daughter product of the breakdown of PCE in the environment. None of the detected soil concentrations exceeded MTCA soil cleanup criteria.

Groundwater samples were taken from soil borings using temporary screens and six permanently constructed monitoring wells. Farallon reported finding TPH-D and TPH-O exceeding MTCA Method A cleanup levels in a monitoring well installed near the oil/water separator in the southwest corner (MW-3) and a boring two feet away (FB-10). Those samples also contained low but detectable concentrations of C12DCE and VC. The reported VC exceeded the MTCA Method A groundwater cleanup level of 0.2 ug/l. C12DCE and VC were also reported in monitoring wells in the northern part of the southeast parking lot (MW-1 and MW-5), where VC was reported at concentrations of 0.62 and 0.92 ug/l, respectively. These were the only reported concentrations of any detected groundwater contaminants that exceeded MTCA Method A cleanup levels.

Subsequent investigations have been conducted in these areas which have found varying results. WES' groundwater investigation has shown that the monitoring wells installed by Farallon were not adequately developed to provide sediment-free samples, which may have biased their initial results. In particular, repeated sampling of MW-3 has found no detectable concentrations of any of the analyzed parameters, not corroborating their initial findings. Repeated sampling of MW-1 has found VC in three out of five sampling events, but not at concentrations reported by Farallon. In repeated sampling from MW-5, the groundwater samples have contained PCE and TCE as well as C12DCE and VC, not reported by Farallon. Based on the subsequent investigations the Farallon data is not included in this summary report or used as the basis for interpretation of the site conditions or cleanup action planning. Since no bore logs or soil sample data were available for Farallon's borings, WES drilled borings adjacent to MW-1 (WES monitoring wells MW-1D and MW-1S), MW-3 (borings WES-2 and WES-3), MW-4 (boring WES-12) and MW–5 (boring WES-11) for soil and additional groundwater characterization.

Farallon left 16 55-gallon drums of investigation-derived waste soil and water in the southern parking lot at the completion of their work, which remain on the property.

2016 Med-Tox NW Hazardous Building Materials Survey, 104 12th Avenue
As part of their Phase I Farallon subcontracted Med-Tox NW to conduct a Hazardous Materials Building Survey of the 104 12th building. The survey checked for asbestos containing materials (ACM), lead paint, PCB-containing equipment and other hazardous or regulated substances. The study found confirmed ACM flooring in the first and second-floor restrooms and 9"x9" floor tile and mastic that are both ACM. The total quantity of each material was estimated to be less than 420 square feet. The study did not have access to the roof, so it was assumed to be ACM. The study identified lead based paints on the building interior and exterior surfaces. Fluorescent light fixtures were assumed to be PCB-containing and bulbs counted as Universal Wastes, requiring special handling. Several mercury-containing light switches were identified. This survey was suitable for a property transaction review but would most likely not be comprehensive enough to serve as a demolition-oriented survey that would be required by the Puget Sound Clean Air Agency (PSCAA) as part of their permitting process.

Prior WES Reports
WES has conducted site investigations since 2017, documented by three prior reports. The findings of our 2017 *Phase I & II Environmental Site Assessment* (WES, 2017a) and *Additional Off-Site Environmental Site Investigation Report* (WES, 2017b), as well as additional groundwater monitoring documented in an August 2018 summary report (WES, 2018) are incorporated in this Remedial Investigation Summary along with subsequent investigations.

3.3 Physical Setting
A portion of the United States Geological Survey (USGS) 7.5 minute topographic maps of the area of the site are used as the base map for Figure 1. The site has an overall slope, but has been leveled in the northern and southern parts of the property. The site is at an elevation of about 218 feet above Mean Sea Level at the northwestern corner and about 197 feet in the southeastern parking lot. The surrounding area is also generally sloping to the southeast.

There are no surface water bodies or flow channels on or adjacent to the subject site.

The site and vicinity is situated within the Puget Lowlands of Western Washington. This is a north-south trending trough, with the Olympic Mountains to the west and the Cascade Range to the east. The topography is dominated by north-south trending valleys and low ridges cut by streams. The area of the site is characterized by glacial sediments deposited from the Frasier glaciation, ending approximately 13,000 years ago. Surface geology is dominated by glacial till consisting of massive unstratified and unsorted silt, sand, and gravel, often extremely dense. Beds of thick till often contain discontinuous lenses of more permeable material. The upper surfaces of till units are weathered and reworked by alluvial processes.

Perched groundwater frequently occurs in the sandier lenses. The direction and gradient of groundwater migration typically follows topography in these perched zones.

Native soil should be expected to be dense silty and clayey sand, sometimes interlayered with silty sand with gravels. Due to the prior grading in the area before the site was developed, there is extensive fill extending to depths of up to 20 feet, overlying buried topsoil. The fill is soft and poorly consolidated. (Geotechnical investigations have been completed that supplement the soil characterization in this report.)

Shallow groundwater was encountered during the prior site studies and site investigation discussed below. Shallow groundwater was encountered within two feet below the floor slab of the lower level of the 104 12th Avenue building, but at depths of about 16 feet in the northwestern gravel parking lot.

3.4 Site Features and Conditions
Conditions of note on and around the subject properties:

Landfill, Dumping or Disturbed Soils
Much of the property has been filled with poor quality material during early regrading of the 12th Avenue right-of-way. There is a slope downward from the northern parking lot to the central part of the property that appears to consist mostly of fill soil. The fill contains visible brick and other debris. This area was the subject of interest in Ecology's 1993 and 2001 site inspections where some dumping had been noted. Minor evidence of stained or

discolored soil was observed in this area, where the ground surface begins to slope to the south. Other than this, there does not appear to be a significant history of illicit dumping or recently disturbed soils.

Above Ground or Underground Storage Tanks
There is no visible evidence of current above ground or underground storage tanks on the properties. Records indicate five underground tanks were at one time present at the former service station in the northwestern property corner, but none are known to remain on site. One small tank is also documented to have been installed and removed from the sidewalk area on the south side of the 104 12th Avenue building.

Septic Systems
City supplied sanitary sewer has been available to this area since the time these buildings were originally constructed, so there is no reason to suspect historical septic systems. There is no visible evidence of any prior septic systems.

Drinking Water Wells
City supplied water has been available to this area since the time these buildings were constructed. No record of drinking water wells on-site or in the surrounding area were identified during this study.

Sumps and Oil/Water Separators
Three sumps were identified on the property. Two are oil/water separators, one located in the lower level of the 104 12th Avenue building and a second in the parking lot to the east of 1209 E. Fir. The 104 12th separator has been consistently dry throughout this investigation. There is also a sump that appears to collect drainage from the roof of the paint booth addition near the southeastern corner of the 1209 E. Fir building.

4.0 SITE REMEDIAL INVESTIGATIONS

WES has conducted three large-scale phases of environmental investigation of the site and surrounding right-of-ways to evaluate soil and groundwater conditions. A total of 73 additional soil borings have been drilled throughout the property and surroundings, installing 13 additional monitoring wells beyond the original six installed by Farallon and submitting 104 soil and 90 groundwater samples for laboratory analyses. The locations of soil borings and monitoring wells drilled for these site investigations are shown in Figure 3.

4.1 Investigation Chronology
Initial investigations were conducted between April and August 2017, drilling 29 bores on site and 12 in the right-of-ways on the north, south and west sides of the property. Forty-six on-site soil samples and 22 off-site soil samples were selected for laboratory testing. One-time reconnaissance groundwater samples were taken from 22 of the on-site bores and nine of the off-site bores. Three additional monitoring wells were installed (MW-7, MW-8 and MW-9) and the network of new and existing wells were developed, purged and sampled. Three sub-slab soil vapor samples were taken from the 104 12th Avenue building.

In June and July 2017, Geotech Consultants, Inc. drilled six bores for engineering purposes on the site. The Geotech bores did not provide environmental sampling data, but helped define additional geologic conditions to greater depth than the environmental sampling.

In November 2017 SoundEarth Strategies, Inc. drilled one soil boring in the southeastern corner of the property as part of a potential buyer's due diligence. That boring was complete as a monitoring well (now designated MW-10).

In September 2018, Geotech Consultants drilled three additional soil bores for engineering purposes. Piezometers were installed in the bores for limited pump tests required for foundation and drainage design of the proposed new structure. WES observed the drilling and obtained six environmental soil samples in cooperation with Geotech. The piezometers were developed and brief pump tests were attempted, but the measured flow rates were too low to provide adequate design information. After additional purging and development, WES sampled these piezometers and concluded that their construction and function are suitable for use as resource protection monitoring wells. These wells have been designated GEO B-7, GEO B-8 and GEO B-9.

In July to October 2019, WES conducted additional investigations to better define areas of contamination and install additional permanent monitoring wells. This work was conducted to address comments from the Washington Department of Ecology and changes to the proposed building design that warranted additional testing in specific areas of the site. A ground penetrating radar survey was conducted in the basement of the 104 12th Avenue building and the former area of the underground storage tank in the sidewalk area adjacent to the south side of the building.

Seventeen soil borings were drilled and sampled, six of which were converted to permanent monitoring wells, including a set of nested wells near the northeastern corner of the southern parking lot (designated MW-1S and MW-1D). These wells are intended to demonstrate conditions at different depths in the subsurface. Other monitoring wells were installed along the eastern edge of the southeast parking lot (MW-11); in the southeastern lot at a position near the leading edge of the groundwater plume (MW-12); in the sidewalk near the southwestern corner of the site (MW-13) and near the former dry cleaner tenant space in the 118 12th Avenue tenant space (MW-14). Two five-foot deep borings were converted to deep soil vapor probes in the southeastern parking lot (designated DSVP-1 and DSVP-2). Thirty soil samples and two deep soil vapor samples were submitted for laboratory testing. Eight one-time reconnaissance groundwater samples were obtained from temporary wells at those locations where permanent wells were not installed and each of the new monitoring wells were developed, purged and sampled.

Throughout the time of investigation periodic groundwater sampling has been conducted. Full rounds of all site monitoring wells have been completed during the initial investigations in April - August 2017, in June 2018 and during the recent additional investigations of July 2019. Partial sampling events to determine specific site conditions were completed in October-November 2017, December 2018 and February 2019.

4.2 Field Drilling and Sampling Procedures

WES subcontracted ESN Northwest, Inc. for all environmental field drilling in the 2017 and 2019 site investigations. Geotechnical borings were drilled by Geologic Partners, Inc., under the direction of Geotech Consultants, Inc.

Due to access constraints, some of the borings were drilled using a small tractor-mounted rig, while others were conducted with larger, truck-mounted Geoprobes. Environmental borings were drilled by direct-push methods, hydraulically driving a two to five-foot long sampler to obtain continuous soil samples throughout the drilled depth. Sample recovery was sometimes limited by loose or exceptionally dense soil conditions. The samplers were cleaned prior to each sampling attempt and were equipped with new acetate liners which isolated the sample from contact with the body of the sampler. Details of the depths drilled, sample intervals and conditions encountered are noted on boring logs, included in Appendix C.

Three borings were hand augered in the crawlspace beneath the 110-118 12th Avenue building where low ceilings and poor access prevented using drilling equipment. Disturbed but representative soil samples were obtained from the auger cuttings at distinct depths below the ground surface. These borings were designated HA-N, HA-S and HA-3. Due to the disturbed nature of sampling from hand augered borings, no bore logs have been prepared for these borings. The deep soil vapor probes were installed by driving the sampler to a depth of five feet with a steel sacrificial point, so no soil sampling was conducted at those locations.

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

Environmental borings were drilled to depths ranging from four to 40 feet below the ground surface. In most cases, drilling extended to a depth that allowed sampling from the first encountered groundwater conditions, typically 12 to 16 feet. In the northern higher elevation part of the site borings extended to depths of 15 to 30 feet. Geotechnical borings were drilled to depths of 36.5 to 54 feet below the surface.

At the final depth of each boring, it was checked for standing water in the borehole. Groundwater seepage was encountered in most of the borings. If no permanent monitoring well was planned for the boring, a 1-inch diameter factory-slotted PVC well screen was installed as a temporary well to allow one-time reconnaissance groundwater sampling. The screen was purged to remove sediment using a peristaltic pump equipped with new polyethylene tubing. In most cases, recharge to the screen was sufficient to allow pumping until turbidity was reduced and relatively clear water could be obtained. Several of the boreholes produced very little recharge and sampling was limited to small quantities of turbid water. Low flow conditions were particularly encountered in the borings drilled in or near the southwestern corner of the property (WES-2, WES-3, WES-15) and off-site borings along the southwest and west sides of the site (OS-4, OS-5 and OS-6, OS-10, OS-11 and OS-12).

After drilling and sampling was completed, if no monitoring well was planned the borings were sealed with bentonite and surficial asphalt or concrete patches were placed at the ground surface to match the surrounding surface.

4.2.1 Monitoring Well Installations

Permanent monitoring wells were installed in 13 borings. At borings WES-8 (now designated MW-7), BN-7(now designated MW-8), MW-1D, MW-11, MW-13 and MW-14, the borehole was expanded by driving a 4-inch diameter casing with a sacrificial steel tip

to the planned well depth. At borings MW-1S and MW-12, after initial sampling, the rig was off-set by about two feet and the 4-inch casing was driven to the planned well depth. In borings BN-10 (now designated MW-9), MW-10, GEO B-7, GEO B-8 and GEO B-9, hollow stem auger was used to drill to the planned well depths.

In each of these borings a 2-inch diameter Schedule 40 PVC slotted well screen was installed, flush threaded to PVC riser pipe extending to the ground surface. The screen section was surrounded by a silica sand filter pack and a bentonite seal was installed to prevent surface water intrusion. A protective steel monument was installed in concrete at the ground surface.

At the nested well location, monitoring well MW-1D was installed with a five-foot long screened section at a depth of 35-40 feet. Monitoring well MW-1S was installed with a 10-foot long screen section at a depth of 5-15 feet in an adjacent boring.

Once installed, the new monitoring wells were developed by surging and pumping to reduce sediment and improve communication with the surrounding formation. After allowing the wells to stand for several weeks, they were purged and sampled using a peristaltic pump equipped with new polyethylene tubing. Existing monitoring wells from the prior Farallon investigation of the 104 12th Avenue building were accessed and existing dedicated polyethylene tubing was removed and discarded. These wells were also developed by surging to the extent possible, however three of the six wells are 3/4-inch diameter PVC, which limited the extent to which the wells communicate with the surroundings. All of the site wells have been equipped with dedicated poly tubing for future sampling.

4.2.2 Soil Vapor Sampling

Three sub-slab and two deep soil vapor samples were obtained during this remedial investigation. Sub-slab samples were taken in the basement of the 104 12th Avenue building by drilling small diameter holes through the concrete floor and installing stainless steel sampling pins wrapped in silicone tubing into the holes. Deep samples were obtained from dedicated soil vapor probes installed at a depth of five feet below the ground surface in the southeastern parking lot. Each deep vapor probe consists of a 1-inch porous stainless steel tip attached to teflon tubing, surrounded by a silica sand filter pack extending approximately six inches above and below the tip. The remaining borehole was sealed with bentonite to the ground surface.

For each sample, the sampling point was attached to a laboratory-evacuated Summa canister using a teflon tubing manifold with control valves. The manifold tubing was wrapped in paper towel soaked in ethanol and held in a plastic hood to provide a leak indicator in subsequent laboratory analyses. The manifold was purged of air and allowed to stand for a minimum of five minutes at vacuum as a leak test. Then the canister control valve was opened until the vacuum in the canister reached a pre-set level. The sample canisters were sealed and submitted to the laboratory immediately after sampling.

4.2.3 Periodic Groundwater Monitoring

Periodic groundwater monitoring has been conducted which includes measuring water levels and sampling. Water level measurements are taken relative to a measuring point on the top of well pipe that has the elevation established by a licensed surveyor.

Sampling is conducted using peristaltic pumps with dedicated polyethylene tubing to purge and sample the wells. Where possible, sampled wells have been purged of a minimum of three standing well volumes. Wells MW-3, MW-5 and MW-14 typically pump dry before that volume is reached and are allowed to recharge, then pumped again for at least three cycles prior to sampling.

Field measurements of the groundwater temperature, pH and conductivity are taken as indicators of stability during pumping. During sampling, the pump flow rates are reduced to approximately 40 ml/minute to fill containers. Representative samples are placed in laboratory prepared vials and bottles appropriate for the planned analyses, chilled and held under chain-of-custody following appropriate environmental sampling procedures, until delivered to the laboratory.

4.3 Field Observations

During the ground penetrating radar (GPR) survey, the operator found no evidence of remaining underground storage tanks or other discernable features in the reported former tank area or below the basement floor of the 104 12th Avenue building.

During drilling, the samples were reviewed for soil classification purposes and any field detectable evidence of soil and groundwater contamination, such as staining, odors, elevated photoionization meter measurements, discoloration or liquid petroleum. Bore logs detailing the conditions encountered are included in Appendix C.

Shallow soils consisted of silty and clayey sand and silty clay with varying amounts of gravel and organic material, interpreted to be fill. This soil typically extended to depths of four to eight feet, but in some borings beneath the 104 12th Avenue building floor slabs, was limited to as little as one to two feet. In borings BN-11, BN-12, BN-13, BN-14 and BN-15 on the higher elevation part of the site the fill extended to depths of between 18 and 20 feet.

Below this layer, the borings encountered organic silty soils that may have been a former topsoil horizon, overlying relatively dense silt or clayey sands extending throughout the depths drilled. The native soils would be characterized as glacial till or weathered and alluvially re-worked till. There are occasional strata of fine to medium sand interspersed in the otherwise silty and clayey soil which form relatively discontinuous water-bearing zones.

None of the borings encountered underground storage tanks or other buried structures. Off-site boring OS-3 was drilled in the immediate area where the former small underground tank was reportedly installed then removed from the south side of the 104 12th Avenue building in the 1920s, but found no indication of a tank or petroleum impacts.

There was evidence of discoloration or petroleum odors, elevated PID measurements, sheens or staining at seven of the on-site borings. These borings were located in the southwestern and southeastern parts of the lower level of the 104 12th building (WES-1 and WES-2); near the former location of the service station pump island (BN-7 and BN-16); at the south end of the northwestern parking lot, south of the formerly excavated underground storage tank area (BN-9 and BN-10); and in the crawlspace beneath the 118 12th Avenue tenant space (HA-N). No off-site borings evidenced field indications of petroleum impacts.

4.4 Laboratory Testing of Environmental Samples

Based on the observed conditions, a program of laboratory testing was conducted on soil samples from each boring. A total of 104 soil samples, 90 groundwater samples, three sub-slab and two deep soil vapor samples have been analyzed. All laboratory testing was completed within appropriate holding times and met the quality assurance/quality control requirements of the project. Sample analyses were completed with detection limits appropriate for comparison to applicable regulatory criteria.

Soil samples were selected for laboratory testing from all soil intervals that had field observable indications of potential petroleum impacts. In most cases an underlying sample was also selected to evaluate the vertical extent of contamination. In borings with no field detectable odor or discoloration, soil samples were selected from the depths deemed most susceptible to impacts from the potential sources, or demonstrating conditions at important depths below the ground surface.

The selected sample depths, general boring locations and sampling dates are noted in Table 2. The selected samples were submitted to Friedman & Bruya, Inc., a Washington-state certified laboratory, for environmental analyses.

4.4.1 Laboratory Analyses

Soil Samples

The laboratory analyses conducted on soil samples are summarized in Table 2.

Nineteen selected on-site and 16 off-site soil samples were tested for total petroleum hydrocarbons (TPH) in the gasoline, diesel and motor oil-ranges by Washington method NWTPH-HCID. This test can identify the presence of hydrocarbons above a threshold detection limit, but cannot accurately quantify the findings. Any detection requires follow-up analysis for the appropriate range of petroleum to compare the analytical result with Washington State Model Toxics Control Act (MTCA) soil cleanup criteria. Two of these samples required follow-up testing for detected oil-range petroleum hydrocarbons.

Thirty-three on-site and nine off-site soil samples were analyzed for gasoline-range total petroleum hydrocarbons by Washington method NWTPH-G. These samples were also tested for the volatile organic compounds benzene, toluene, ethylbenzene and xylenes (BTEX), often associated with gasoline, using EPA Method 8021B, or a wider list of volatile organic compounds using EPA Method 8260C. This analysis can identify and quantify a list of 63 volatile organic compounds, including petroleum constituents, solvents associated with dry cleaning and related breakdown products. A total of 59 selected soil samples were analyzed for volatile organic compounds by this method.

Twenty-three on-site soil samples were analyzed for diesel and motor oil-range total petroleum hydrocarbons by Washington method NWTPH-D (extended).

Sixteen on-site samples were tested for total lead by EPA Method 200.8. Of those, 11 samples were analyzed for a list of five commonly encountered regulated metals; arsenic, cadmium, chromium, lead and mercury.

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

Groundwater Samples
The laboratory analyses conducted on groundwater samples are summarized in Table 3. In the initial 2017 site investigations all 40 on-site and off-site groundwater samples were analyzed for volatile organic compounds using EPA Method 8260C. Twenty-one samples were also analyzed for gasoline-range total petroleum hydrocarbons by Washington method NWTPH-G. Twenty-nine samples were tested for diesel and motor oil-range total petroleum hydrocarbons by Washington method NWTPH-D (extended).

In the full testing rounds in 2018 and 2019 groundwater analyses have included gasoline, diesel and motor oil range TPH by Washington Methods NWTPH-G and D (extended), as well as volatile organic compounds by EPA Method 8260C. In 2019, 15 samples were also analyzed for total lead by EPA Method 200.8.

Other more limited rounds of testing have been conducted for specific purposes, and typically included testing limited to volatile organic compounds. Individual tests have also included testing for TPH or lead.

The results of all laboratory testing of groundwater samples are summarized in Table 3. The table includes the MTCA groundwater cleanup criteria used to determine whether or not the sample results meet State requirements.

Soil Vapor Sample Analyses
The three sub-slab and two deep soil vapor samples were analyzed for a list of volatile organic compounds by EPA Method TO-15. This method can detect and quantify a list of 78 different volatile compounds at extremely low levels. The results are compared to screening levels outlined in Ecology's draft *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action* (Ecology Publication 09-09-047, with updated screening level tables in 2015).

The results of all laboratory testing of soil vapor samples are summarized in Tables 4 and 4A, for sub-slab and deep soil samples, respectively. The table includes the draft sub-slab and deep soil screening levels.

5.0 PHASE II INVESTIGATION RESULTS AND CONCLUSIONS

5.1 Soil and Groundwater Conditions
As noted above, soil conditions consist of a layer of relatively unconsolidated fill containing organic material and debris, overlying brown to grayish brown clayey sand and gravel interpreted to be glacial till, or weathered, till-derived sediments. Where present, groundwater was encountered in sandier zones, including thinly layered interbeds in otherwise silty soil. These sandy zones are only partially continuous across the site. Cross sections demonstrating the interpreted geologic stratification within the depths drilled are attached as Figures 4A, 4B and 4C. A cross section orientation plan is included as Figure 4.

The extent of fill appears to be greatest in the northwestern part of the property, where depths of up to 20 feet have been encountered. The fill depths generally coincide with historical street grading profiles from the City of Seattle engineering archives, which show the original ground surface profile and final grade of the right-of-ways of 12th Avenue and Yesler Way. The grading occurred prior to any of the known developments of the property. In particular, 12th Avenue was filled extensively with soil taken from a localized high area directly north of Fir Street. This suggests the on-site fill dates to about the time the adjacent streets were constructed.

Below this layer, the borings encountered organic silty soils that may have been a former topsoil horizon, overlying relatively dense silt or clayey sands extending throughout the depths drilled.

Groundwater was encountered in sandier zones ranging from thin fine sand laminae within silt units to thicker water-bearing zones up to four feet in thickness. In general, groundwater flow is limited, particularly along the west side and southwestern corner of the property. Monitoring well MW-3 pumps dry after only a limited volume and one-time reconnaissance samples from nearby borings WES-15, OS-5 and OS-6 evidenced limited flow. No groundwater sample could be obtained from boring OS-4, OS-10 or OS-11. Monitoring well MW-13, installed in this area extended to a depth of 20 feet, to reach a more consistent seepage zone and provides adequate sample volumes.

Preliminary pump tests conducted by Geotech Consultants for foundation drainage design found yield rates of 0.1 gallon per minute or less from monitoring well GEO B-8, a 2-inch diameter monitoring well screened from depths of 20 to 35 feet. The engineer's preliminary estimate is that less than 2 gallons per minute would be generated along the entire perimeter foundation wall of the proposed building, a length of about 840 feet. Other site locations may produce more water, but this finding is typical of most of the low flow areas of the site.

Water level measurements have been taken throughout this remedial investigation. Table 5 summarizes the top-of-pipe elevation for each well, the depth to groundwater and the groundwater elevation at each well during monitoring events.

Measurements show that groundwater ranges in depth from 1.69 to 15.76 feet below the top of pipe of the monitoring wells. The depths represent groundwater elevations within a range of 186.53 to 202.38 feet. There is a significant difference in water elevation from the highest elevations in the northwest to lowest levels in the southeast, indicating a relatively strong overall gradient of 0.03 to 0.04 foot/foot to the southeast across the site. The gradient is flatter across the northern part of the site but steepens to 0.06 to 0.075 across the southeastern parking lot.

Figures 5A through 5H show the inferred contour of the groundwater surface and anticipated direction of migration for eight sets of measurements dating from October 2017 to September 2019. The water levels in individual wells vary by as much as 3.15 feet seasonally, with the lowest water levels noted in September measurements and the highest in February. The inferred direction and gradient of groundwater migration remain relatively consistent in all measurement sets.

One set of water level measurements have been taken in the nested well set MW-1D and MW-1S. The measurements demonstrate an upward vertical gradient, suggesting the lower water-bearing formation is under hydraulic pressure and is most likely isolated from the shallower water-bearing zones. This reduces the potential for shallow contaminants to reach underlying aquifers.

5.2 Soil Sample Analytical Results

This site investigation identified evidence of impacts to soil by petroleum at seven of the tested locations that exceeded MTCA Method A soil cleanup criteria. Three other on-site samples evidenced lead at a concentration exceeding the MTCA Method A cleanup level. Only one soil sample contained detectable concentrations of any chlorinated volatile organic compound that would indicate dry cleaning chemical releases to soil; a shallow sample from WES-16, on the northern edge of the southeastern parking lot adjacent to the King County Archives warehouse. This sample contained 0.12 mg/kg of PCE, with no detectable concentrations of any breakdown products, suggesting it is located near the source area of contamination.

No off-site borings encountered any field or laboratory evidence of soil contamination above cleanup levels for any analyzed parameter. However, all off-site borings were conducted in the public right-of-ways to the north, west and south of the property. Due to access restrictions, no borings could be drilled on the adjoining King County property to the north of the southeastern parking lot.

The most commonly encountered soil contaminant was gasoline-range petroleum hydrocarbons (TPH-G), found in seven samples from five different borings. These correspond to the former service station pump island area (borings BN-7 and BN-16); the former service station tank area beyond the limits of the former cleanup (boring BN-10) extending under the northern edge of the adjacent 118 12th Avenue tenant space (boring HA-N); near the southeastern corner of the 104 12th Avenue building (boring WES-1) and near the floor sump near the southwestern corner of the 104 12th building (boring WES-2). The highest reported TPH-G concentration was 1,100 mg/kg, units equivalent to parts per million (ppm). The MTCA Method A Cleanup level is 30 mg/kg for gasoline mixtures where benzene is present.

Only three soil samples taken from borings BN-7 and BN-16, evidenced any volatile organic compounds above MTCA Method A cleanup levels. In BN-7 a sample from 12 feet below the ground surface contained ethylbenzene (6.8 mg/kg) and xylenes (59 mg/kg), exceeding the 6 and 9 mg/kg cleanup levels, respectively. A deeper sample from 17 feet showed greatly reduced concentrations, but contained benzene at 0.033 mg/kg, slightly above the MTCA Method A cleanup level of 0.03 mg/kg. In BN-16, one sample from a depth of 15 feet contained xylenes at a concentration of 9.4 mg/kg. A deeper sample from 17 feet did not contain any detectable gasoline or BTEX compounds. Both of the 17 foot deep samples define the lower limit of contamination, at elevations about 13 feet above the proposed depth of excavation for the new structure.

Motor oil-range TPH was found to exceed the MTCA Method A cleanup level at only one location, corresponding to the area of the service bay in the former service station (boring BN-8). The reported motor oil-range TPH concentration was 3,300 mg/kg, compared to a MTCA Method A cleanup level of 2,000 mg/kg. This boring is within a few feet of the pump island contamination defined by borings BN-7 and BN-16 and can be considered part of a single cleanup area.

Lead exceeding the 250 mg/kg MTCA Method A cleanup level was detected in two samples from near the south end of the 1209 E. Fir building and another sample from the southeastern parking lot adjacent to the King County warehouse. A sample from 12 feet in boring BN-11 contained a reported lead concentration of 330 mg/kg. Another sample from 10 feet in boring BN-17 contained 410 mg/kg. Deeper samples from 13 and 15 feet in BN-17 contained 32.6 and 2.86 mg/kg of lead,

respectively, defining the lower limit of this material. A shallow sample from one foot below the surface in WES-16 contained 883 mg/kg of lead and 2.13 mg/kg of cadmium, while a deeper sample from six feet contained 3.42 mg/kg of lead, defining the lower limit of contamination.

Figure 6 notes the boring locations where soil concentrations were detected exceeding MTCA Method A cleanup levels and the estimated extent of soil contamination at these areas. Reported detections from AEG's 2014 site investigation have been included in this figure as an overall summary of known site conditions.

The findings suggest there are six areas of the site where impacts by petroleum constituents or lead exceed current Washington State Model Toxics Control Act (MTCA) Method A cleanup criteria. Each of these are distinct and separate areas, with estimated volumes ranging from approximately 100 to 800 cubic yards of contaminated soil.

A total volume of 1,500 to 3,000 cubic yards (or 2,400 to 5,000 tons) of impacted soil is estimated, extending to a maximum depth of approximately 18 to 20 feet below the ground surface in the former gas station area, 12 to 14 feet on the south end of the 1209 E. Fir building and eight to 10 feet beneath the basement of the 104 12th building. In all of these areas the proposed depth of excavation will be at least four to 13 feet deeper than the lowest identified contaminated soil. In the north edge of the southeastern parking lot, contamination was limited to the top few feet. These soils will need to be removed, even though this area will only be partially excavated for construction purposes.

5.3 Groundwater Sample Analytical Results

Impacts to groundwater exceeding MTCA Method A cleanup levels were found in eight of the one-time reconnaissance samples from tested on-site borings and one or more samples from the periodic testing of nine of the 19 monitoring wells. No off-site borings encountered any field or laboratory evidence of groundwater contamination above cleanup levels for any analyzed parameter.

The most widespread groundwater contaminants at levels of concern were TPH-G, TPH-D and vinyl chloride. The locations where petroleum related compounds were detected generally correspond to the areas of soil contamination (WES-1, WES-4, HA-S, MW-8 and MW-9) and one relatively low level detection in a reconnaissance sample that may be attributed to the limitations of temporary wells (WES-10 where a motor oil concentration of 530 ug/l was reported).

TPH-G and benzene were encountered above MTCA Method A groundwater cleanup levels in the former service station area in initial samples from monitoring wells MW-8 and MW-9. Subsequent periodic sampling has shown reduced concentrations in both these wells in 2018 and 2019. In the July 2019 sampling neither of these wells demonstrated conditions above MTCA Method A groundwater cleanup levels for any analyzed parameter.

TPH-D was also found at some of these locations, and as with soil samples, the laboratory found the chromatograms did not match the laboratory standard for diesel, suggesting much of the reported concentration may be organic matter and degraded gasoline-range TPH. TPH-D and/or TPH-O were also identified in borings in the basement of the 104 12th Avenue building (borings WES-1 and WES-4) and in one boring beneath the 118 12th Avenue tenant space (HA-S).

A variety of other petroleum related volatile organic compounds were also detected but at concentrations below MTCA Method A cleanup levels (or Method B standard formula values, for those compounds not included in Method A tables). Two periodic samples from monitoring well MW-8 have contained 1,2,4-trimethylbenzene at concentrations of 180 and 150 ug/l, above the MTCA Method B standard formula value of 80 ug/l. Concentrations of all petroleum related compounds in this well have been decreasing over time and in the 2019 sampling no parameters exceeded cleanup levels.

Vinyl chloride (VC) appeared at low levels in three different areas of the site. Where detected, VC is at or exceeds the MTCA Method A groundwater cleanup level of 0.2 ug/l. Vinyl chloride is associated with the breakdown of tetrachloroethene (PCE) and trichloroethene (TCE) in the environment.

An apparent VC plume was identified through groundwater samples in the northern part of the southeastern parking lot (borings WES-11, WES-13 and monitoring wells MW-1, MW-1S, MW-5 and GEO B-9). Boring WES-11 was drilled to characterize soil in the vicinity of Farallon's MW-5 in the parking lot adjacent to the southern wall of the King County warehouse. This location appears to be at or near the center of a plume of chlorinated solvents extending onto the site from beneath the warehouse. Samples from monitoring wells MW-10, MW-11 and MW-12 and borings OS-1 and WES-10, have not detected any volatile organic compounds exceeding MTCA Method A cleanup levels, defining the southern and eastern edges of the plume. Monitoring well MW-1D demonstrates that contamination does not extend to the deeper water-bearing zone.

TCE and PCE have also been detected in the plume, exceeding MTCA Method A groundwater cleanup levels. TCE was found in reconnaissance samples from borings WES-11, WES-13 and periodic samples from monitoring well MW-5, at concentrations ranging from 5.0 to 17 ug/l. PCE was detected in the reconnaissance sample from boring WES-11 at 12 ug/l. Lower levels of PCE and cis-1,2-dichloroethene (C12DCE) have been detected in samples from WES-13 and MW-5, but at concentrations below applicable cleanup levels.

Vinyl chloride and low levels of C12DCE were also found in one reconnaissance groundwater sample from hand augered boring (HA-N) beneath the 118 12th Avenue tenant space and a sample from adjacent monitoring well (MW-14). No PCE was detected in either of these locations, indicating the chlorinated compounds are more highly degraded than observed in the plume near MW-5. This area appears to be distinct and cross-gradient from the main plume of chlorinated solvents. Groundwater samples from borings BN-1, BN-3, BN-4 and monitoring well MW-2 are at locations that would be downgradient or between the 118 12th tenant space and the plume, but do not demonstrate chlorinated solvents.

An initial sample from MW-3 near the floor sump in the basement of the 104 12th building also contained VC, but five subsequent samples have not contained any detectable volatile organic compounds or TPH.

One of three periodic samples from monitoring well MW-6 has contained C12DCE at 17 ug/l, above the MTCA Method B standard formula value of 16 ug/l. Two prior periodic samples have contained C12DCE, but below the cleanup level.

Figure 7 notes the boring locations where groundwater concentrations have been detected exceeding MTCA Method A cleanup levels. It includes a summary of the detected compounds and maximum concentrations detected at each location. Reported detections from AEG's 2014 site investigations have been included in this figure as an overall summary of known site conditions. The estimated extent of the main plume of chlorinated solvent contamination is shown. Based on the direction and gradient of groundwater migration it is apparent that the plume extends from beneath the King County warehouse, north of the southeastern parking lot. On-site samples from borings BN-5, BN-6, BN-11, BN-14 and BN-17, upgradient of the warehouse, have not contained chlorinated solvents, so a source on the King County property is likely.

5.4 Sub-Slab Soil Vapor Sample Results

All three samples of sub-slab soil vapors contained a variety of volatile organic compounds related to petroleum. Two out of three samples also contained chloroform, PCE, methylene chloride or acetone. Of the detected compounds, only three were found at levels that exceed the draft screening levels used to evaluate the potential for vapor intrusion. The reported concentrations of naphthalene ranged from 3.1 to 6.9 ug/m^3 in all three samples, exceeding the screening level of 2.45 ug/m^3. Naphthalene is most commonly found as a component of gasoline and diesel fuels. Chloroform was reported in two of the three samples at concentrations of 5.8 and 96 ug/m^3, exceeding the screening level of 3.62 ug/m^3. Bromodichloromethane was detected in one sample at 5.1 ug/m^3, above the screening level of 2.25 ug/m^3. Both chloroform and bromodichloromethane are most typically associated with municipally-treated drinking water, occurring as a by-product of the chlorine disinfection process. This could suggest leaking water lines in the vicinity of the 104 12th Avenue building. Since these buildings are now vacant and will not be occupied again before demolition no further indoor air assessment is necessary.

5.5 Deep Soil Gas Vapor Sample Results

The two deep soil gas sample probes were found to contain similar suites of volatile organic compounds at relatively low concentrations. Each sample contained a similar list of 19 volatile organic compounds including 13 for which Ecology publishes deep soil gas screening levels. Of the reported detections, one parameter in each deep soil probe exceeded applicable screening levels; in DSVP-1 vinyl chloride contained a reported concentration of 65 ug/m^3, exceeding the screening level of 28 ug/m^3. In DSVP-2 naphthalene was reported at a concentration of 18 ug/m^3 exceeding the screening level of 7.35 ug/m^3.

Screening levels do not directly demonstrate conditions that present a risk for human exposure to hazardous substances. They should be considered an indication that under standard assumptions there is a potential for vapors to enter structures and additional assessment or preventative measures may be warranted. A Tier I assessment of vapor intrusion potential for a new proposed building was conducted, as discussed below.

6.0 CONCEPTUAL SITE MODEL

Chapter 173-340 of the Washington Administrative Code (The Model Toxics Control Act (MTCA)) defines a contaminated site as the full extent of contaminated media, whether on the property where the contamination originated or surrounding properties that have been impacted by the contamination. Based on the history and results of our site investigations, petroleum contaminants

and chlorinated solvents will be encountered on the subject site. The distribution suggests the areas are relatively limited and contaminants originating on-site have not migrated beyond the property boundaries. Chlorinated solvents including PCE and daughter products of its degradation extend in a groundwater plume onto and through the southeastern parcel of the property from an adjoining parcel.

6.1 Areas of Concern and Indicator Substances

Based on the investigations conducted to date, three areas of petroleum impacts to soil and groundwater have been defined; the former gas station at 130 12th, a former auto repair and a floor sump, both located in the lower level of 104 12th. Two areas of chlorinated solvent impacts to groundwater have been identified; a main plume in the southeastern parking lot and a more limited area near the former on-site dry cleaner in the 118 12th Avenue tenant space. Lead contaminated soil has been found in a fill slope near the south end of the 1209 E. Fir Street building and in an area along the north edge of the southeastern parking lot. The area in the southeastern parking lot also contained PCE in shallow soil, which may be an indication that it is close to the source area of the chlorinated solvent plume.

In general, these areas appear to be distinct, with little evidence of co-mingled contaminants. No free-phase petroleum products or chlorinated solvents have been found in any of the site investigations.

Table 6 identifies the contaminants of concern and the maximum identified concentration found by laboratory testing to date. These parameters will be considered the indicator contaminants of concern for cleanup actions in accordance with WAC 173-340-703.

Table 6
104-130 12th Avenue & 1209 E. Fir Street
Indicator Contaminants of Concern

Parameter	***Maximum Detected Soil Concentration (mg/kg)***	***Maximum Detected Groundwater Concentration (ug/l)***
Total Petroleum Hydrocarbons Gasoline: Diesel: Motor Oil:	 780 440 (Below CUL) 3,300	 3,200 1,000 680
Benzene	0.033	11
Ethylbenzene	6.8	85 (Below CUL)
Xylenes	59	432 (Below CUL)
Tetrachloroethene	0.12	12 (Below CUL)
Naphthalene	Not Detected (<0.025)	14 (Below CUL)
1,2,4-Trimethylbenzene	Not Detected (<0.025)	180 (Below CUL)
Trichloroethene	Not Detected (<0.02)	17
Vinyl Chloride	Not Detected (<0.05)	1.9
Lead	330	13.8 (Below CUL)
Cadmium	2.13	ND (<1)

(Below CUL) – Maximum reported value is below applicable Model Toxics Control Act Method A clean up level.
Not Detected (<X.X) – Not detected above the noted laboratory reporting limit. All reporting limits are below CULs.

Although some of these indicator substances have not been detected in the site investigations or are limited to one media, there is a potential that they would be present, given the known history of the site and those related substances that have been detected. Compliance monitoring for these parameters will be included in cleanup action planning as deemed necessary based on field observations.

6.3 Transport Mechanisms

In general, the available information suggests there is low potential for contaminants to be transported beyond the currently identified areas. Since all source activities ceased anywhere from 30 to as much as 70 years ago, it is likely that the current extent of contamination is near an equilibrium between transport and attenuation mechanisms. There is little likelihood of the observed contamination migrating further within the time frames before this cleanup action begins.

Potential transport mechanisms for contaminants have included leaching by infiltration that could drive migration of contaminants downward through soil, capillary action, migration of dissolved phase contaminants with groundwater and migration of vapors toward site structures. The central portion of the property is an exposed slope, partially vegetated. This area has a potential for surface exposure of contaminated soil. Wind-blown particulates or erosion are potential transport mechanisms in this area. It is likely transport would result in movement of surficial soil down the slope, within the boundaries of the property. There are no surface waters on the property or in the immediate surrounding area, so surface water is not a likely transport mechanism.

6.4 Exposure Pathways and Receptors

The site has limited exposure pathways in its current state. There is little or no potential direct contact exposure to petroleum hydrocarbons due to the depth of the zone of contaminated soil (about six to 17 feet below the surface, or below structures). None of the contaminated soil is in areas that would be exposed by utility work. The central portion of the site is fenced, has no active use and is not accessible to the public. Groundwater is not used in the area of the site and there is no indication of shallow groundwater acting as a source of contamination to underlying water-bearing zones or discharge to surface water. Current site structures have been vacated, so vapor intrusion into existing structures is not a potential pathway.

Without cleanup there would be a continuing potential for direct contact exposure, continued groundwater migration and/or vapor intrusion into future structures. However, any redevelopment of the property will only occur in conjunction with or after remedial actions.

During construction there will be elevated potential for direct contact exposures to contractor personnel due to the excavation and soil or groundwater handling processes. All cleanup actions are to be undertaken under a site specific health and safety plan to control potential exposures. At the end of this work all soil contamination will have been removed, eliminating future exposures to contaminated soil. Groundwater within the chlorinated solvent plume will not be exposed during the excavation stages of the work, so does not represent an increased exposure to construction personnel.

Cleanup actions will need to be conducted to levels that preclude vapor intrusion, or protective barriers would need to be installed to be protective. Throughout the western portion of the site, cleanup will be conducted by excavation and management of groundwater seepage during the construction stages of the building. In the southeastern parking lot area cleanup will consist of

limited excavation along with in-situ groundwater treatment, in accordance with the Independent Remedial Action Plan developed for the site. These actions will meet MTCA Method A cleanup standards and eliminate potential future exposures.

6.5 Tier I Vapor Intrusion Assessment

Vapor intrusion is a potential migration pathway at sites where volatile hazardous substances are present in the subsurface and occupied buildings are in the vicinity of the contamination. Because vapor intrusion can potentially lead to indoor exposures to contaminants remedial investigations must include an evaluation whenever volatile hazardous substances are present in the subsurface. The Washington Department of Ecology expects cleanups to be protective of indoor air quality.

Ecology's guidance document *"Guidance for Evaluation Soil Vapor Intrusion in Washington State: Investigation and Remediation"* (Publication No. 09-09-047 as revised to April, 2018), updated Table 1B and subsequent implementation memoranda outline an assessment process for volatile compounds that could pose a vapor intrusion risk.

As a preliminary assessment, this site contains volatile contaminants and there are planned future structures that could be located close enough to subsurface contamination to be affected by vapor intrusion. An additional Tier I assessment following Ecology's process was warranted.

Since the assessment is to evaluate the potential for vapor intrusion into a future structure it is appropriate to recognize that cleanup will be conducted as part of any redevelopment. This limits the extent of soil or groundwater that will have a potential to generate subsurface vapors. Redevelopment plans call for deep excavation throughout the western part of the property which will remove all vadose zone contaminated soil and the shallow water-bearing zones that have demonstrated petroleum contamination to groundwater. These deeply excavated areas will be used for below ground parking with extensive garage ventilation and will not be used for residential or commercial purposes. They act as a protective break between surrounding area conditions and the residential parts of the structure. The only portion of the site which will not have the source of vapors completely excavated is the southeastern parking lot. This area is underlain by the chlorinated solvent plume extending from beneath the King County warehouse.

In-situ groundwater remediation is planned to reduce groundwater contaminants to below regulated levels. But as a baseline evaluation, current conditions indicate a potential for groundwater to be a source of vapors. Table 7 identifies all detected volatile compounds in groundwater in the southeastern parking lot. The table notes the maximum reported concentrations of these contaminants in groundwater, although repeated sampling of monitoring wells typically show variability and concentrations below these levels. Ecology's groundwater screening levels are also shown in Table 7. These screening levels assume a 1,000-fold attenuation between groundwater and indoor air concentrations, regardless of the soil conditions or depth to groundwater.

Groundwater may be a source of vapors, but soil conditions control whether or not vapors have the potential to migrate toward structures. Deep soil gas sampling provides a more direct measurement of vapors in the pore spaces of soil. Table 7 includes the reported maximum concentrations of all detected volatile compounds in the two deep soil gas samples for which Ecology publishes screening levels. The complete list of detected compounds in deep soil gas is included in Table 4A. The table also includes Ecology's deep soil gas screening levels for comparison. These screening levels assume a 100-fold attenuation between groundwater and indoor air concentrations.

Table 7
Detected Volatile Contaminants in Groundwater and Deep Soil Gas

Parameter	***Maximum Detected Level in Groundwater (ug/l)***	***Groundwater Screening Level[1] (ug/l)***	***Maximum Detected Level in Deep Soil Vapor (ug/m³)***	***Deep Soil Screening Level[1]***
Tetrachloroethene (PCE)	12	22.9	ND (<22)	962
Trichloroethene (TCE)	***17***	1.55 STE[2] - 8.0	8.2	37 STE[2] - 67
Vinyl chloride (VC)	***0.55***	0.347	***65***	28
cis-1,2-dichloroethene (C12DCE)	12	NV	57	NV
1,2,4-trimethylbenzene	2.2	28.4	ND (<7.9)	320
Acetone	29	NV	150	NV
Xylenes m - o-	2.7 1.4	310 440	5.5 2.6	4,570 4,570
Benzene:	ND (<0.35)	2.4	31	32.1
Carbon disulfide:	NA	400	44	32,000
Chloroform:	ND (<1)	1.2	0.64	10.9
Dichlorodifluoromethane:	ND (<1)	5.66	1.7	4,570
Ethylbenzene:	ND (<1)	2,780	4.8	45,700
Hexane:	ND (<1)	7.8	140	32,000
Methyl-ethyl-ketone:	ND (< 10)	1,740,000	32	229,000
Naphthalene:	ND (< 1)	8.93	***18***	7.35
1,2-Dichloropropane:	ND (< 1)	3.89	0.70	25.0

Table Notes:
[1] - Groundwater and Deep Soil Gas Screening Levels from Department of Ecology Vapor Intrusion Table Update, April 6, 2015
STE[2] - Short Term Exposure Groundwater and Sub-slab Screening Levels from Ecology Implementation Memorandum No. 22, October 1, 2019. No Deep Soil Gas Screening Level established for short-term exposures, so sub-slab screening level is recommended.
NV - No Established Screening Level
Maximum sample results exceeding applicable screening levels are noted in ***Bold Italic***.

The reported maximum concentrations of TCE and vinyl chloride in groundwater exceed the respective groundwater screening levels, and for TCE it exceeds the short-term exposure screening level established by Implementation Memorandum No. 22, *Vapor Intrusion (VI) Investigations and Short-term Trichloroethene (TCE) Toxicity*, dated October 1, 2019. All other reported compounds meet groundwater screening levels or do not have a currently established screening level. As noted above, direct soil gas measurements are a more indicative measure of the potential for vapors to reach structures. Only two detected compounds exceed deep soil screening levels at their reported maximum concentrations; vinyl chloride and naphthalene. No deep soil gas screening level was developed for short-term TCE exposures, so sub-slab screening levels are noted in Table 7, and may be applied to deep soil gas measurements.

Deep soil gas samples did not identify TCE at concentrations exceeding screening levels, indicating that site specific conditions limit soil vapor migration from groundwater. However, one deep soil gas sample contained VC at 65 ug/m^3, exceeding the 28 ug/m^3 deep soil gas screening level. The other sample contained naphthalene at 18 ug/m^3, exceeding the deep soil gas screening level of 7.35 ug/m^3.

These reported concentrations that exceed groundwater or deep soil gas screening levels do not directly indicate that indoor air quality in a future building would be impacted. They suggest additional evaluation might be necessary to model the potential for intrusion to occur using site specific parameters using the Johnson and Ettinger Model (JEM), or a conservative approach to take additional protective measures to prevent vapor intrusion into structures built near the plume. These could include vapor barriers or sub-slab ventilation designed into the proposed structures. The proposed structure will include an enhanced vapor barrier system below all slab-on-grade portions of the building as a protective measure, regardless of the final condition of soil or groundwater after cleanup is complete.

6.6 Regulatory Considerations

The Model Toxics Control Act (MTCA), Chapter 173-340 WAC, is the Washington State law regarding releases of hazardous or regulated materials to the environment. MTCA defines a contaminated “Site” as the property where the contamination originated as well as any adjoining or nearby properties that have been impacted by the contamination. The sources of petroleum-related contaminants appear to be on the property and can be attributed to prior fueling and auto repair activities from the 1920s to 1980s. There is no indication that any of the on-site petroleum contamination has extended beyond the site boundaries.

The source of the primary plume of chlorinated solvents is unknown, but it extends to the property from the adjoining King County warehouse north of the southeastern parking lot. Historical records do not identify past uses of the King County property that are obvious potential sources. But given the low concentrations in the plume even a relatively limited use or small spill during routine operations in or near the warehouse (or at the former row-houses that occupied the site) could result in the observed contamination.

Cleanup standards in MTCA consist of cleanup levels for contaminants of potential concern, point(s) of compliance, and applicable or relevant and appropriate requirements (ARARs). Under MTCA, three methods are available for establishing cleanup levels. Method A cleanup levels are concentrations listed in the regulation for a limited number of substances, intended for use at sites with relatively few contaminants and relatively routine cleanups. Method B cleanup levels are the universal cleanup criteria for Washington state that allows cleanup levels to be based on site-specific characteristics. Method C cleanup levels are intended for industrial sites with more limited exposure pathways and institutional controls that prevent public entry, so would not be applicable to this site.

For this property, Method A would likely be the most rigorous cleanup criteria and would allow unrestricted future uses of the land. For a redevelopment that includes residential uses, Method A cleanup levels are appropriate for those contaminants that are listed in the MTCA Tables 720-1 and 740-1 of Chapter 173-340 WAC. The universal Method B cleanup levels would apply to other compounds not listed under Method A.

The contaminants of potential concern for soil at this site are total petroleum hydrocarbons in the gasoline and motor oil-ranges, benzene, ethylbenzene, xylenes, trichloroethylene, lead and cadmium. The extent of soil impacts appear to be relatively limited. Figure 6 notes the estimated areas on the property that would require cleanup to meet MTCA Method A cleanup levels. An total volume of approximately 1,500 to 3,000 cubic yards of petroleum and/or lead impacted soil is estimated in six separate areas of the site. This soil volume is a small fraction of the excavation that will be conducted to redevelop this property with a structure that includes two levels of below-grade parking.

For groundwater, the potential contaminants of concern include total petroleum hydrocarbons in the gasoline, diesel and motor oil-ranges, benzene, trichloroethene, tetrachloroethene, cis-1,2 dichloroethene and vinyl chloride. Shallow groundwater at this site occurs in relatively limited discontinuous sandier zones within the soil. These "perched" conditions occur when surface water or rain percolating into the ground meets a layer of soil with more limited permeability.

In the western part of the property, these relatively shallow groundwater bearing soil zones would be removed as part of an overall redevelopment excavation to below the depth of impacted groundwater seepage zones. There is no indication that on-site contamination extends beyond the site boundary, or that there are off-site contaminant plumes adjacent to the deep excavation portion of the site that could be drawn toward the property. Notably, City of Seattle limitations on sub-drain discharges to City storm or sanitary sewers would require a structure built here to be constructed using a sealed "bathtub" approach to below-grade levels, without the use of foundation drainage to relieve hydrostatic pressures. As a result, the proposed structure would not influence future groundwater migration patterns in the surrounding area or have a tendency to draw groundwater toward the site.

7.0 FINDINGS AND CONCLUSIONS

Whitman Environmental Sciences (WES) was retained by Mr. Michael Pollard of the Seattle Land Use Co. to conduct remedial investigations on a property on the eastern side of 12th Avenue, extending from the intersection with E. Yesler Way to E. Fir Street, in the Yesler Terrace neighborhood of Seattle, Washington. The property consists of approximately 47,433 square feet of land developed with three older commercial buildings in generally poor condition.

As of the date of this report all of the site buildings have been vacated and will be demolished in preparation for new development. The site will be redeveloped with a six-story mixed-use building with approximately 280 residential units, 16 live-work units and about 10,000 square feet of ground floor commercial spaces. There will be two levels of below-grade parking which will excavate the western part of the site to an elevation of 186, depths of as much as 32 feet below the current ground surface.

During the course of this assessment, historical information identified historical site uses that would be considered potential sources of recognized environmental conditions. Surrounding area properties were also found to have had past uses that had the potential to impact the subject properties. Site investigations have been conducted, drilling 73 soil borings throughout the property

and surroundings, installing 19 monitoring wells and submitting 104 soil, 90 groundwater and five soil vapor samples for laboratory analyses.

This assessment has revealed the following evidence of recognized environmental conditions in connection with the property:

- The properties have been developed since the 1920s with a variety of site uses, some of which inherently managed, used or disposed of hazardous or regulated materials. Three auto repair areas were identified; 1209 E. Fir Street (the former location of TD Auto, from about 1949 to 2019), a former gas station that operated on the northwestern portion of the property from about 1941 to 1989 and a former auto repair that operated in the lower level of the building at 104 12th from about 1926 to the mid-1950s. Other on-site uses with the potential to be sources of contamination include a former screen printing shop and a dry cleaner that each operated for a limited time in the currently vacant tenant space at 118 12th Avenue. The current and former site uses indicated site specific soil and groundwater sampling was warranted.

- Properties in the surrounding area were identified as potential sources of impacts to the subject site due to historical site uses or known conditions with the potential to migrate toward the properties. These include former dry cleaning facilities that were located at 113 12th Avenue and 160 12thAvenue; former service stations and auto repair facilities at 150 and 151 12th Avenue and a number of historical laundries and dry cleaners to the south of Yesler Way. The current and former uses of nearby properties indicated site specific soil and groundwater sampling was warranted.

- Site investigations identified fill soils over much of the property, apparently deposited from the original regrading of 12th Avenue during the early 20th century. These soils are relatively soft and contain organic topsoil deposits and debris. Fill soil extends to depths of about 16 to 19 feet in the higher, northern part of the site along 12th Avenue, with lesser amounts throughout the property.

- Groundwater was encountered at depths ranging from about three to 16 feet below the ground surface with a general gradient to the southeast, approximating the local topography. Groundwater seepage was limited and variable, consisting of relatively discontinuous perched water conditions within the fill and sandier horizons in the underlying native soils.

- Soil samples collected as part of the remedial investigations identified six areas of the site where impacts by petroleum constituents or lead exceed current Washington State Model Toxics Control Act (MTCA) Method A cleanup criteria. Each of these are distinct and separate areas, with estimated volumes ranging from approximately 100 to 800 cubic yards of contaminated soil. A total volume of 1,800 to 3,000 cubic yards of impacted soil is estimated, extending to a maximum depth of approximately 18 to 20 feet below the ground surface. Five of these areas are in the portions of the site where redevelopment excavation will extend to depths that exceed the deepest identified contamination. One small area in the southeastern parking lot will be need to be excavated beyond the extent of digging planned for redevelopment.

- Groundwater samples taken during the remedial investigations encountered impacts by petroleum constituents and chlorinated solvents that exceed MTCA Method A groundwater cleanup criteria. Remedial investigations have included 42 reconnaissance samples taken from temporary wells and 19 permanently installed monitoring wells that have been subject to periodic sampling.

  Gasoline, diesel and motor oil-range total petroleum hydrocarbons (TPH), tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (C12DCE), vinyl chloride (VC) and 1,2,4-trimethylbenzene have been detected at concentrations that exceeded MTCA Method A or B groundwater cleanup levels. Petroleum-related exceedances have been found in the former gas station area in the northwestern corner of the property and at two areas in the basement of the 104 12th Avenue building.

  PCE is a common dry cleaning solvent and the other detected compounds are common degradation products that result from the breakdown of PCE in the environment. A cluster of chlorinated solvent detections in the southeastern parking lot define a plume of contaminated groundwater that appears to enter the site from beneath the adjacent King County Archives warehouse to the north. The most widespread compound is vinyl chloride, which has been encountered at eight sampled locations across the site at concentrations ranging from 0.2 to 1.9 ug/l, at or above the MTCA Method A cleanup criteria of 0.2 ug/l. TCE was detected at two sampled locations in the southeastern lot exceeding the MTCA Method A groundwater cleanup level of 5 ug/l. At one of those locations PCE also exceeded the 5 ug/l MTCA Method A cleanup criteria. One sample from a monitoring well in the basement of the 104 12th building contained a reported detection of 17 ug/l of cis-1,2-dichloroethene, which exceeded the MTCA Method B standard formula value of 16 ug/l for that compound.

- Sub-slab soil vapors from below the 104 12th Avenue building contained trace levels of petroleum-related volatile compounds and several chlorinated solvents. Three detected compounds exceeded Washington State's draft sub-slab soil vapor screening levels; naphthalene, chloroform and bromodichloromethane. Of these compounds, only naphthalene would likely be associated with releases at the subject site. Chloroform and bromodichloromethane are both compounds that can be generated from municipally-treated drinking water. This building is no longer occupied and will be demolished, so vapor intrusion into the structure is not at issue.

- A Tier I assessment was conducted to evaluate the potential for vapor intrusion into future structures. Reported deep soil vapor and groundwater concentrations of volatile compounds were compared to screening levels established in the Department of Ecology draft manual *"Guidance for Evaluation Soil Vapor Intrusion in Washington State: Investigation and Remediation"* (Publication No. 09-09-047 as revised to April, 2018), updated Table 1B and subsequent implementation memoranda.

  Reported maximum groundwater concentrations within the southeastern parking lot plume exceeded screening levels for TCE and VC. Deep soil gas concentrations exceeded deep soil gas screening levels for naphthalene and vinyl chloride. A vapor barrier will be installed

beneath any slab-on-grade portions of the building as an additional protective measure, even after cleanup reaches MTCA Method A standards.

- Current development plans involve widespread excavation of the western parcels of the property to depths that would remove all of the identified soil and groundwater impacts in that area. The southeastern parking lot will be partially excavated for cleanup of a limited area and for geotechnical ground improvements and foundations, but there will not be basement or below grade parking in this area. The anticipated first floor level will be at approximately the current site grade. In-situ groundwater remedial actions will be needed to manage the plume that extends from beneath the adjacent King County Archives warehouse.

A full cleanup action plan has been prepared that outlines the most feasible approaches to removal or degradation of contaminants and proper management of wastes. That document should be referenced for further information.

8.0 CLOSURE

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

Whitman Environmental Sciences

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Principal

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889
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TABLES

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

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Methods 8021B or 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)	**Regulated Metals** (By EPA Method 6020B)
104 12th Avenue - Seattle Curtain Co. Building and Parking Lot to the East							
WES-1	6 ft. inside double doors in SE corner of basement	4/3/2017	7.5'	***Gasoline: 710*** Diesel: 160[x] Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	sec-Butylbenzene 0.35 ND (all others)	NA
		4/3/2017	10'	Gasoline: NA Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
WES-2	Adjacent to oil/water separator by entry ramp in SW corner of basement	4/3/2017	6'	***Gasoline: 390*** Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	sec-Butylbenzene 0.086 ND (all others)	NA
		4/3/2017	7'	Gasoline: NA Diesel: 340[x] Motor Oil: ND (<250)	NA	NA	NA
		4/3/2017	9'	***Gasoline: 230*** Diesel: 440[x] Motor Oil: ND (<250)	NA	NA	NA
WES-3	10 ft NW of WES-2, near floor sump	4/3/2017	7'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-4	In corridor through shelving area in S central part of basement	4/3/2017	6'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	sec-Butylbenzene 0.11 ND (all others)	NA
WES-5	In shelving area corridor, NW of WES-1, near SE entry double doors	4/3/2017	6'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-6	In main corridor 30 ft. N of SE entry double doors	4/3/2017	8'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA

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

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x)	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Methods 8021B or 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)	**Regulated Metals** (By EPA Method 6020B)
WES-7	Near NE corner of basement	4/4/2017	10'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-8 (Completed as MW-7)	In N corridor, 25' W of WES-7	4/4/2017	11.5'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-9	W central part of basement, near boiler room door	4/4/2017	8'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-10	In S central part of SE parking lot	4/5/2017	7'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-11	In N central part of SE parking lot, adjacent to previous boring MW-5	4/5/2017	15'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-12	In SW corner of SE parking lot	4/5/2017	16'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-13	In E central part of SE parking lot	4/5/2017	12'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-14	NW corner of basement, 8 feet east of W wall.	7/23/2019	6'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		7/23/2019	9.5'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA

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

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Depth (ft.)***	***Laboratory Analytical Results (mg/kg)***			
				Total Petroleum Hydrocarbons ***(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x)***	***Benzene Toluene Ethyl benzene Xylenes*** ***(by EPA Methods 8021B or 8260C)***	***Other Volatile Organic Compounds*** ***(List of 58 Additional Compounds Detectable by the Laboratory Method.)***	***Regulated Metals*** ***(By EPA Method 6020B)***
WES-15	SW corner of basement, 15 feet W of WES-2	7/23/2019	6'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-16	NW edge of SE parking lot, adjacent to King Co. warehouse	10/1/2019	1'	Gasoline: ND (<5) Diesel: 81[X] Motor Oil: 1,200	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	***Tetrachloroethene 0.12*** ND (all other)	Arsenic: 12.1 ***Cadmium: 2.13*** Chromium: 28.1 ***Lead: 883*** Mercury: ND (<1)
		10/1/2019	6'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Lead: 3.42
Geotech B-7 (GEO B-7)	In NW part of parking lot, between previous borings MW-2 and MW-5	9/7/2018	14'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	ND (all)	NA
Geotech B-9 (GEO B-9)	In NE part of SE parking lot, between previous borings MW-5 and MW-1	9/7/2018	7.5'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	ND (all)	NA
		9/7/2018	12.5'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	ND (all)	NA
MW-1D	In NE corner of property, outside fenceline, in King Co. Archives parking lot	7/22/2019	8'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
MW-11	On E central edge of property, in King Co. Archives parking lot	7/22/2019	9'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
MW-12	In SE central part of SE parking lot	7/22/2019	9'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA

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

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Methods 8021B or 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)	**Regulated Metals** (By EPA Method 6020B)
MW-13	In Yesler Way sidewalk S of garage door near SW building corner	10/1/2019	6'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		10/1/2019	9'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		10/1/2019	11.5'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
110 - 124 12th Avenue & 1209 E. Fir Street							
BN-1	In SE corner of open area	5/12/2017	9'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		5/12/2017	15'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
BN-2	Near SW corner of open area	5/12/2017	3'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		5/12/2017	13'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
BN-3	Outside rear entry to 110 12th Avenue bldg.	5/12/2017	7'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		5/12/2017	14.5'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA

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

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Depth (ft.)***	***Laboratory Analytical Results (mg/kg)***			
				Total Petroleum Hydrocarbons ***(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x)***	***Benzene Toluene Ethyl benzene Xylenes*** ***(by EPA Methods 8021B or 8260C)***	***Other Volatile Organic Compounds*** ***(List of 58 Additional Compounds Detectable by the Laboratory Method.)***	***Regulated Metals*** ***(By EPA Method 6020B)***
BN-4	In E central part of open area, adjacent to Archives bldg.	5/12/2017	7'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
BN-5	In NE corner of parking lot, near oil/water separator	5/12/2017	5'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		5/12/2017	11'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		5/12/2017	18'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
BN-6	In S area of parking lot, near paint booth sump	5/12/2017	1'	Gasoline: 2.7 Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		5/12/2017	9'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		5/12/2017	15'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
BN-7 (Completed as MW-8)	NW corner of property - former location of gas station pump island	5/15/2017	9'	Gasoline: 14 Diesel: NA Motor Oil: NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: 0.082	NA	NA
		5/15/2017	12'	***Gasoline: 780*** Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) ***Ethylbenzene: 6.8*** ***Xylenes: 59***	Isopropylbenzene: 2.6 n-Propylbenzene : 10 p-Isopropyltoluene: 0.56 sec-Butylbenzene: 1.2 1,2,4 Trimethylbenzene: 63 1,3,5 Trimethylbenzene: 20 Naphthalene: 4.9 ND (all other)	NA

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

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Depth (ft.)***	***Laboratory Analytical Results (mg/kg)***			
				Total Petroleum Hydrocarbons ***(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x)***	***Benzene Toluene Ethyl benzene Xylenes*** ***(by EPA Methods 8021B or 8260C)***	***Other Volatile Organic Compounds*** ***(List of 58 Additional Compounds Detectable by the Laboratory Method.)***	***Regulated Metals*** ***(By EPA Method 6020B)***
BN-7 (Continued)		5/15/2017	17'	Gasoline: 24 Diesel: NA Motor Oil: NA	***Benzene: 0.033*** Toluene: ND (<0.02) Ethylbenzene: 0.26 Xylenes: 2.0	NA	NA
		5/15/2017	19'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
BN-8	N central part of property - former location of gas station service bay	5/15/2017	7'	Gasoline: ND (<20) Diesel: ND (<50) ***Motor Oil: 3,300***	NA	NA	NA
		5/15/2017	17'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	NA	NA
BN-9	W central part of parking lot - likely former UST location	5/15/2017	12'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	NA	NA
BN-10 (Completed as MW-9)	S end of parking lot - likely S of former UST location	5/15/2017	15-20'	***Gasoline: 490*** Diesel: 160[x] Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: 2.6 Xylenes: 0.44	Hexane: 5.1 Isopropylbenzene: 2.0 n-Propylbenzene : 8.5 p-Isopropyltoluene: 0.36 sec-Butylbenzene: 0.94 1,2,4 Trimethylbenzene: 3.5 1,3,5 Trimethylbenzene: 1.7 Naphthalene: 0.86 ND (all other)	NA
BN-11	At S end of 1209 Fir bldg, inside gate to open area	5/15/2017	12'	NA	NA	NA	Arsenic: 4.03 Cadmium ND (<1) Chromium 17.5 ***Lead 330*** Mercury ND (<1)
		5/15/2017	20'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA

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

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Methods 8021B or 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)	**Regulated Metals** (By EPA Method 6020B)
BN-12	In SW corner of gravel parking lot, Between AEG B-3 and off-site boring OS-12	7/23/2019	17'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	ND (all)	NA
		7/23/2019	24'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	ND (all)	NA
BN-13	At S end of Auto Repair building, at top of slope	7/23/2019	7'	Gasoline: NA Diesel: NA Motor Oil: NA	NA	NA	Arsenic: 4.13 Cadmium: ND (<1) Chromium: 17.8 Lead: 32.3 Mercury: ND (<1)
		7/23/2019	11'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	Arsenic: 4.53 Cadmium: ND (<1) Chromium: 13.5 Lead: 42.2 Mercury: ND (<1)
		7/23/2019	16'	Gasoline: NA Diesel: NA Motor Oil: NA	NA	NA	Arsenic: 9.42 Cadmium: ND (<1) Chromium: 33.0 Lead: 8.43 Mercury: ND (<1)
BN-14	In SE corner of auto repair yard, near intersection of King Co. Archives bldgs.	7/23/2019	11'	Gasoline: NA Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	Arsenic: 2.06 Cadmium: ND (<1) Chromium: 9.13 Lead: 10.1 Mercury: ND (<1)
		7/23/2019	18'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		7/23/2019	21'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA

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

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Depth (ft.)***	***Laboratory Analytical Results (mg/kg)***			
				Total Petroleum Hydrocarbons ***(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x)***	***Benzene Toluene Ethyl benzene Xylenes*** ***(by EPA Methods 8021B or 8260C)***	***Other Volatile Organic Compounds*** ***(List of 58 Additional Compounds Detectable by the Laboratory Method.)***	***Regulated Metals*** ***(By EPA Method 6020B)***
BN-15	W central part of gravel parking lot, 15 ft SW of BN-7	7/23/2019	8'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: 0.028 Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	NA	NA
		7/23/2019	16'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	NA	NA
BN-16	NW corner of gravel parking lot, 10 ft NW of BN-7	7/23/2019	11'	Gasoline: 46 Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: 0.078 Ethylbenzene: 0.039 Xylenes: 1.7	NA	NA
		7/23/2019	14'	Gasoline: NA Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	Lead: 2.55
		7/23/2019	15'	***Gasoline: 1,100*** Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: 0.41 Ethylbenzene: ND (<0.1) ***Xylenes: 9.4***	NA	NA
		7/23/2019	17'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: 0.078	NA	Lead: 1.42
BN-17	In NE slope of open area, 10' S of corner of King Co. Archives Bldg.	7/23/2019	5'	Gasoline: NA Diesel: NA Motor Oil: NA	NA	NA	Arsenic: 3.46 Cadmium: ND (<1) Chromium: 14.6 Lead: 64.7 Mercury: ND (<1)
		7/23/2019	10'	Gasoline: NA Diesel: NA Motor Oil: NA	NA	NA	Arsenic: 13.0 Cadmium: 1.37 Chromium: 32.7 ***Lead: 411*** Mercury: ND (<1)

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

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Methods 8021B or 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)	**Regulated Metals** (By EPA Method 6020B)
BN-17 (Continued)		7/23/2019	13'	Gasoline: NA Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Lead: 32.6
		7/23/2019	15'	Gasoline: NA Diesel: NA Motor Oil: NA	NA	NA	Lead: 2.86
Slope 1	In NE part of property, fill slope down to open area	5/12/2017	2.5'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	Arsenic: 2.13 Cadmium ND (<1) Chromium 12.9 Lead: 2.2 Mercury: ND (<1)
Slope 2	In NE part of property, top of fill slope	5/12/2017	1.5'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: 660	NA	NA	Arsenic: 3.91 Cadmium: 1.21 Chromium: 16.5 Lead: 243 Mercury: ND (<1)
HA-N	In N. portion of building basement	5/12/2017	2.5	***Gasoline: 730*** Diesel: 230[x] Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	n-Propylbenzene 0.24 sec-Butylbenzene 0.60 ND (all other)	NA
		5/12/2017	9'	Gasoline: 3.9 Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
HA-S	In S portion of building basement	5/12/2017	2.5'	Gasoline: 7.0 Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		5/12/2017	6'	Gasoline: 11 Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	n-Propylbenzene 0.12 ND (all other)	NA
HA-3	In S portion of basement below 110 tenant space	8/4/2017	4'	Gasoline: ND (<2) Diesel: ND (<50) Motor Oil: ND (<250)	NA	ND (all)	NA

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

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Methods 8021B or 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)	**Regulated Metals** (By EPA Method 6020B)
Geotech B-8 (GEOB-8)	In S central area of gravel parking between borings BN-10, AEG-B-2 and AEG-B-4	9/7/2018	11.5	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	ND (all)	NA
		9/7/2018	15'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	Isopropylbenzene 0.10 n-propylbenzene 0.43 ND (all other)	NA
		9/7/2018	17.5'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	ND (all)	NA
MW-14	In W central part of open area, at base of slope adjacent to former dry clener tenant space (118 12th Avenue)	7/23/2019	10'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Arsenic: 7.52 Cadmium: ND (<1) Chromium: 23.7 Lead: 24.2 Mercury: ND (<1)
Off-Site Borings in Surrounding Right-of-Ways							
OS-1	In sidewalk of Yesler Way, adjacent to SE corner of parking lot for 104 12th Ave. bldg.	8/3/2017	12'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
OS-2	In sidewalk of Yesler Way, adjacent to SE corner of 104 12th Ave. bldg.	8/3/2017	7.5'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/3/2017	11'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
OS-3	In sidewalk of Yesler Way, SW of double doors to basement, 30' W of bldg. corner.	8/3/2017	12'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
OS-4	In sidewalk of Yesler Way, SW of garage door into 104 12th Ave. bldg.	8/3/2017	6'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/3/2017	9'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA

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

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))	Benzene, Toluene, Ethyl benzene, Xylenes (by EPA Methods 8021B or 8260C)	Other Volatile Organic Compounds (List of 58 Additional Compounds Detectable by the Laboratory Method.)	Regulated Metals (By EPA Method 6020B)
OS-5	In sidewalk of 12th Ave., 40' N of SW corner of 104 12th bldg.	8/3/2017	7'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/3/2017	14'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
OS-6	In sidewalk of 12th Ave., 15' S of NW corner of 104 12th bldg.	8/3/2017	7'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		8/3/2017	10'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
OS-7	In sidewalk of 12th Ave., adjacent to tree, 40' S of NW corner of 124 12th parking lot.	8/3/2017	8'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/3/2017	12'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		8/3/2017	16'	Gasoline: 2.5 Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
OS-8	In blvd. gravel strip N. of 1209 E. Fir bldg.	8/4/2017	7'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/4/2017	17'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
OS-9	In blvd. grass strip N. of 124 12th Ave. parking lot	8/4/2017	14'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA

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

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Methods 8021B or 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)	**Regulated Metals** (By EPA Method 6020B)
OS-10	In curb lane of 12th Ave., 10' N. of NW corner of 104 12th Ave. bldg.	8/4/2017	6'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/4/2017	10'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
OS-11	In curb lane of 12th Ave., adjacent to vacant 118 12th Ave. bldg.	8/4/2017	9'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/4/2017	11'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
OS-12	In sidewalk at S entry drive to 124 12th Ave., parking lot.	8/4/2017	13'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/4/2017	16'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
Washington State Model Toxics Control Act (MTCA) Soil Cleanup Criteria (mg/kg)				***Gasoline: 30[A]*** ***If no benzene present: 100[A]*** ***Diesel or Motor Oil: 2,000[A]***	***Benzene: 0.03[A]*** ***Toluene: 7[A]*** ***Ethylbenzene: 6[A]*** ***Xylenes: 9[A]***	***Hexane: 4,800[GWP]*** ***Isopropylbenzene: 8,000[B]*** ***Naphthalene: 5[A]*** ***n-Propylbenzene : 8,000[B]*** ***p-Isopropyltoluene: NV*** ***sec-Butylbenzene: 8,000[B]*** ***Tetrachloroethene 0.05[A]*** ***1,2,4 Trimethylbenzene: 800[B]*** ***1,3,5 Trimethylbenzene: 800[B]***	***Arsenic: 20[A]*** ***Cadmium 2[A]*** ***Chromium 19*[A]*** ***Lead 250[A]*** ***Mercury 2[A]***

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

Table 2 Notes:
ND (<XXX) - Parameter not detected at concentrations at or above the noted reporting limit.
NA - Sample not analyzed for the listed parameter.
Total Petroleum Hydrocarbons by Method NWTPH-HCID, or Gasoline Range Total Petroleum Hydrocarbons by Method NWTPH-G and Diesel and Motor Oil Range Total Petroleum Hydrocarbons by Method NWTPH-D(x).

[x] - Sample Chromatogram does not resemble fuel standard used for analysis. Most likely carry over from gasoline range hydrocarbons or organic material.
BTEX compounds by EPAMethod 8021B, or as part of volatile organic analysis by EPA Method 8260C.
Volatile organic compounds by EPA Method 8260C for a list of 62 different volatile parameters. Detection limits vary.

MTCA Soil cleanup criteria per Chapter 173-340-740 WAC. Method A criteria presented where available. Otherwise, Method B standard formula values or concentrations protective of groundwater in vadose zone at 13 degrees C, per Ecology's Cleanup Levels and Risk Calculations (CLARC) database. Basis of cleanup criteria noted:

A - Method A listed
B - Method B Direct Contact
GWP - Groundwater Protection
NV - No published value

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

TABLE 3
Summary of Groundwater Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons ***(by Methods NWTPH-G & NWTPH-D(X))***	***Benzene*** ***Toluene*** ***Ethyl benzene*** ***Xylenes*** ***(by EPA Method 8260C)***	***Other Volatile Organic Compounds (by EPA Method 8260C)*** ***List of 58 Additional Compounds Detectable by the Laboratory Method.***	***Total Lead*** ***Other Metals Analyses, as noted***
WES-1-GW	One Time Reconnaissance Sample - In 104 12th basement, 6 ft. inside double doors in SE corner	4/3/2017	***Gasoline Range: 1,700*** ***Diesel: 690x*** Motor Oil: ND (<250)	Benzene: 0.42 Toluene: 6.7 Ethylbenzene: 2.2 Xylenes: 20.5	Isopropylbenzene : 1.2 n-Propylbenzene: 1.7 Naphthalene: 14 sec-Butylbenzene: 5.3 1,2,4-Trimethylbenzene: 12 1,3,5-Trimethylbenzene: 2.7 ND (all other)	NA
WES-2	Not Sampled - Adjacent to existing well MW-3 and oil/water separator by entry ramp in SW corner of basement.					
WES-3	Not Sampled - 10 ft NW of WES-2, near floor sump and existing well MW-3.					
WES-4-GW	One Time Reconnaissance Sample- In 104 12th Ave. basement corridor through shelving area in S central part of basement	4/3/2017	Gasoline Range: 560 ***Diesel: 1,000x*** ***Motor Oil: 680***	Benzene: ND (<0.35) Toluene: 3.6 Ethylbenzene: 1.5 Xylenes: 13.7	Naphthalene: 6.4 sec-Butylbenzene: 1.7 1,2,4-Trimethylbenzene: 9.0 1,3,5-Trimethylbenzene: 1.9 ND (all other)	NA
WES-5-GW	One Time Reconnaissance Sample - In 104 12th Ave. basement shelving area corridor, NW of WES-1, near SE entry double doors	4/3/2017	Gasoline Range: 220 Diesel: 460x Motor Oil: ND (<300)	Benzene: ND (<0.35) Toluene: 6.0 Ethylbenzene: 2.3 Xylenes: 21.3	n-Propylbenzene: 1.0 Naphthalene: 6.0 1,2,4-Trimethylbenzene: 14 1,3,5-Trimethylbenzene: 2.7 ND (all other)	NA
WES-6-GW	One Time Reconnaissance Sample - In 104 12th Ave. basement main corridor 30 ft. N of SE entry double doors	4/3/2017	Gasoline Range: NA Diesel: 78x Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: 1.4 Ethylbenzene: ND (<1) Xylenes: 5.7	cis-1,2-Dichloroethene: 3.9 Naphthalene: 1.4 1,2,4-Trimethylbenzene: 3.6 ND (all other)	NA
WES-7-GW	One Time Reconnaissance Sample - Near NE corner of 104 12th Ave. basement	4/4/2017	Gasoline Range: NA Diesel: 56x Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: 4.0	Naphthalene: 1.1 1,2,4-Trimethylbenzene: 2.5 ND (all other)	NA
WES-8	Completed as **MW-7**- See Data Below					
WES-9-GW	One Time Reconnaissance Sample - W central part of 104 12th basement, near boiler room door	4/4/2017	Gasoline Range: NA Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: 1.6 Ethylbenzene: ND (<1) Xylenes: 7.6	Naphthalene: 1.5 1,2,4-Trimethylbenzene: 4.6 ND (all other)	NA
WES-10-GW	One Time Reconnaissance Sample - In S central part of SE parking lot	4/5/2017	Gasoline Range: ND (<100) Diesel: 180x ***Motor Oil: 530***	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: 3.7	1,2,4-Trimethylbenzene: 2.2 ND (all other)	NA

TABLE 3 (Continued)
Summary of Groundwater Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene, Toluene, Ethyl benzene, Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Lead*** *Other Metals Analyses, as noted*
WES-11-GW	One Time Reconnaissance Sample - In N central part of SE parking lot, adjacent to previous boring MW-5	4/5/2017	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: m&p: 2.7 o: 1.4	Acetone: 27 cis-1,2-Dichloroethene: 9.4 ***Tetrachloroethene: 12*** ***Trichloroethene: 17*** ***Vinyl Chloride: 0.39*** 1,2,4-Trimethylbenzene: 2.6 ND (all other)	NA
WES-12-GW	One Time Reconnaissance Sample - In SW corner of SE parking lot	4/5/2017	Gasoline Range: NA Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	Acetone: 29 ND (all other)	NA
WES-13-GW	One Time Reconnaissance Sample - In E central part of SE parking lot	4/5/2017	Gasoline Range: NA Diesel: 120[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 12 Tetrachloroethene: 3.1 ***Trichloroethene: 10*** ***Vinyl Chloride: 0.23*** ND (all other)	NA
WES-14-GW	One Time Reconnaissance Sample - NW corner of 104 12th Ave. basement, 8 feet east of W wall	7/23/2019	Gasoline Range: ND (<100) Diesel: 130[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
WES-15-GW	One Time Reconnaissance Sample - SW corner of 104 12th Ave. basement, 15 feet west of MW-3	7/23/2019	Gasoline Range: ND (<100) Diesel: 50[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
WES-16-GW	One Time Reconnaissance Sample - SE parking lot, S of King Co. warehouse, 30 ft east of SW corner	10/1/2019	Gasoline Range: ND (<100) Diesel: ND (50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 1.9 ND (all other)	NA
BN-1-GW	One Time Reconnaissance Sample - In SE corner of central open area of property	5/12/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-2-GW	One Time Reconnaissance Sample - Near SW corner of central open area of property	5/12/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene, Toluene, Ethyl benzene, Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Lead*** *Other Metals Analyses, as noted*
BN-3-GW	One Time Reconnaissance Sample - Outside rear entry to 110 12th Avenue bldg., in central open area of property	5/12/2017	Gasoline Range: ND (<100) Diesel: 79[x] Motor Oil: ND (<250)	Benzene: 0.65 Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-4-GW	One Time Reconnaissance Sample - In E central part of open area, adjacent to King Co. Archives bldg.	5/12/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-5-GW	One Time Reconnaissance Sample - in NE corner of parking lot E of 1209 Fir, near oil/water separator	5/12/2017	Gasoline Range: ND (<100) Diesel: 64[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-6-GW	One Time Reconnaissance Sample - in S area of parking lot E of 1209 Fir	5/12/2017	Gasoline Range: ND (<100) Diesel: 100[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	Acetone: 11 ND (all other)	NA
BN-7 Completed as **MW-8** - See Data Below						
BN-8-GW	One Time Reconnaissance Sample - NW gravel parking lot - former location of gas station service bay	5/15/2017	***Gasoline Range: 1,300*** ***Diesel: 830[x]*** Motor Oil: ND (<250)	Benzene: 1.6 Toluene: 1.3 Ethylbenzene: 12 Xylenes: 6.9	Hexane: 1.1 Isopropylbenzene: 28 n-Propylbenzene: 39 Naphthalene: 2.1 sec-Butylbenzene: 1.5 1,2,4-Trimethylbenzene: 3.9 ND (all other)	NA
BN-9-GW	One Time Reconnaissance Sample - NW gravel parking lot, W central part of lot- likely former UST location	5/15/2017	Gasoline Range: ND (<100) Diesel: 120[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-10 Completed as **MW-9** - See Data Below						
BN-11-GW	One Time Reconnaissance Sample - At S end of 1209 Fir bldg, inside gate to open area, top of slope	5/15/2017	Gasoline Range: ND (<100) Diesel: 460[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA

TABLE 3 (Continued)
Summary of Groundwater Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons ***(by Methods NWTPH-G & NWTPH-D(X))***	***Benzene*** ***Toluene*** ***Ethyl benzene*** ***Xylenes*** ***(by EPA Method 8260C)***	***Other Volatile Organic Compounds (by EPA Method 8260C)*** ***List of 58 Additional Compounds Detectable by the Laboratory Method.***	***Total Lead*** ***Other Metals Analyses, as noted***
BN-12-GW	One Time Reconnaissance Sample - in west entry to NW gravel parking lot	7/23/2019	Gasoline Range: ND (<100) Diesel: 200[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	ND (<1)
BN-13	Groundwater not encountered within the depth drilled.					
BN-14-GW	One Time Reconnaissance Sample - in SE corner of parking lot E of 1209 Fir, near intersection of King Co. Archives bldgs.	7/23/2019	Gasoline Range: ND (<100) Diesel: 230[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	ND (<1)
BN-15-GW	One Time Reconnaissance Sample - NW gravel parking lot, 15' SW of MW-8	7/23/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	ND (<1)
BN-16-GW	One Time Reconnaissance Sample - NW gravel parking lot, 15' NW of MW-8	7/23/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: 3.9	n-Propylbenzene: 1.5 1,2,4-Trimethylbenzene: 4.8 ND (all other)	ND (<1)
BN-17-GW	One Time Reconnaissance Sample - On slope in center open area of site, near NW corner of King Co. warehouse	7/23/2019	Gasoline Range: ND (<100) Diesel: 170[x] Motor Oil: 260[x]	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	13.8
HA-N-GW	One Time Reconnaissance Sample - in N crawlspace beneath 118 12th building.	5/15/2017	Gasoline Range: 770 Diesel: 410[x] Motor Oil: ND (<250)	Benzene: 1.9 Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 5.3 Isopropylbenzene : 3.5 n-Propylbenzene: 12 sec-Butylbenzene: 9.9 Trichloroethene: 1.6 ***Vinyl chloride: 1.9*** ND (all other)	NA
HA-S-GW	One Time Reconnaissance Sample - in S crawlspace beneath 118 12th building	5/15/2017	Gasoline Range: 600 ***Diesel: 730[x]*** Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	Isopropylbenzene : 9.3 n-Propylbenzene: 45 sec-Butylbenzene: 7.5 ND (all other)	NA
HA-3-GW	One Time Reconnaissance Sample - in crawlspace beneath 110 12th building	8/7/2017	Gasoline Range: ND (<100) Diesel: 100[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA

Boring/ Sample I.D.	Sample Location	Sample Date	Laboratory Analytical Results (ug/l)			
			Total Petroleum Hydrocarbons (by Methods NWTPH-G & NWTPH-D(X))	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Method 8260C)	**Other Volatile Organic Compounds (by EPA Method 8260C)** List of 58 Additional Compounds Detectable by the Laboratory Method.	**Total Lead** Other Metals Analyses, as noted
Off-Site Investigation Groundwater Samples						
OS-1-GW	One Time Reconnaissance Sample - In sidewalk of Yesler Way, adjacent to SE corner of parking lot for 104 12th Ave. building	8/3/2017	Gasoline Range: ND (<100) Diesel: 110[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 3.5 Trichloroethene: 2.7 ND (all other)	NA
OS-2-GW	One Time Reconnaissance Sample - In sidewalk of Yesler Way, adjacent to SE corner of 104 12th Ave. building	8/3/2017	Gasoline Range: ND (<100) Diesel: 130[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 1.4 ND (all other)	NA
OS-3-GW	One Time Reconnaissance Sample - In sidewalk of Yesler Way, SW of double doors to basement, 30' W of bldg. corner	8/3/2017	Gasoline Range: ND (<100) Diesel: 220[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
OS-4	One Time Reconnaissance Sample - In sidewalk of Yesler Way, SW of garage door into 104 12th Ave. building	8/3/2017	Dry Hole - No Groundwater Encountered			
OS-5-GW	One Time Reconnaissance Sample - In sidewalk of 12th Ave., 40' N of SW corner of 104 12th building	8/3/2017	Gasoline Range: ND (<100) Diesel: ND (<150) Motor Oil: ND (<750) (elevated D(x) detection limits due to limited sample volume)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
OS-6-GW	One Time Reconnaissance Sample - In sidewalk of 12th Ave., 15' S of NW corner of 104 12th bldg.	8/30/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: 1.1 Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
OS-7-GW	One Time Reconnaissance Sample - In Sidewalk of 12th Ave., adjacent to tree, 40' S of NW corner of 124 12th parking lot.	8/3/2017	Gasoline Range: ND (<100) Diesel: 84[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
OS-8-GW	One Time Reconnaissance Sample - In blvd. gravel strip N of 1209 E Fir bldg.	8/4/2017	Gasoline Range: ND (<100) Diesel: 66[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
OS-9-GW	One Time Reconnaissance Sample - In blvd. grass strip N of 124 12th Ave. parking lot	8/4/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene, Toluene, Ethyl benzene, Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Lead*** *Other Metals Analyses, as noted*
OS-10	In curb lane of 12th Ave., 10' N of NW corner of 104 12th Ave. bldg.	8/4/2017	Dry Hole - No Groundwater Encountered			
OS-11	In curb lane of 12th Ave., adjacent to vacant 118 12th Ave. bldg.	8/4/2017	Dry Hole - No Groundwater Encountered			
OS-12-GW	One Time Reconnaissance Sample - In sidewalk at S entry drive to NW gravel, parking lot.	8/3/2017	Gasoline Range: ND (<100) Diesel: 290x Motor Oil: ND (<250)	Benzene: 0.5 Toluene: 2.5 Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
Permanently Installed Monitoring Wells						
MW-1-GW	Pre-existing well in NE corner of 104 12th parking lot	6/30/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	Vinyl Chloride: 0.20 ND (all other)	NA
		10/30/2017	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	***Vinyl Chloride: 0.27*** ND (all other)	NA
		12/6/2018	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA Iron Dissolved: 247 Total: 562 Manganese Dissolved: 539 Total: 577
		7/22/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 2.1 ***Vinyl Chloride: 0.55*** ND (all other)	NA
MW-1S-GW	Shallow monitoring well in NE corner of 104 12th parking lot property. Outside fence accessed through King County parking area. Cluster with MW-1D	8/6/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	***Vinyl Chloride: 0.21*** ND (all other)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene, Toluene, Ethyl benzene, Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Lead*** *Other Metals Analyses, as noted*
MW-1D-GW	Deep monitoring well in NE corner of 104 12th parking lot property. Outside fence accessed through King County parking area. Cluster with MW-1S	8/6/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
MW-2-GW	Pre-existing well in NW corner of 104 12th parking lot	4/4/2017	Gasoline Range: NA Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
		10/30/2017	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		7/22/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
MW-3-GW	Pre-existing well adjacent to floor sump in SW corner of 104 12th basement	4/3/2017	Gasoline Range: 110 Diesel: 400x Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: 2.5 Ethylbenzene: ND (<1) Xylenes: 7.9	Acetone: 11 Naphthalene: 4.7 ***Vinyl Chloride: 0.34*** 1,2,4-Trimethylbenzene: 4.9 1,3,5-Trimethylbenzene: 1.1 ND (all other)	NA
		10/30/2017	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: 210x Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		2/25/2019	Gasoline Range: ND (<100) Diesel: 400x Motor Oil: ND (<300)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	ND (<1)

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene Toluene Ethyl benzene Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Lead*** *Other Metals Analyses, as noted*
MW-3 (Continued)		4/3/2019	Gasoline Range: ND (<100) Diesel: 420[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		7/23/2019	Gasoline Range: ND (<100) Diesel: 170[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	ND (<1)
MW-4-GW	Pre-existing well in SW corner of 104 12th parking lot	4/5/2017	Gasoline Range: NA Diesel: 67[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
		10/30/2017	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		7/23/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
MW-5-GW	Pre-existing well along N side of 104 12th parking lot	4/5/2017	Gasoline Range: NA Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	Acetone: 12 ND (all other)	NA
		10/30/2017	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 10 Tetrachloroethene: 1.4 ***Trichloroethene: 9.1*** ***Vinyl Chloride: 0.29*** ND (all other)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 8.3 Tetrachloroethene: 1.3 Trichloroethene: 5.0 ***Vinyl Chloride: 0.25*** ND (all other)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene Toluene Ethyl benzene Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Lead*** *Other Metals Analyses, as noted*
MW-5 (Continued)		12/6/2018	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 8.4 Tetrachloroethene: 2.1 ***Trichloroethene: 11*** ***Vinyl Chloride: 0.37*** ND (all other)	NA Iron Dissolved: 195 Total: 283 Manganese Dissolved: 478 Total: 472
		7/22/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 10 Tetrachloroethene: 1.1 ***Trichloroethene: 6.5*** ND (all other)	ND (<1)
MW-6-GW	Pre-existing well near NW corner of 104 12th basement	4/4/2017	Gasoline Range: NA Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: 1.2 Ethylbenzene: ND (<1) Xylenes: 5.5	cis-1,2-Dichloroethene: 1.3 1,2,4-Trimethylbenzene: 3.4 ND (all other)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 9.6 Chloroform 1.1 Tetrachloroethene 1.2 ND (all other)	NA
		7/23/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	***cis-1,2-Dichloroethene: 17*** Trichloroethene: 1.7 ND (all other)	NA
MW-7-GW (Drilled as WES–8)	In N corridor of 104 12th basement, 25' W of WES-7	6/30/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		7/23/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene*** ***Toluene*** ***Ethyl benzene*** ***Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Lead*** *Other Metals Analyses, as noted*
MW-8-GW (Drilled as BN-7)	Near NW corner of 124 12th property - former location of gas station pump island	8/3/2017	***Gasoline Range: 3,200*** ***Diesel: 790[x]*** Motor Oil: ND (<250)	***Benzene: 11*** Toluene: ND (<1) Ethylbenzene: 71 Xylenes: m&p: 360 o: 59	Isopropylbenzene: 12 n-Propylbenzene: 24 Naphthalene: 8.9 p-Isopropyltoluene: 1.1 sec-Butylbenzene: 1.8 1,2,4-Trimethylbenzene: 180 1,3,5-Trimethylbenzene: 59 ND (all other)	NA
		6/28/2018	***Gasoline Range: 2,400*** Diesel: 160[x] Motor Oil: ND (<250)	Benzene: 2.9 Toluene: ND (<1) Ethylbenzene: 85 Xylenes: m&p: 320 o: 64	Isopropylbenzene: 14 n-Propylbenzene: 33 Naphthalene: 1.6 p-Isopropyltoluene: 1.1 sec-Butylbenzene: 1.9 1,2,4-Trimethylbenzene: 150 1,3,5-Trimethylbenzene: 54 ND (all other)	NA
		7/23/2019	Gasoline Range: 740 Diesel: 64[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: 10 Xylenes: 96	Isopropylbenzene: 3.1 n-Propylbenzene: 8.1 sec-Butylbenzene: 1.0 1,2,4-Trimethylbenzene: 67 1,3,5-Trimethylbenzene: 27 ND (all other)	ND (<1)
MW-9-GW (Drilled as BN-10)	NW gravel parking lot, S end of parking lot - likely S of former UST location	8/3/2017	Gasoline Range: 500 Diesel: 270[x] Motor Oil: ND (<250)	***Benzene: 6.8*** Toluene: 1.3 Ethylbenzene: 6.3 Xylenes: 4.3	Hexane: 4.3 Isopropylbenzene: 7.2 n-Propylbenzene: 17 sec-Butylbenzene: 1.5 1,2,4-Trimethylbenzene: 1.3 1,3,5-Trimethylbenzene: 1.4 ND (all other)	NA
		7/13/2018	Gasoline Range: 470 Diesel: 180[x] Motor Oil: ND (<250)	Benzene: 5.0 Toluene: ND (<1) Ethylbenzene: 8.5 Xylenes: 3.2	Isopropylbenzene: 12 n-Propylbenzene: 23 sec-Butylbenzene: 1.9 1,2,4-Trimethylbenzene: 1.1 ND (all other)	NA
		7/23/2019	Gasoline Range: 500 Diesel: 210[x] Motor Oil: ND (<250)	Benzene: 2.1 Toluene: ND (<1) Ethylbenzene: 10 Xylenes: 96	Hexane: 1.4 Isopropylbenzene: 16 n-Propylbenzene: 48 sec-Butylbenzene: 3.9 ND (all other)	ND (<1)

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene Toluene Ethyl benzene Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Lead*** *Other Metals Analyses, as noted*
MW-10 (Drilled as SES-1)	In SE corner of 104 12th parking lot property. Outside fence accessed through King County parking area.	11/3/2017	Gasoline Range: ND (<100) Diesel: 69[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: 66[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 1.2 ND (all other)	NA
		7/22/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	ND (<1)
MW-11	On E edge of 104 12th parking lot property. Outside fence accessed through King County parking area.	7/22/2019	Gasoline Range: ND (<100) Diesel: 400[x] Motor Oil: 370[x]	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 1.9 ND (all other)	ND (<1)
MW-12	In SE central part of 104 12th parking lot property.	7/22/2019	Gasoline Range: ND (<100) Diesel: 140[x] Motor Oil: 270[x]	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	ND (<1)
MW-13	Sidewalk of Yesler Way, of garage door entry, adjacent to OS-4.	10/3/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
MW-14	At base of slope in open Center part of property, outside tenant access to former dry cleaner space in 118 12th bldg.	7/22/2019	Gasoline Range: ND (<100) Diesel: 130[x] Motor Oil: ND (<250)	Benzene: 1.8 Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 2.3 ***Vinyl chloride:*** ***0.65*** ND (all other)ND (all)	ND (<1)
Geotech B-7 (GEO B-7)	In NW part of parking lot E of 104 12th , between previous borings MW-2 and MW-5	12/6/2018	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 1.1 ND (all other)	NA
		7/22/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 3.0 Trichloroethene: 2.3 ND (all other)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene, Toluene, Ethyl benzene, Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Lead*** *Other Metals Analyses, as noted*
Geotech B-8 (GEO B-8)	In S central area of NW gravel parking lot, between borings BN-10, AEG-B-2 and AEG-B-4	12/6/2018	Gasoline Range: ND (<100) Diesel: 210[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	Isopropylbenzene: 1.1 n-Propylbenzene: 1.8 ND (all other)	NA
		7/23/2019	Gasoline Range: ND (<100) Diesel: 140[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	ND (<1)
Geotech B-9 (GEO B-9)	In NE part of parking lot E of 104 12th, between previous borings MW-5 and MW-1	12/6/2018	Gasoline Range: ND (<100) Diesel: 76[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 2.4 ***Vinyl chloride: 0.36*** ND (all other)	NA
		7/23/2019	Gasoline Range: ND (<100) Diesel: 59[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 1.4 ND (all other)	NA
Washington State Model Toxics Control Act (MTCA) Groundwater Cleanup Criteria (ug/l)			***Gasoline: 800[A]*** ***(Benzene is present)*** ***Diesel or Motor Oil: 500[A] (combined)***	***Benzene: 5[A]*** ***Toluene: 1,000[A]*** ***Ethylbenzene: 700[A]*** ***Xylenes: 1,000[A]***	***Acetone: 7,200[B]*** ***cis-1,2-Dichloroethene: 16*** ***Hexane: 480[B]*** ***Isopropylbenzene: 800[B]*** ***n-Propylbenzene: 800[B]*** ***Naphthalene: 160[B]*** ***p-Isopropyltoluene: NV*** ***sec-Butylbenzene: 800[B]*** ***tert-Butylbenzene: 800[B]*** ***Tetrachloroethene: 5[A]*** ***Trichloroethene: 5[A]*** ***Vinyl chloride: 0.2[A]*** ***1,2,4-Trimethylbenzene: 80[B]*** ***1,3,5-Trimethylbenzene: 80[B]***	***Lead: 15[A]*** ***Iron: 11,000[B]*** ***Manganese: 750[B]***

Table 3 Notes:
ND (<XXX) - Parameter not detected at concentrations at or above the noted reporting limit.
NA - Sample not analyzed for the listed parameter.
Gasoline Range Total Petroleum Hydrocarbons by Method NWTPH-G.
Diesel and Motor Oil Range Total Petroleum Hydrocarbons by Method NWTPH-D(x).
[x] - Indicates sample chromatogram does not resemble fuel standard used for analysis. Most likely carry over from gasoline range hydrocarbons, or non-petroleum organic matter.
BTEX compounds and other volatile organic compounds by EPA Method 8260C. All detected compounds summarized here. See laboratory report for full list of analyzed parameters.
Total Lead on unfiltered samples by EPA Method 6020B.
Dissolved and total Iron and Manganese as general water parameters as part of clean-up feasability study. Analyses by EPA Method 6020B.

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

A - Method A listed
B - Method B Direct Contact
NV - No published value

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

Summary of Sub-Slab Soil Vapor Sample Analytical Results
104 12th Avenue, Seattle, Washington

Sample I.D.	***Sample Location***	***Laboratory Analytical Results (ug/m³)***
		Volatile Organic Compounds ***78 Compounds Detectable by the Laboratory Method - Only detected compounds included here. See laboratory report for full list of analyzed parameters.***
SSVP-1	In NW corner of basement level of building, 9 ft from N and W walls	Acetone: 210 Benzene: 2.6 Cyclopentane: 2.6 Ethanol: 27[F] Ethylbenzene: 6.1 Hexane: 33 Isobutene: 14 Methyl-ethyl-ketone: 16 ***Naphthalene: 3.1*** Pentane: 24 Propene: 56 2-Propanol: 110* Toluene: 24 m,p - Xylene: 34 o - Xylene: 8.9 1,2,4 Trimethylbenzene: 9.7
SSVP-2	In NW area of basement level of building, 9' from N wall, 28' from W wall	Benzene: 2.0 ***Bromodichloromethane: 5.1*** ***Chloroform: 96*** Cyclopentane: 4.5 Ethylbenzene: 6.9 Hexane: 14 ***Naphthalene: 6.9*** Pentane: 36 Propene: 3.8 Tetrachloroethene: 8.6 Toluene: 24 m - Xylene: 40 o - Xylene: 11 1,2,4 Trimethylbenzene: 19
SSVP-3	In NW area of basement level of building, 42' from N. wall, 9' from W wall	Acetone: 73 Benzene: 2.7 ***Chloroform: 5.8*** Cyclopentane: 2.9 Dichlorodifluoromethane: 1.3 Ethanol: 50[F] Ethylbenzene: 12 Hexane: 23 Methyl-t butyl ether: 1.1 ***Naphthalene: 5.8*** Pentane: 26 Propene: 3.4 2-Propanol: 98* Tetrachloroethene: 15 Toluene: 39 m - Xylene: 68 o - Xylene: 18 1,2,4 Trimethylbenzene: 25

Summary of Sub-Slab Soil Vapor Sample Analytical Results
104 12th Avenue, Seattle, Washington

Sample I.D.	***Sample Location***	***Laboratory Analytical Results (ug/m^3)***	
		Volatile Organic Compounds ***78 Compounds Detectable by the Laboratory Method - Only detected compounds included here. See laboratory report for full list of analyzed parameters.***	
Ecology Draft Sub-Slab Screening Levels:		***Acetone:***	***NV***
		Benzene:	***10.7***
		Bromodichloromethane:	***2.25***
		Chloroform:	***3.62***
		Cyclopentane:	***NV***
		Dichlorodifluoromethane:	***1,520***
		Ethanol:	***NV***
		Ethylbenzene:	***15,200***
		Hexane:	***10,700***
		Isobutene:	***NV***
		Methyl-ethyl-ketone:	***76,200***
		Methyl-t butyl ether:	***321***
		Naphthalene:	***2.45***
		Pentane:	***NV***
		Propene:	***NV***
		2-Propanol:	***NV***
		Tetrachloroethene:	***321***
		Toluene:	***76,200***
		m - Xylene:	***1,520***
		o - Xylene:	***1,520***
		1,2,4 Trimethylbenzene:	***107***

Table 4 Notes:
Volatile organic compounds by EPA Method TO-15.
Table shows all detected compounds. See laboratory report for full analytical parameter list.

Screening levels from Ecology Publication 09-09-047, Draft Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, with updated screening level table April 6, 2015.
NV- No Value. Parameter is not included in Ecology screening level table.

F - Laboratory flagged result due to calibration results outside accepted criteria. Reported value is an estimate.
* - 2-propanol used as a field integrity check for sampling. Presence in the sample does not indicate presence in soil vapor.

Sample results exceeding applicable screening levels are noted in ***Bold Italic***.

TABLE 4A
Summary of Deep Soil Vapor Sample Analytical Results
104 12th Avenue, Seattle, Washington

Sample I.D.	***Sample Location***	***Laboratory Analytical Results (ug/m^3)***
		Volatile Organic Compounds ***78 Compounds Detectable by the Laboratory Method*** ***- Only detected compounds included here. See laboratory report for full list of analyzed parameters.***
DSVP-1	In SE parking lot 10 ft from S wall of King Co. warehouse	Acetone: 120 Benzene: 27 Butane: 130 Carbon disulfide: 25 Chloroform: 0.21 cis-1,2 dichloroethene: 57 Dichlorodifluoromethane: 1.5 Ethylbenzene: 1.8 Heptane: 35 Hexane: 140 Methyl-ethyl-ketone: 32 Naphthalene: 2.7 Pentane: 120 Propene: 240 trans-1,2-Dichloroethene: 22 Trichloroethene: 8.2 ***Vinyl chloride: 65*** m,p - Xylene: 4.1 o - Xylene: 1.9 1,2 Dichloropropane: 0.70 1,3 Dichlorobenzene: 32 2-Hexanone: 19 2-Propanol: 51*
DSVP-2	In N central part of SE parking lot	Acetone: 150 Benzene: 31 Butane: 94 Carbon disulfide: 44 Chloroform: 0.64 cis-1,2 dichloroethene: 19 Dichlorodifluoromethane 1.7 Ethylbenzene: 4.8 Heptane: 35 Hexane: 97 Methyl-ethyl-ketone: 26 ***Naphthalene: 18*** Pentane: 71 Propene: 170 Trichloroethene: 1.5 m,p - Xylene: 5.5 o - Xylene: 2.6 1,3 Dichlorobenzene: 36 2-Propanol: 77

TABLE 4A
Summary of Deep Soil Vapor Sample Analytical Results
104 12th Avenue, Seattle, Washington

Sample I.D.	Sample Location	Laboratory Analytical Results (ug/m^3)	
		Volatile Organic Compounds 78 Compounds Detectable by the Laboratory Method - Only detected compounds included here. See laboratory report for full list of analyzed parameters.	
Ecology Draft Deep Soil Gas Screening Levels:		Acetone:	NV
		Benzene:	32.1
		Carbon disulfide:	32,000
		Chloroform:	10.9
		Cis-1,2-dichloroethene:	NV
		Dichlorodifluoromethane:	4,570
		Ethylbenzene:	45,700
		Heptane:	NV
		Hexane:	32,000
		Methyl-ethyl-ketone:	229,000
		Naphthalene:	7.35
		Pentane:	NV
		Propene:	NV
		Trans-1,2-Dichloroethene:	NV
		Trichloroethene:	37
		Trichloroethene - Residential short-term exposure:	67*
		Vinyl chloride:	28
		m - Xylene::	4,570
		o - Xylene:	4,570
		1,2,4 Trimethylbenzene:	320
		2-Propanol:	NV

Table 4A Notes:
Volatile organic compounds by EPA Method TO-15.
Table shows all detected compounds. See laboratory report for full analytical parameter list.

Screening levels from Ecology Publication 09-09-047, Draft Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, with updated screening level table April 6, 2015.

* - TCE Residential Short-term screening level for sub-slab soil vapors from Ecology Implementation Memorandum No. 22, Vapor Intrusion (VI) Investigations and Short-term Trichloroethene (TCE) Toxicity, October 1, 2019. No deep soil screening level was developed for short-term exposures, so sub-slab screening levels may be applied.

NV- No Value. Parameter is not included in Ecology screening level table.

F - Laboratory flagged result due to calibration results outside accepted criteria. Reported value is an estimate.

Sample results exceeding applicable screening levels are noted in ***Bold Italic***.

Table 5
Summary of Groundwater Level Measurements
104 - 124 12th Avenue and 1209 E. Fir Street
Seattle, Washington

Monitoring Well	*Date*	*Top of Pipe Elevation*	*Water Level Below T.O.P.*	*Water Elevation*	*Comments*
MW-1	10/30/2017	200.26	-6.68	193.58	2" Well, 29' deep
	11/7/2017		-6.37	193.89	
	6/14/2018		-6.28	193.98	
	9/7/2018		-7.55	192.71	
	12/6/2018		-8.15	192.11	
	2/25/2018		-5.34	194.92	
	7/22/2019		-6.90	193.36	
	9/3/2019		-7.54	192.72	
MW-1S	10/30/2017	198.99	Not installed yet		
	11/7/2017		Not installed yet		
	6/14/2018		Not installed yet		
	9/7/2018		Not installed yet		
	12/6/2018		Not installed yet		
	2/25/2019		Not installed yet		
	7/22/2019		Not installed yet		
	9/3/2019		-6.72	192.27	2" Well, 15' deep, 10' screen
MW-1D	10/30/2017	199.02	Not installed yet		
	11/7/2017		Not installed yet		
	6/14/2018		Not installed yet		
	9/7/2018		Not installed yet		
	12/6/2018		Not installed yet		
	2/25/2019		Not installed yet		
	7/22/2019		Not installed yet		
	9/3/2019		-5.58	193.44	2" Well, 40' deep, 5 ft screen

Table 5
Summary of Groundwater Level Measurements
104 - 124 12th Avenue and 1209 E. Fir Street
Seattle, Washington

Monitoring Well	*Date*	*Top of Pipe Elevation*	*Water Level Below T.O.P.*	*Water Elevation*	*Comments*
MW-2	10/30/2017	201.08	-5.94	195.14	2" Well, 29' deep
	11/7/2017		-5.78	195.30	
	6/14/2018		-5.83	195.25	
	9/7/2018		-7.29	193.79	
	12/6/2018		-6.42	194.66	
	2/25/2018		-6.71	194.37	
	7/22/2019		-6.11	194.97	
	9/3/2019		-6.62	194.46	
MW-3	10/30/2017	199.98	-4.81	195.17	3/4" Well, 10.6' deep
	11/7/2017		-5.09	194.89	
	6/14/2018		-4.80	195.18	
	9/7/2018		-5.86	194.12	
	12/6/2018		-4.15	195.83	
	2/25/2019		-3.71	196.27	
	7/22/2019		-5.15	194.83	
	9/3/2019		-5.64	194.34	
MW-4	10/30/2017	199.36	-8.65	190.71	2" Well, 29' deep
	11/7/2017		-8.45	190.91	
	6/14/2018		-8.32	191.04	
	9/7/2018		-10.02	189.34	
	12/6/2018		-7.98	191.38	
	2/25/2019		-7.03	192.33	
	7/22/2019		-8.68	190.68	
	9/3/2019		-9.18	190.18	

Table 5
Summary of Groundwater Level Measurements
104 - 124 12th Avenue and 1209 E. Fir Street
Seattle, Washington

Monitoring Well	*Date*	*Top of Pipe Elevation*	*Water Level Below T.O.P.*	*Water Elevation*	*Comments*
MW-5	10/30/2017	200.99	-6.53	194.46	3/4" Well, 12' deep
	11/7/2017		-6.22	194.77	
	6/14/2018		-6.10	194.89	
	9/7/2018		-7.47	193.52	
	12/6/2018		-5.69	195.30	
	2/25/2019		-4.95	196.04	
	7/22/2019		-6.76	194.23	
	9/3/2019		-7.13	193.86	
MW-6	10/30/2017	200.27	-2.75	197.52	3/4" Well, 12' deep
	11/7/2017		-2.10	198.17	
	6/14/2018		-2.82	197.45	
	9/7/2018		-4.85	195.42	
	12/6/2018		-2.07	198.20	
	2/25/2019		-1.70	198.57	
	7/22/2019		-3.23	197.04	
	9/3/2019		-4.58	195.69	
MW-7	10/30/2017	199.56	-2.41	197.15	1" Well, 11.5' deep
	11/7/2017		-1.70	197.86	
	6/14/2018		-2.66	196.90	
	9/7/2018		-4.34	195.22	
	12/6/2018		-1.69	197.87	
	2/25/2019		-2.32	197.24	
	7/22/2019		-3.18	196.38	
	9/3/2019		-4.07	195.49	

Table 5
Summary of Groundwater Level Measurements
104 - 124 12th Avenue and 1209 E. Fir Street
Seattle, Washington

Monitoring Well	***Date***	***Top of Pipe Elevation***	***Water Level Below T.O.P.***	***Water Elevation***	***Comments***
MW-8 (Drilled as BN-7)	10/30/2017	216.51	NM	--	2" Well, 22' deep
	11/7/2017		-15.16	201.35	
	6/28/2018		-15.27	201.24	
	9/7/2018		-15.76	200.75	
	12/6/2018		-14.92	201.59	
	2/25/2019		-14.13	202.38	
	7/22/2019		-15.41	201.10	
	9/3/2019		-15.62	200.89	
MW-9 (Drilled as BN-10)	10/30/2017	214.25	NM	--	2" Well, 25' deep
	11/7/2017		-13.14	201.11	
	7/13/2018		-13.99	200.26	
	9/7/2018		-14.71	199.54	
	12/6/2018		NM	--	
	2/25/2019		-12.07	202.18	
	7/22/2019		-14.04	200.21	
	9/3/2019		-14.46	199.79	
MW-10 (Drilled as SMW-01)	10/30/2017	196.88	Not installed yet		
	11/7/2017		-10.21	186.67	2" Well, 15' deep
	6/14/2018		-9.88	187.00	
	9/7/2018		-10.35	186.53	
	12/6/2018		NM	--	
	2/25/2019		NM	--	
	7/22/2019		-10.04	186.84	
	9/3/2019		-9.95	186.93	

Table 5
Summary of Groundwater Level Measurements
104 - 124 12th Avenue and 1209 E. Fir Street
Seattle, Washington

Monitoring Well	*Date*	*Top of Pipe Elevation*	*Water Level Below T.O.P.*	*Water Elevation*	*Comments*
MW-11	10/30/2017	198.20	Not installed yet		
	11/7/2017		Not installed yet		
	6/14/2018		Not installed yet		
	9/7/2018		Not installed yet		
	12/6/2018		Not installed yet		
	2/25/2019		Not installed yet		
	7/22/2019		Not installed yet		
	9/3/2019		-6.54	191.66	2" Well, 15' deep
MW-12	10/30/2017	198.89	Not installed yet		
	11/7/2017		Not installed yet		
	6/14/2018		Not installed yet		
	9/7/2018		Not installed yet		
	12/6/2018		Not installed yet		
	2/25/2019		Not installed yet		
	7/22/2019		Not installed yet		
	9/3/2019		-7.69	191.20	2" Well, 15' deep
MW-13	10/30/2017	Not Determined Yet	Not installed yet		
	11/7/2017		Not installed yet		
	6/14/2018		Not installed yet		
	9/7/2018		Not installed yet		
	12/6/2018		Not installed yet		
	2/25/2019		Not installed yet		
	7/22/2019		Not installed yet		
	9/3/2019		Not installed yet		2" Well, 20' deep

Table 5
Summary of Groundwater Level Measurements
104 - 124 12th Avenue and 1209 E. Fir Street
Seattle, Washington

Monitoring Well	*Date*	*Top of Pipe Elevation*	*Water Level Below T.O.P.*	*Water Elevation*	*Comments*
MW-14	10/30/2017	203.09	Not installed yet		
	11/7/2017		Not installed yet		
	6/14/2018		Not installed yet		
	9/7/2018		Not installed yet		
	12/6/2018		Not installed yet		
	2/25/2019		Not installed yet		
	7/22/2019		Not installed yet		
	9/3/2019		-5.64	197.45	2" Well, 15' deep
GEO B-7	10/30/2017	201.12	Not installed yet		
	11/7/2017		Not installed yet		
	6/14/2018		Not installed yet		
	9/7/2018		Not installed yet		
	12/6/2018		-5.70	195.42	2" Well, 20' deep
	2/25/2019		-5.85	195.27	
	7/22/2019		-5.91	195.21	
	9/3/2019		NM	--	
GEO B-8	10/30/2017	214.79	Not installed yet		
	11/7/2017		Not installed yet		
	6/14/2018		Not installed yet		
	9/7/2018		Not installed yet		
	12/6/2018		-13.83	200.96	2" Well, 35' deep
	2/25/2019		NM	--	
	7/22/2019		-14.13	200.66	
	9/3/2019		-15.25	199.54	

Table 5
Summary of Groundwater Level Measurements
104 - 124 12th Avenue and 1209 E. Fir Street
Seattle, Washington

Monitoring Well	*Date*	*Top of Pipe Elevation*	*Water Level Below T.O.P.*	*Water Elevation*	*Comments*
GEO B-9	10/30/2017	200.69	Not installed yet		
	11/7/2017		Not installed yet		
	6/14/2018		Not installed yet		
	9/7/2018		Not installed yet		
	12/6/2018		-6.33	194.36	2" Well, 15' deep
	2/25/2019		-5.37	195.32	
	7/22/2019		-6.67	194.02	
	9/3/2019		-7.57	193.12	

Table Notes:
NM - Not measured due to obstruction over well.
Top of Pipe elevations determined by site surveys, Terrane, Inc., November 2017 and August 2019.

APPENDIX A

Figures

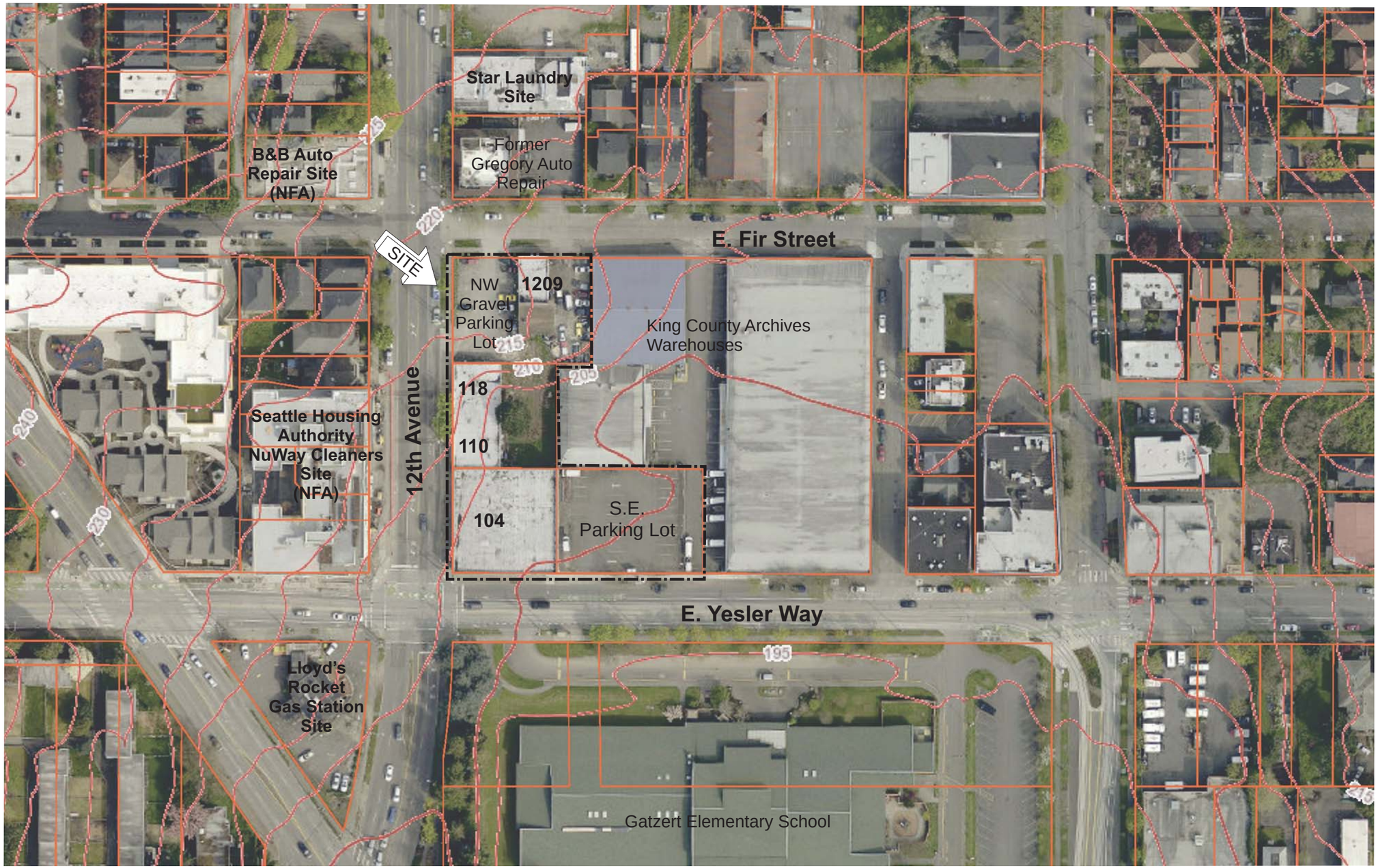


Figure 1 - Site Map

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

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

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Legend

Approximate Property Line

Ground Surface Contours
(Elevations Noted)

Base Photo from King County IMap

North

0 100'

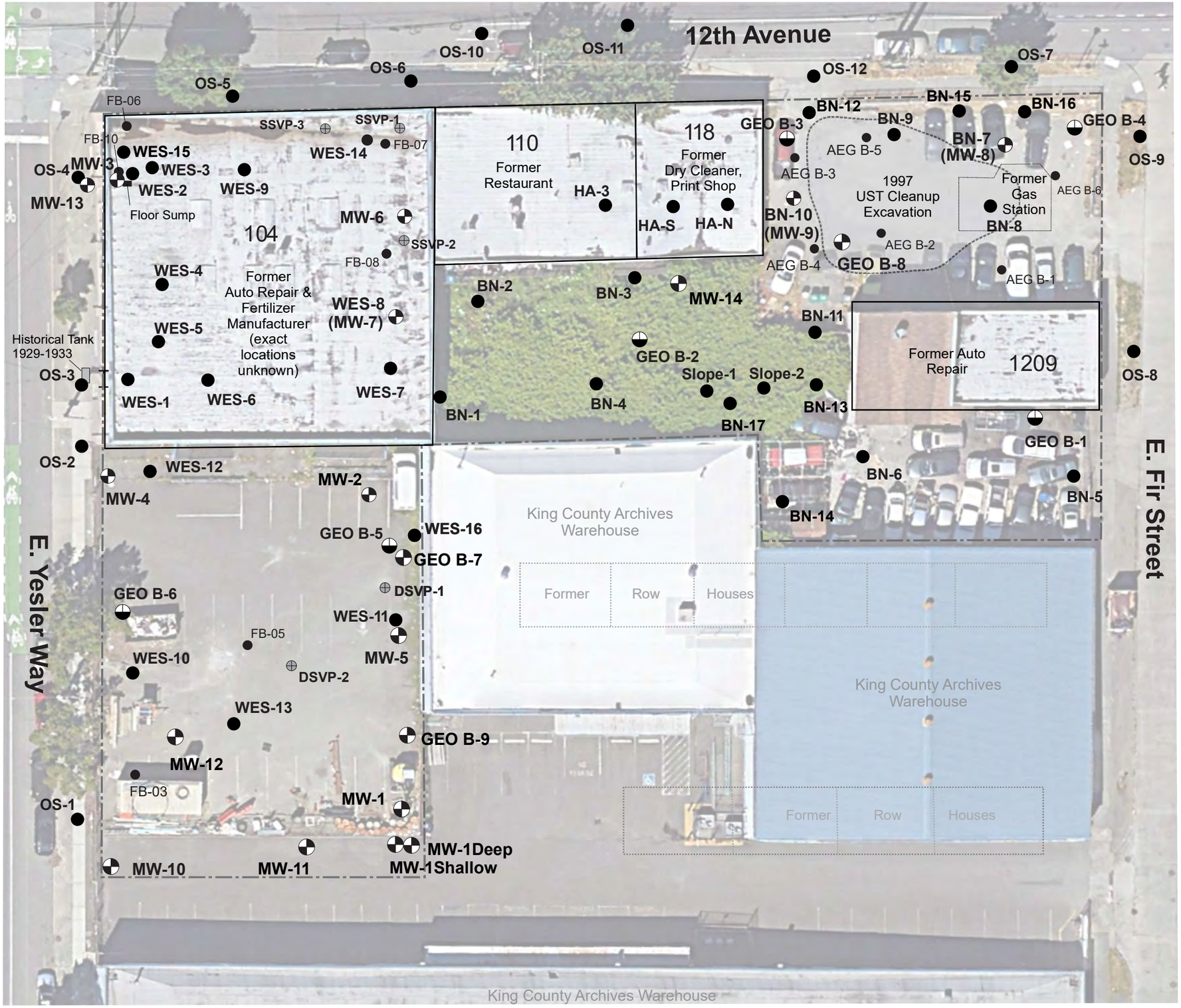
Scale 1" = Approx. 100 feet

Figure 2 - Site and Vicinity Plan

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

Project No.	WES - 1591
Date	June 17, 2017
File ID.	1591F2

WHITMAN
Environmental Sciences



Legend

- Approximate Location of Monitoring Well
- Approximate Location of Environmental Boring
- Approximate Location of Geotechnical Soil Boring (Limited Data)
- Prior Soil Boring (2014-2016, Limited or No Data)
- Approximate Location of Sub-Slab or Deep Soil Vapor Sample

North

0 30’

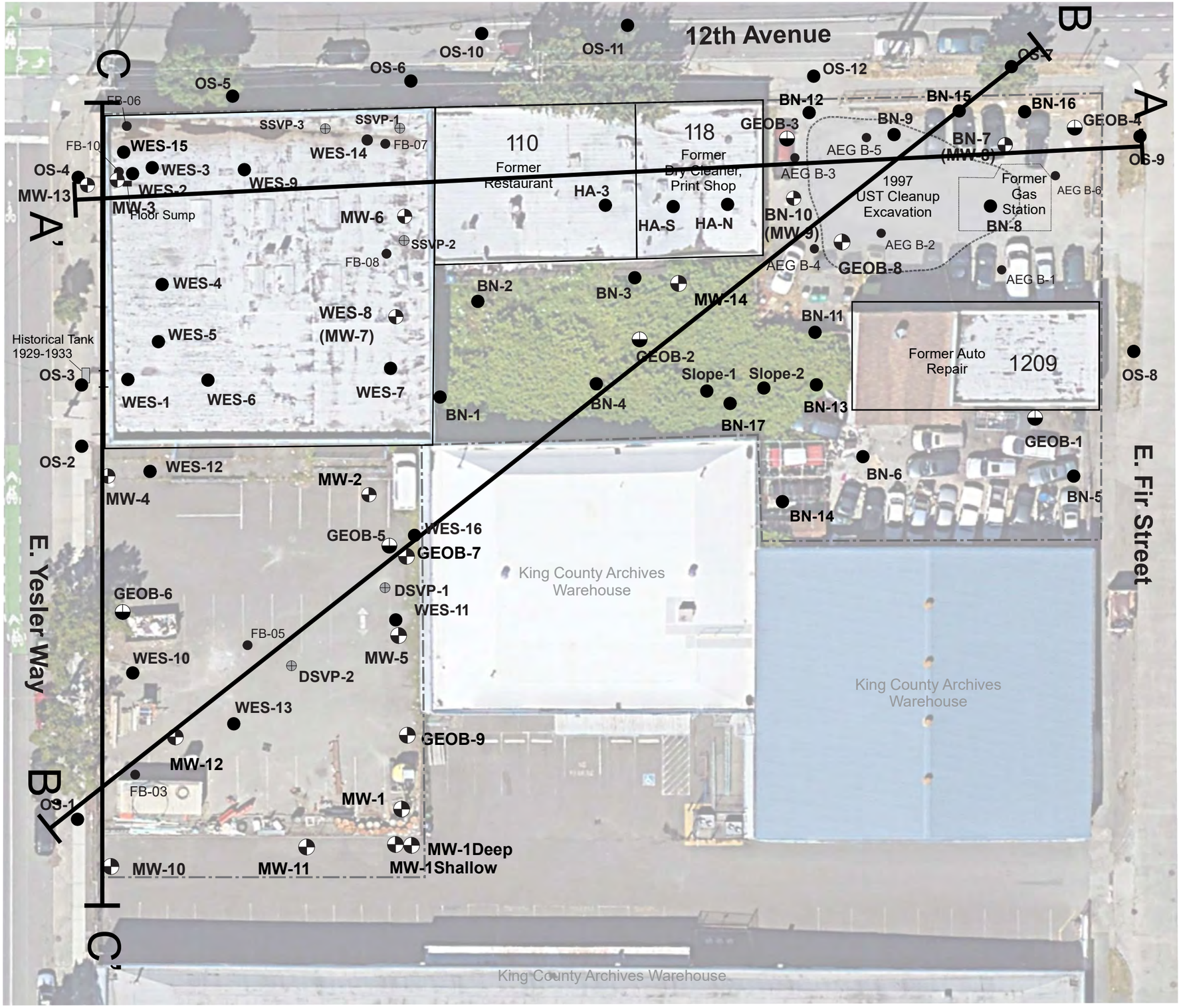
Scale 1" = Approx. 30 feet

Figure 3 - Site and Soil Boring Location Plan

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

Project No.	WES - 1591A
Date	Oct 1, 2019
File ID.	1591AF3

WHITMAN
Environmental Sciences



Legend

- Approximate Location of Monitoring Well
- Approximate Location of Environmental Boring
- Approximate Location of Geotechnical Soil Boring (Limited Data)
- Prior Soil Boring (2014-2016, Limited or No Data)
- Approximate Location of Sub-slab or Deep Soil Vapor Sample

North

0 30'

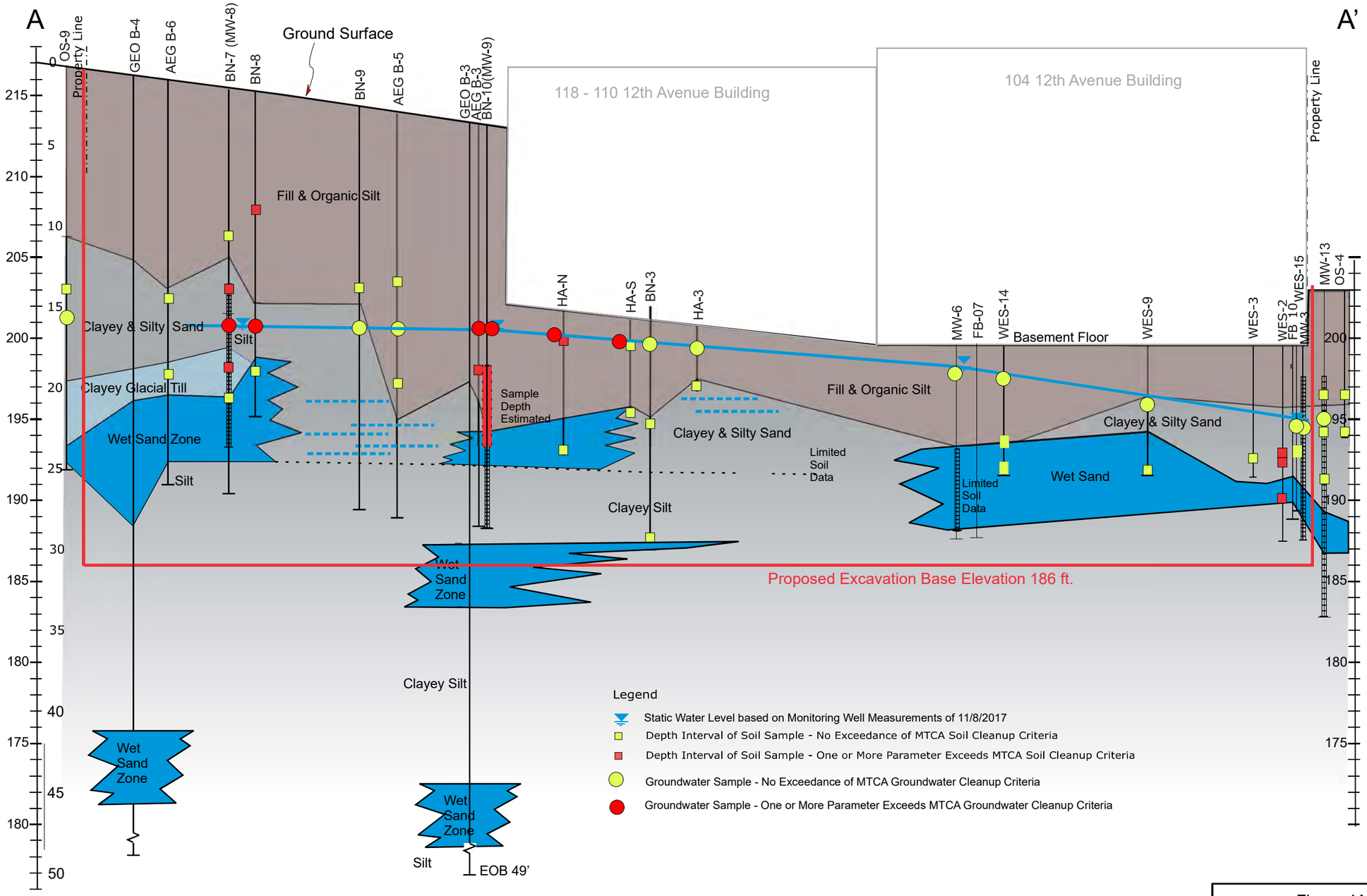
Scale 1" = Approx. 30 feet

Figure 4 - Cross-Section Orientation Plan

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

Project No.	WES - 1591A
Date	Aug 21, 2019
File ID.	1591AF4

WHITMAN
Environmental Sciences



Horizontal Scale - 1"= 25 ft.
Vertical Scale 1"= 6.67 ft.
(4X Vertical Exaggeration)

Figure 4A - Cross-Section A-A'

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

Project No.	WES - 1591
Date	Aug 17, 2019
File ID.	1591AF4A

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B

Former Gas Station Area

B’

OS-7 | Property Line | BN-7(MW-8) | BN-15 | BN-9 | AEG B-5 | Geotech NW B-3 | AEG B-3 | BN-10(MW-9) | AEG B-4 | HA-N | MW-14 | GEO B-2 | BN-4 | MW-2 | WES-16 | WES-11 | MW-5 | GEO B-2 | FB-05 | WES-13 | MW-12 | FB-03 | MW-10 | Property Line | OS-1

215 | 210 | 205 | 200 | 195 | 190 | 185 | 180 | 175

Ground Surface

King County Warehouse

S.E. Parking Lot

Fill & Organic Silt

Clayey & Silty Sand

Silt

Clayey Glacial Till

Wet Sand Zone

Silt

Sample Depth Estimated

Wet Sand

Silt

Fill & Organic Silt

Clayey & Silty Sand

Wet Sand Zone

Clayey & Silty Sand

Proposed Excavation Base Elevation 186 Ft.

No Soil Data

No Soil Data

No Soil Data

Clayey & Silty Sand

Wet Sand Zone

Wet Sand

Wet Sand Zone

Clayey Silt

Wet Sand Zone

Clayey Silt

Silt

Silt

EOB 49’

Silt

EOB 43.5’

Wet Sand Zone

EOB 43.5’

Legend

- Static Water Level based on Monitoring Well Measurements of 11/8/2017
- Depth Interval of Soil Sample - No Exceedance of MTCA Soil Cleanup Criteria
- Depth Interval of Soil Sample - One or More Parameter Exceeds MTCA Soil Cleanup Criteria
- Groundwater Sample - No Exceedance of MTCA Groundwater Cleanup Criteria
- Groundwater Sample - One or More Parameter Exceeds MTCA Groundwater Cleanup Criteria

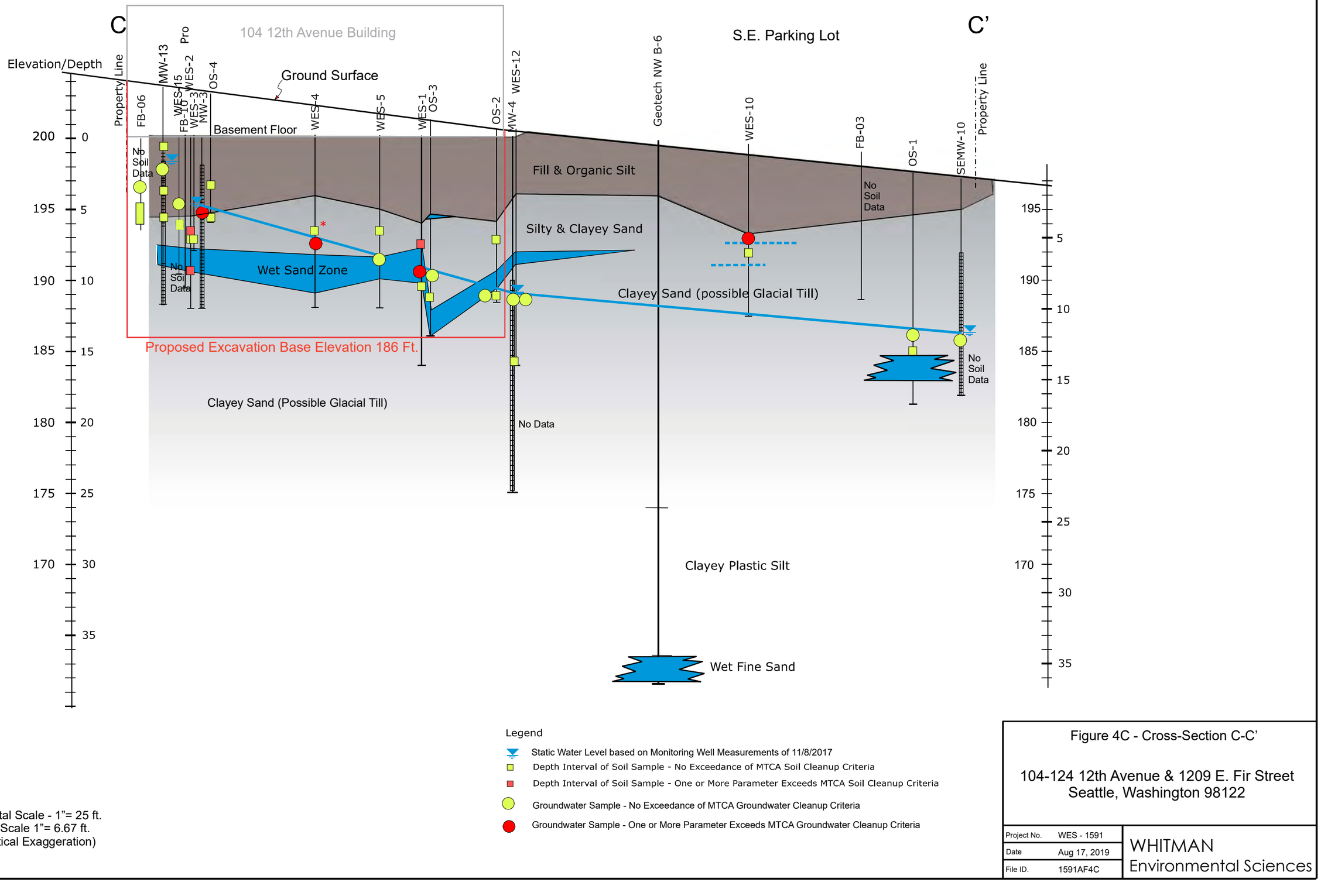
Horizontal Scale - 1”= 30 ft.
Vertical Scale 1”= 7.5 ft.
(4X Vertical Exaggeration)

Figure 4B - Cross-Section B-B’

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

Project No.	WES - 1591
Date	Aug 17, 2019
File ID.	1591AF4B

WHITMAN
Environmental Sciences



Horizontal Scale - 1"= 25 ft.
Vertical Scale 1"= 6.67 ft.
(4X Vertical Exaggeration)

Legend

- Static Water Level based on Monitoring Well Measurements of 11/8/2017
- Depth Interval of Soil Sample - No Exceedance of MTCA Soil Cleanup Criteria
- Depth Interval of Soil Sample - One or More Parameter Exceeds MTCA Soil Cleanup Criteria
- Groundwater Sample - No Exceedance of MTCA Groundwater Cleanup Criteria
- Groundwater Sample - One or More Parameter Exceeds MTCA Groundwater Cleanup Criteria

Figure 4C - Cross-Section C-C'

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

Project No.	WES - 1591
Date	Aug 17, 2019
File ID.	1591AF4C

WHITMAN
Environmental Sciences



Legend

- Approximate Location of Monitoring Well
- MW-X 195.77 — Well I.D. and Groundwater Elevation
- Inferred Groundwater Elevation Contour
- General Direction of Groundwater Migration
- Approximate Location of Soil Borings (2014-19)
- Approximate Property Boundary

North

0 30’

Scale 1" = Approx. 30 feet

Figure 5A - Inferred Groundwater Contours
10/30/2017

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

Project No.	WES - 1591A
Date	Sep 9, 2019
File ID.	1591AF5A

WHITMAN
Environmental Sciences



Legend

- Approximate Location of Monitoring Well
- MW-X 195.77 — Well I.D. and Groundwater Elevation
- Inferred Groundwater Elevation Contour
- General Direction of Groundwater Migration
- Approximate Location of Soil Borings (2014-19)
- Approximate Property Boundary

North

0 30’

Scale 1" = Approx. 30 feet

Figure 5B - Inferred Groundwater Contours
11/7/2017

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

Project No.	WES - 1591A
Date	Sep 9, 2019
File ID.	1591AF5B

WHITMAN
Environmental Sciences



Legend

- Approximate Location of Monitoring Well
- MW-X 195.77 — Well I.D. and Groundwater Elevation
- Inferred Groundwater Elevation Contour
- General Direction of Groundwater Migration
- Approximate Location of Soil Borings (2014-19)
- Approximate Property Boundary

North

0 30'

Scale 1" = Approx. 30 feet

Figure 5C - Inferred Groundwater Contours
6/14/2018

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

Project No.	WES - 1591A
Date	Sep 9, 2019
File ID.	1591AF5C

WHITMAN
Environmental Sciences



Legend

- Approximate Location of Monitoring Well
- MW-X 195.77 — Well I.D. and Groundwater Elevation
- Inferred Groundwater Elevation Contour
- General Direction of Groundwater Migration
- Approximate Location of Soil Borings (2014-19)
- Approximate Property Boundary

North

0 30’

Scale 1" = Approx. 30 feet

Figure 5D - Inferred Groundwater Contours
9/7/2018

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

Project No.	WES - 1591A
Date	Sep 9, 2019
File ID.	1591AF5D

WHITMAN
Environmental Sciences



Legend

- Approximate Location of Monitoring Well
- MW-X 195.77 — Well I.D. and Groundwater Elevation
- Inferred Groundwater Elevation Contour
- General Direction of Groundwater Migration
- Approximate Location of Soil Borings (2014-19)
- Approximate Property Boundary

North

0 30’

Scale 1" = Approx. 30 feet

Figure 5E - Inferred Groundwater Contours
12/6/2018

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

Project No.	WES - 1591A
Date	Sep 9, 2019
File ID.	1591F5E

WHITMAN
Environmental Sciences



Legend

- Approximate Location of Monitoring Well
- MW-X 195.77 — Well I.D. and Groundwater Elevation
- Inferred Groundwater Elevation Contour
- General Direction of Groundwater Migration
- Approximate Location of Soil Borings (2014-19)
- Approximate Property Boundary

North

0 30’

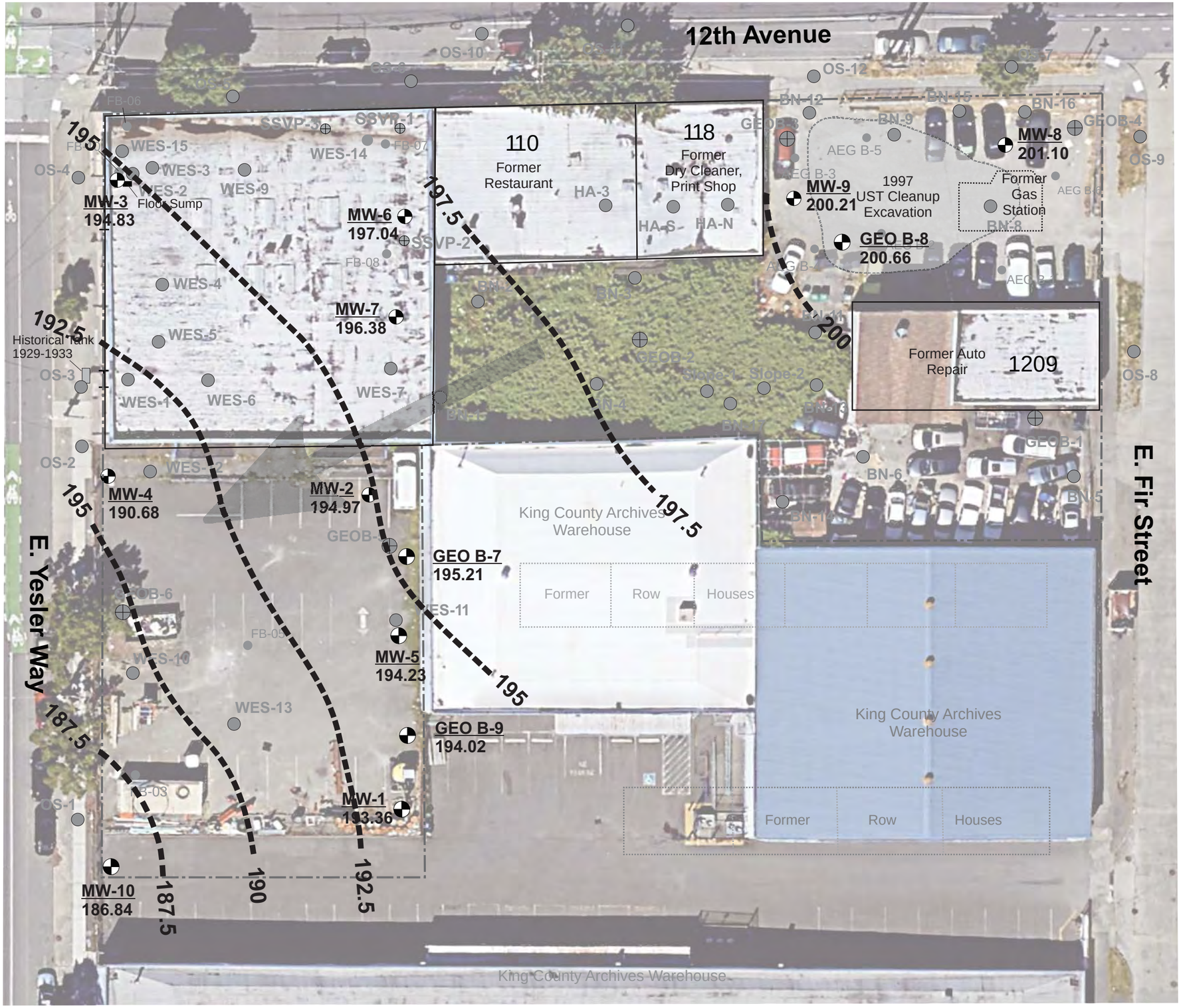
Scale 1" = Approx. 30 feet

Figure 5F - Inferred Groundwater Contours
2/25/2019

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

Project No.	WES - 1591A
Date	Sep 9, 2019
File ID.	1591F5F

WHITMAN
Environmental Sciences



Legend

- Approximate Location of Monitoring Well
- MW-X 195.77 — Well I.D. and Groundwater Elevation
- Inferred Groundwater Elevation Contour
- General Direction of Groundwater Migration
- Approximate Location of Soil Borings (2014-19)
- Approximate Property Boundary

North

0 30’

Scale 1" = Approx. 30 feet

Figure 5G - Groundwater Level Contours
7/22/2019

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

Project No.	WES - 1591A
Date	Sep 9, 2019
File ID.	1591AF5G

WHITMAN
Environmental Sciences



Legend

- Approximate Location of Monitoring Well
- MW-X 195.77 — Well I.D. and Groundwater Elevation
- Inferred Groundwater Elevation Contour
- General Direction of Groundwater Migration
- Approximate Location of Soil Borings (2014-19)
- Approximate Property Boundary

North

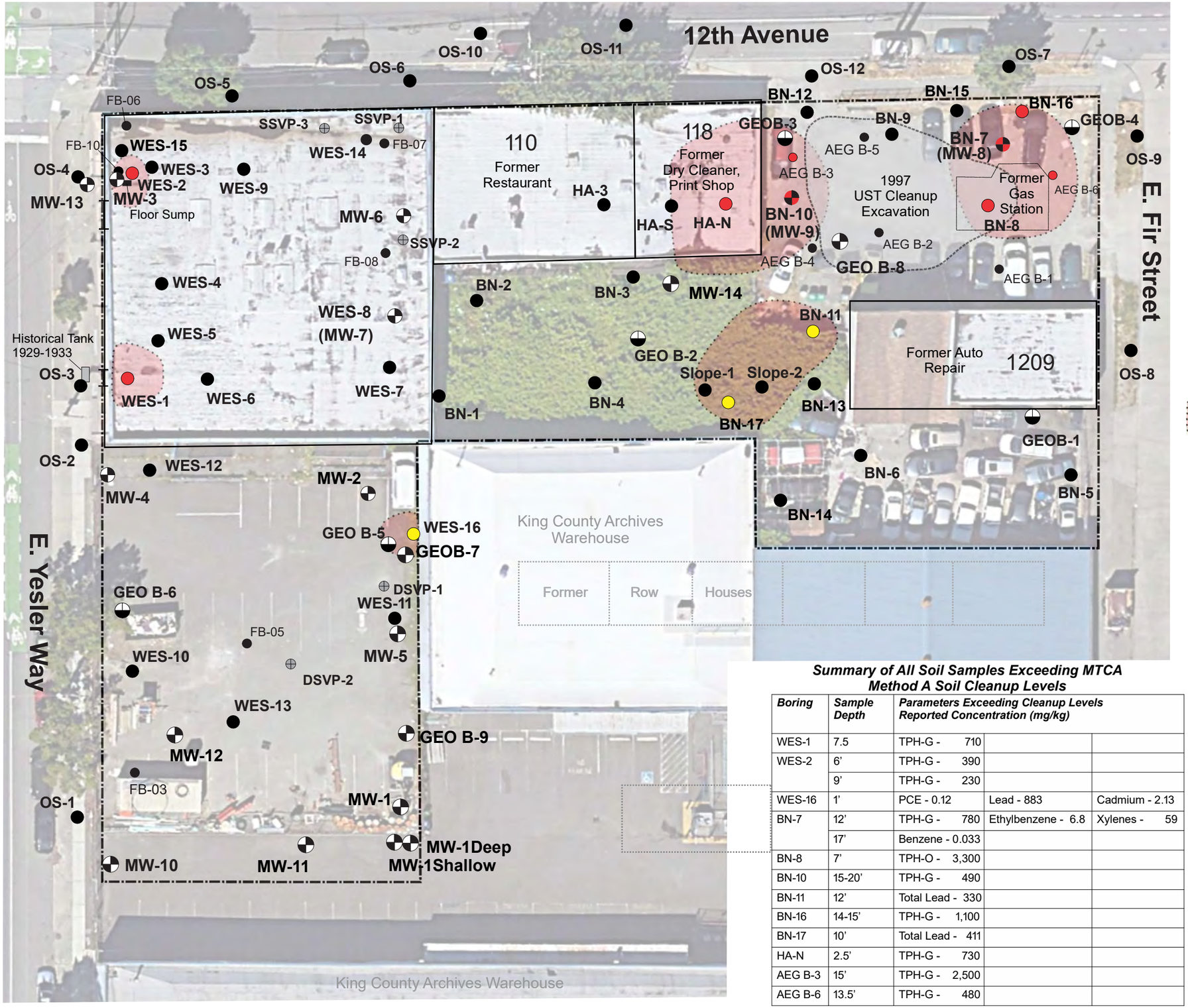
0 30’

Figure 5H - Inferred Groundwater Contours
9/3/2019

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

Project No.	WES - 1591A
Date	Sep 9, 2019
File ID.	1591F5H

WHITMAN
Environmental Sciences



Legend

- Location of Monitoring Well with no parameter exceeding MTCA Soil Cleanup Level in any sample.
- Location of Environmental Soil Boring with no parameter exceeding MTCA Soil Cleanup Level in any soil sample
- Approximate Location of Geotechnical Soil Boring (Limited Data)
- Prior Soil Boring (2014 - 2016, Limited or No Data)
- Approximate Location of Sub-slab or Deep Soil Vapor Sample
- Soil Boring or Monitoring Well where one or more petroleum related parameter exceeded MTCA Soil Cleanup Level in at least one sample.
- Soil Boring where total lead exceeded MTCA Soil Cleanup Level in one sample.
- Estimated extent of soil exceeding MTCA Soil Cleanup Levels.

North

0 30’

Scale 1" = Approx. 30 feet

Summary of All Soil Samples Exceeding MTCA Method A Soil Cleanup Levels

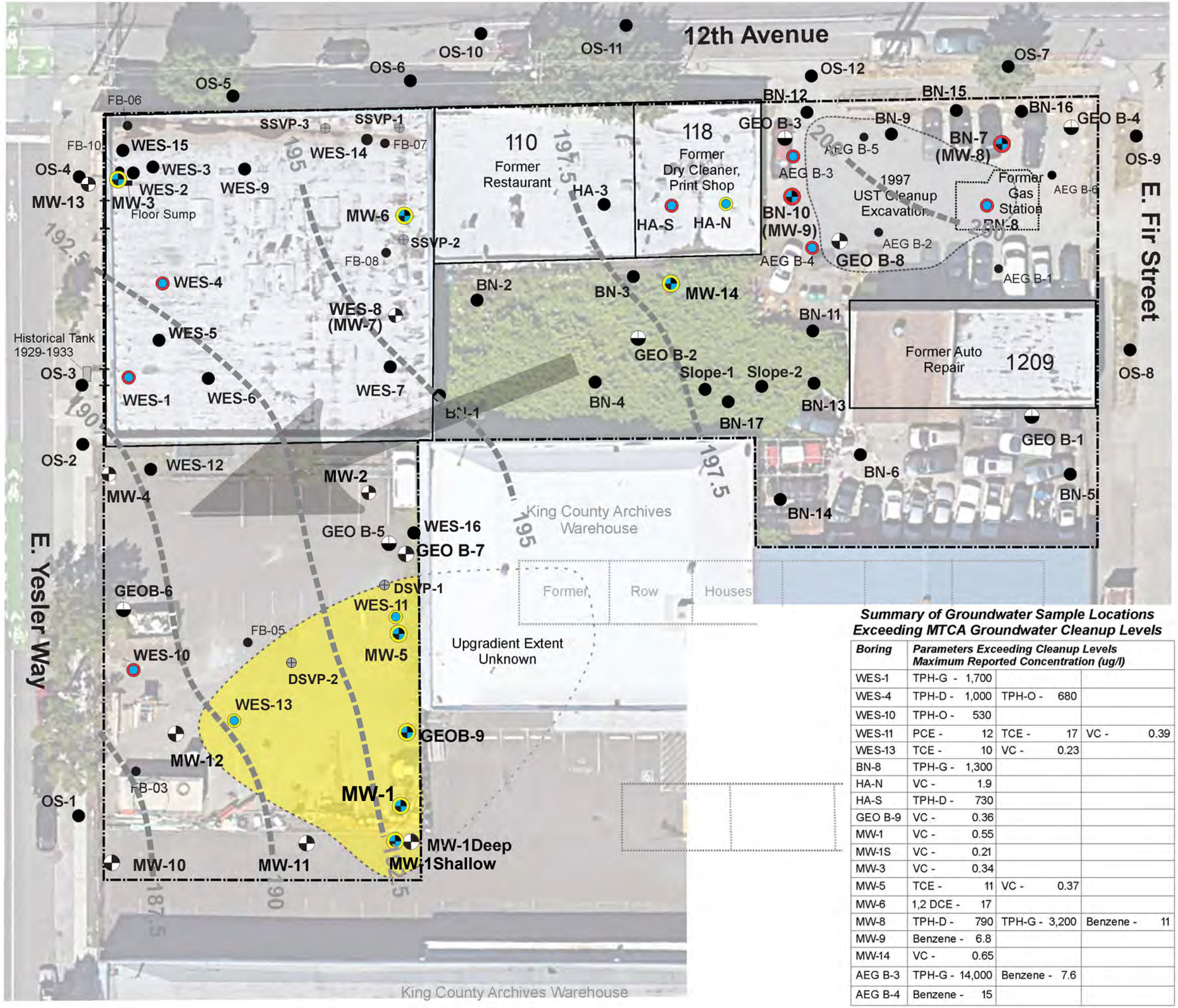
Boring	*Sample Depth*	*Parameters Exceeding Cleanup Levels Reported Concentration (mg/kg)*		
WES-1	7.5	TPH-G - 710		
WES-2	6’	TPH-G - 390		
	9’	TPH-G - 230		
WES-16	1’	PCE - 0.12	Lead - 883	Cadmium - 2.13
BN-7	12’	TPH-G - 780	Ethylbenzene - 6.8	Xylenes - 59
	17’	Benzene - 0.033		
BN-8	7’	TPH-O - 3,300		
BN-10	15-20’	TPH-G - 490		
BN-11	12’	Total Lead - 330		
BN-16	14-15’	TPH-G - 1,100		
BN-17	10’	Total Lead - 411		
HA-N	2.5’	TPH-G - 730		
AEG B-3	15’	TPH-G - 2,500		
AEG B-6	13.5’	TPH-G - 480		

Figure 6 - Soil Sample Locations Exceeding MTCA Cleanup Levels

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

Project No.	WES - 1591A
Date	Oct 15, 2019
File ID.	1591F6

WHITMAN
Environmental Sciences



Legend

- Location of Monitoring Well with no parameter exceeding MTCA Groundwater Cleanup Level in any sample.
- Location of Environmental Boring with no parameter exceeding MTCA Groundwater Cleanup Level in reconnaissance sample
- Approximate Location of Geotechnical Soil Boring (Limited Data)
- Prior Soil Boring (2016, Limited or No Data)
- Approximate Location of Sub-slab or Deep Soil Vapor Sample
- Petroleum-related Compounds exceeding MTCA Groundwater Cleanup Levels
- Chlorinated VOCs exceeding MTCA Groundwater Cleanup Levels
- Estimated Extent of Chlorinated Solvent Plume
- Direction of Groundwater Migration

Summary of Groundwater Sample Locations Exceeding MTCA Groundwater Cleanup Levels

Boring	*Parameters Exceeding Cleanup Levels Maximum Reported Concentration (ug/l)*			
WES-1	TPH-G - 1,700			
WES-4	TPH-D - 1,000	TPH-O - 680		
WES-10	TPH-O - 530			
WES-11	PCE - 12	TCE - 17	VC - 0.39	
WES-13	TCE - 10	VC - 0.23		
BN-8	TPH-G - 1,300			
HA-N	VC - 1.9			
HA-S	TPH-D - 730			
GEO B-9	VC - 0.36			
MW-1	VC - 0.55			
MW-1S	VC - 0.21			
MW-3	VC - 0.34			
MW-5	TCE - 11	VC - 0.37		
MW-6	1,2 DCE - 17			
MW-8	TPH-D - 790	TPH-G - 3,200	Benzene - 11	
MW-9	Benzene - 6.8			
MW-14	VC - 0.65			
AEG B-3	TPH-G - 14,000	Benzene - 7.6		
AEG B-4	Benzene - 15			

North

0 30'

Scale 1" = Approx. 30 feet

Figure 7 - Groundwater Sample Locations Exceeding MTCA Cleanup Levels

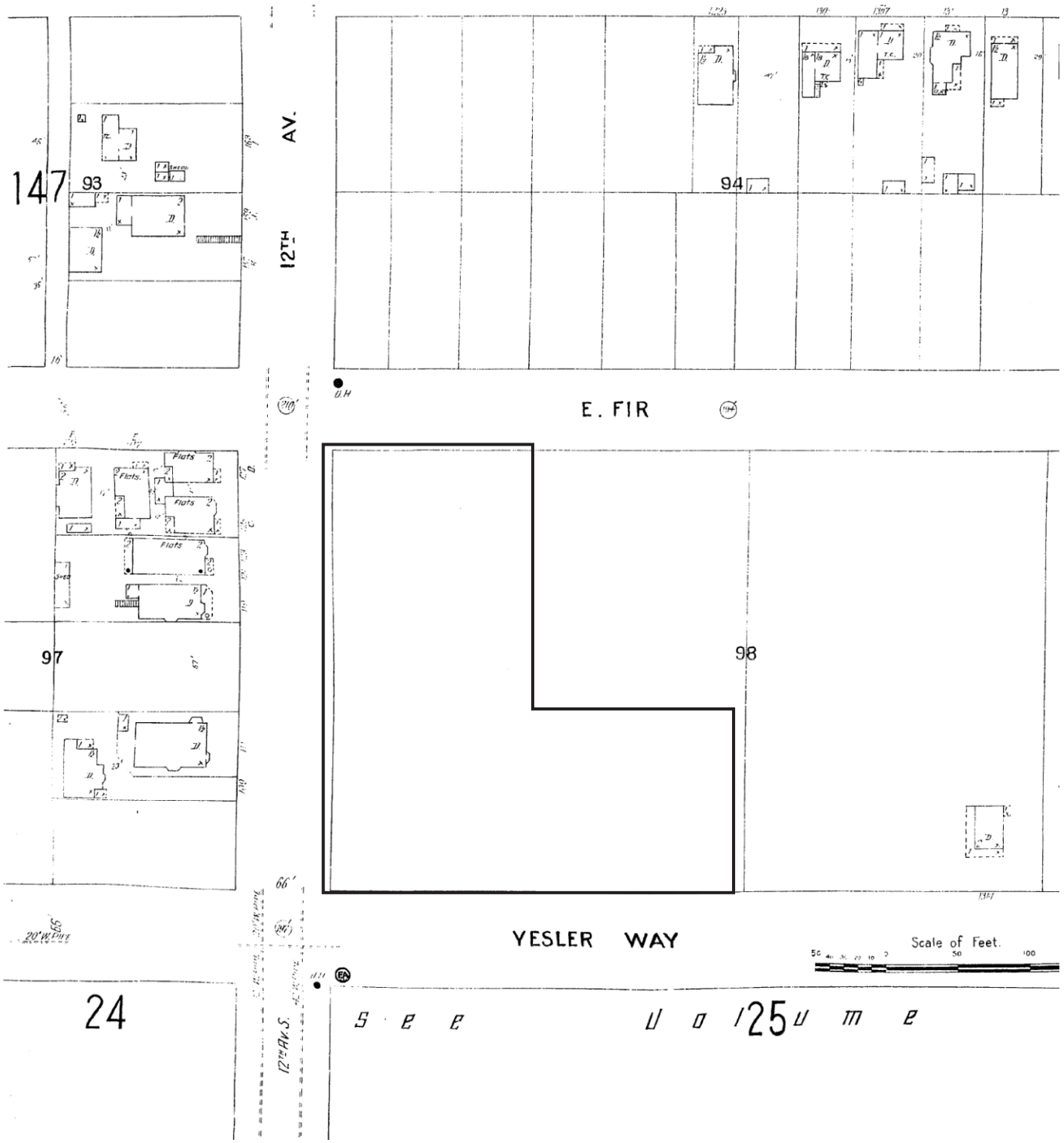
Proposed Redevelopment Property
104-124 12th Avenue & 1209 E. Fir Street
Seattle, WA

Project No.	WES - 1591A
Date	Oct 15, 2019
File ID.	1591AF7

WHITMAN
Environmental Sciences

APPENDIX B

Historical References and Aerial Photographs



North

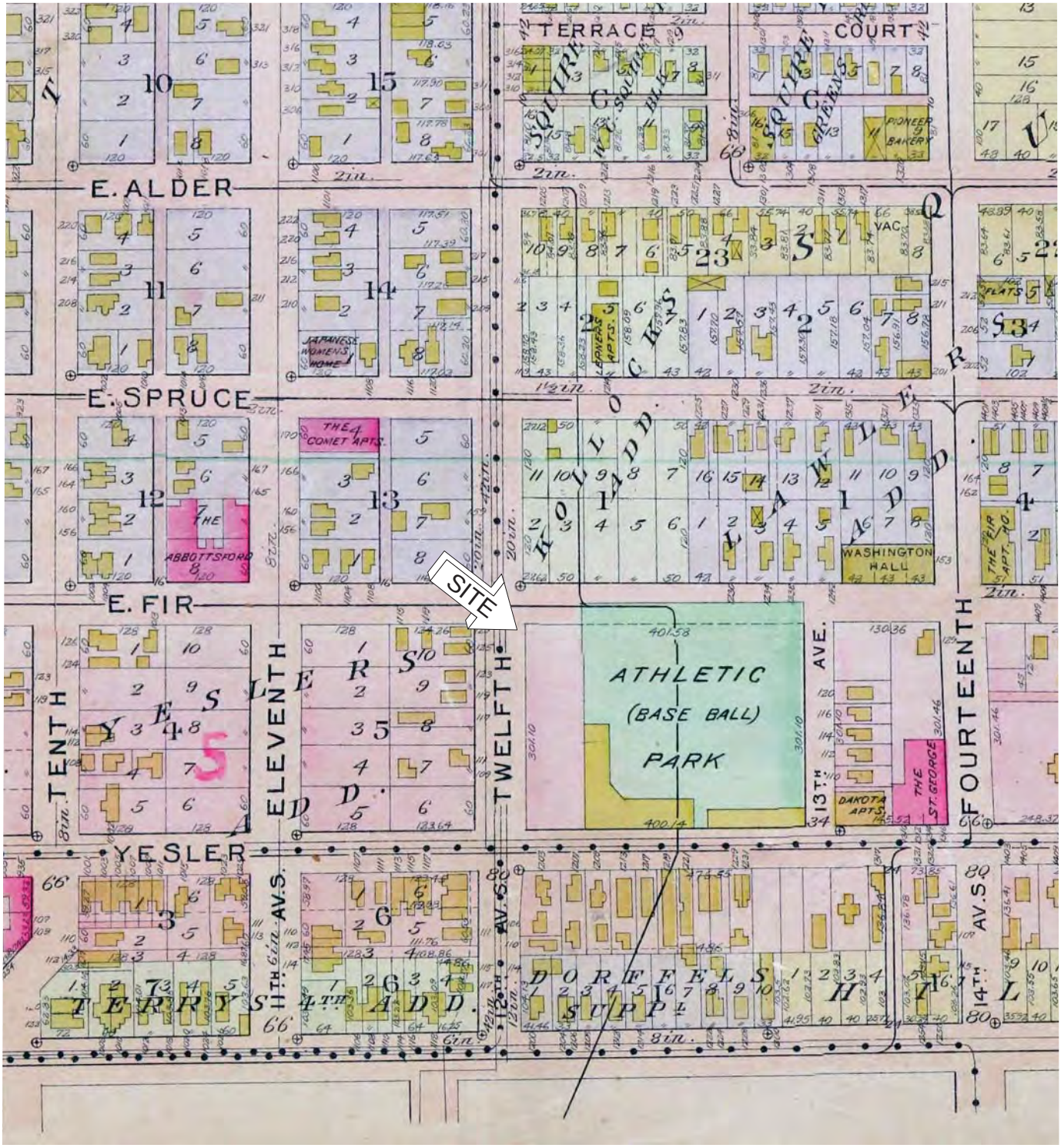
Historical Sanborn Map - 1905

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

Project No.	WES - 1591
Date	Mar 11, 2017
File ID.	1591SM05

WHITMAN
Environmental Sciences

From Seattle Public Library



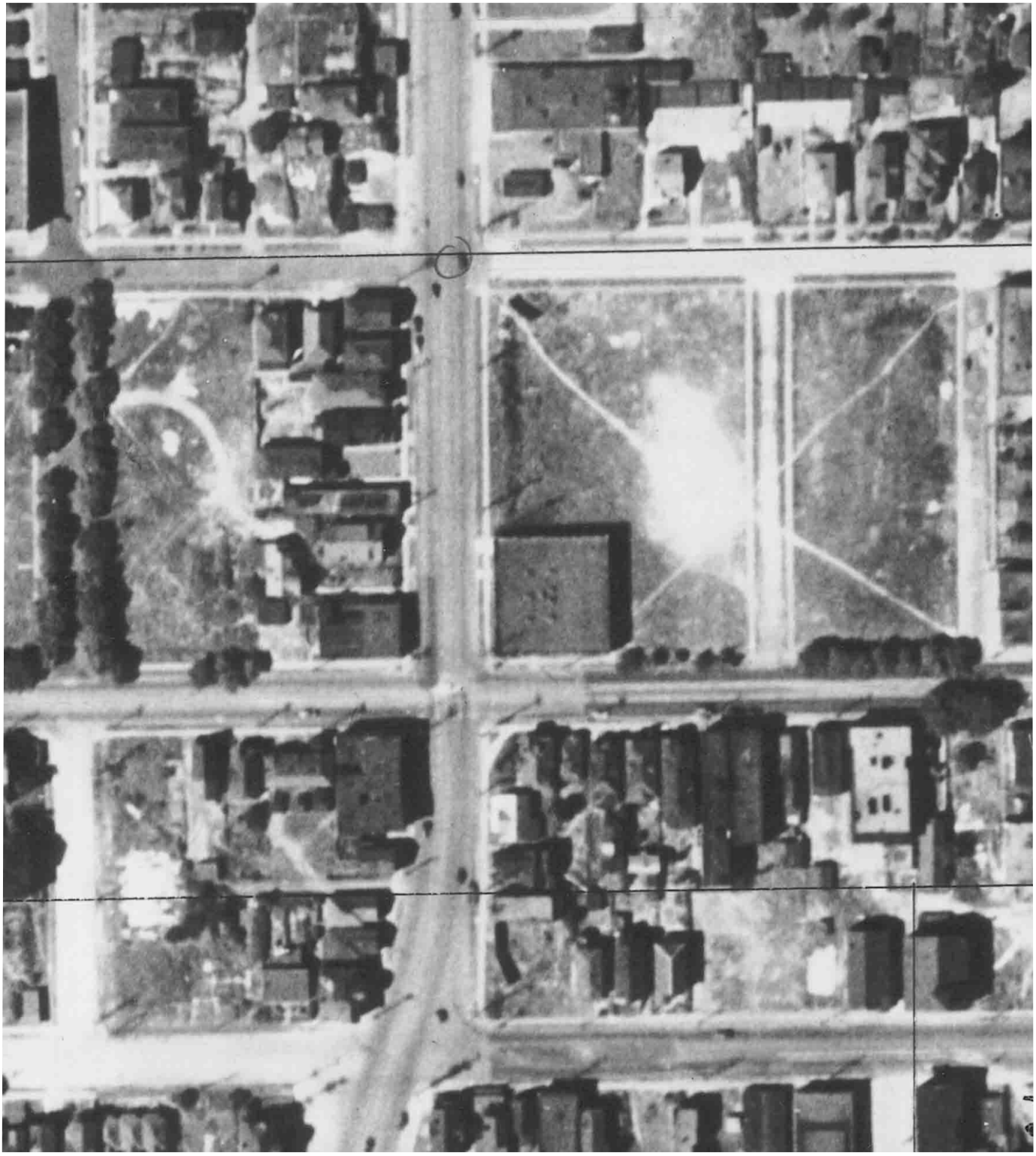
Historical Baist Atlas Map - 1912

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

From King County Map Vault

Project No.	WES - 1591
Date	Jun 20, 2017
File ID.	1585BM12

WHITMAN
Environmental Sciences



North

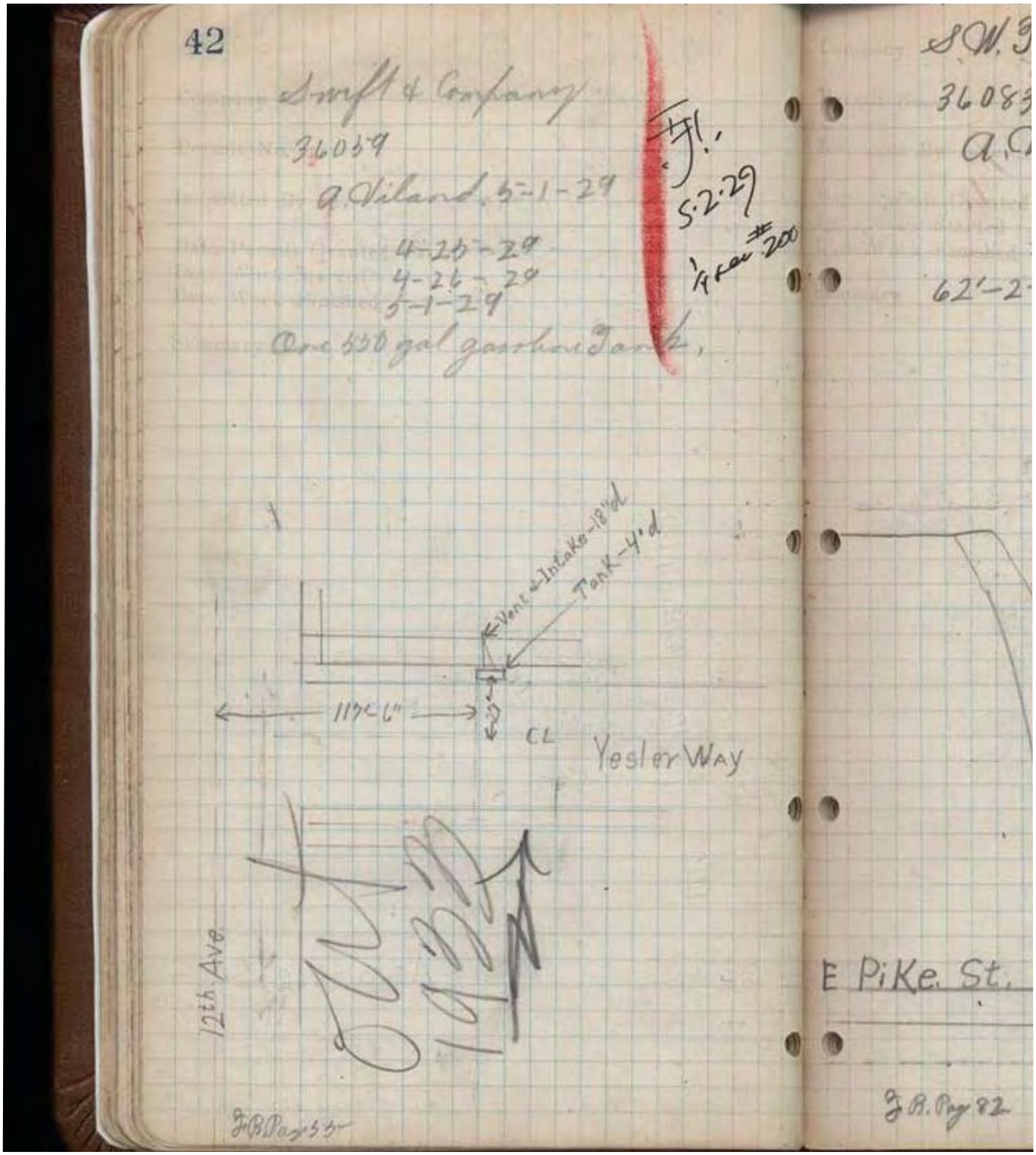
Historical Aerial Photograph - 1937

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

Project No.	WES - 1591
Date	Jun 20, 2017
File ID.	1585AP37

WHITMAN
Environmental Sciences

From King County Map Vault



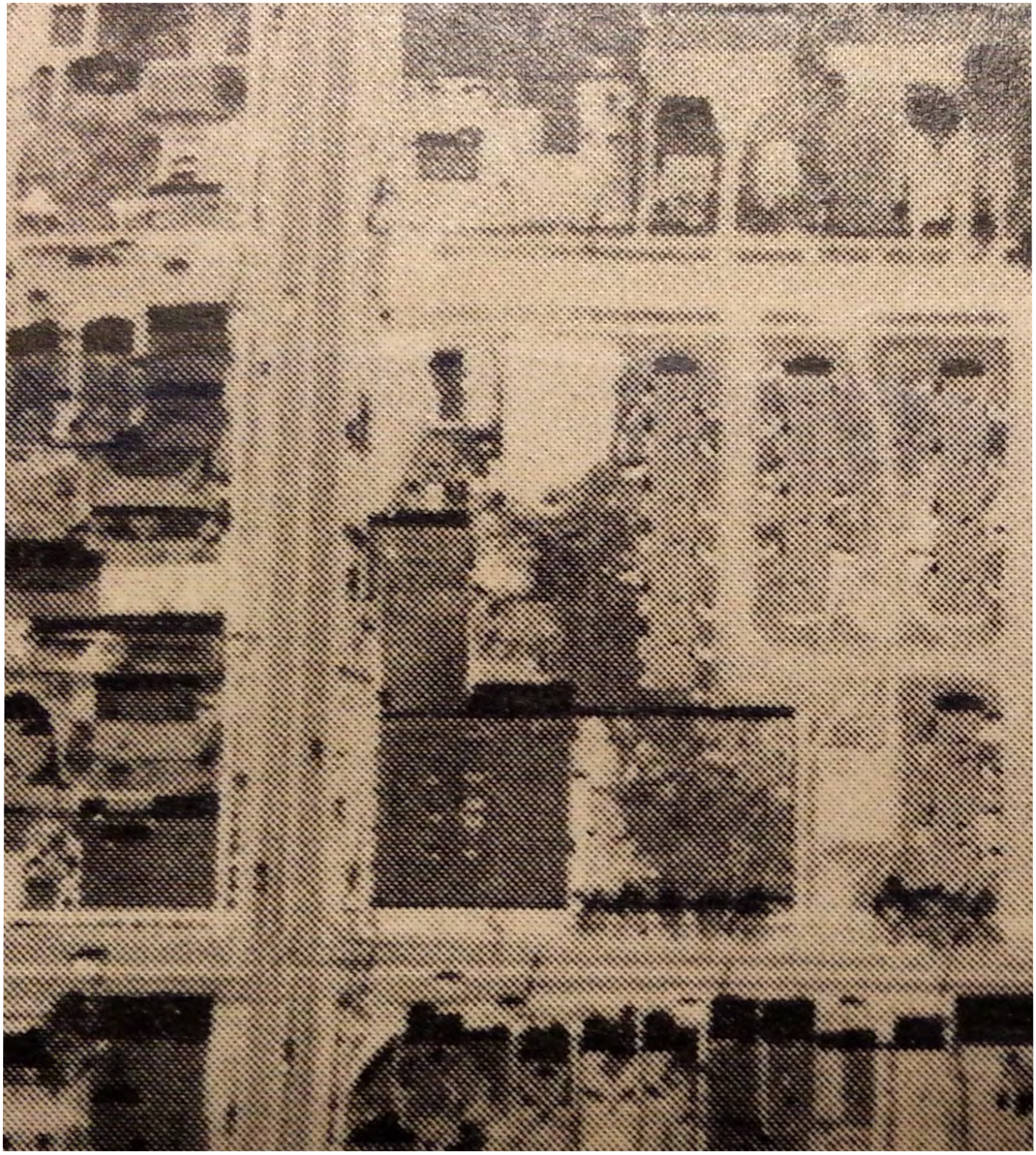
Survey Notebook Identifying
Off-site 500-Gallon Tank

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

Project No.	WES - 1591
Date	Mar 11, 2017
File ID.	1591SB33

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Environmental Sciences

From Seattle Engineering Archives



North

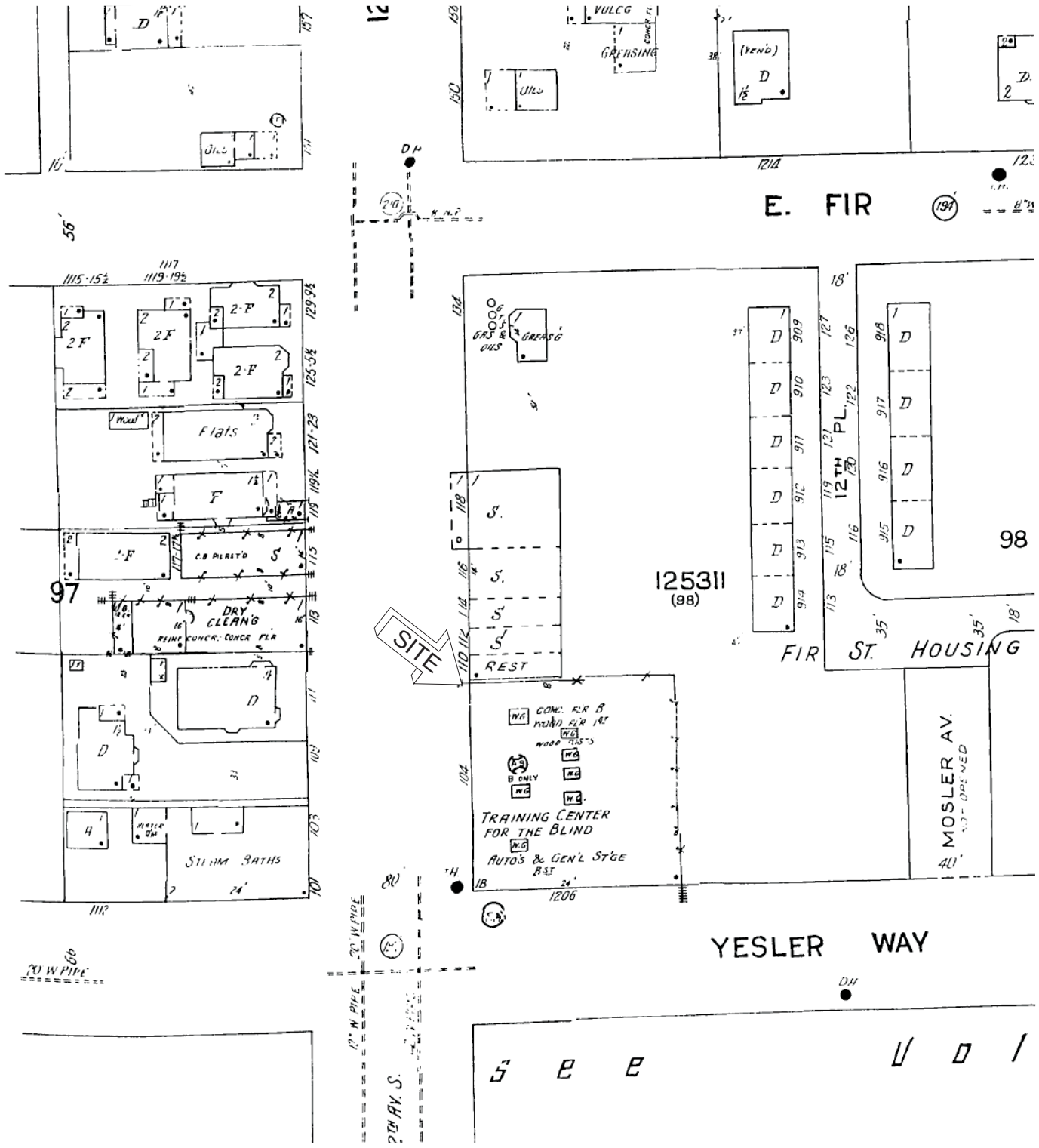
Historical Aerial Photograph - 1946

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

Project No.	WES - 1591
Date	Jun 20, 2017
File ID.	1591AP46

WHITMAN
Environmental Sciences

From UW Suzzallo Library Collection



North

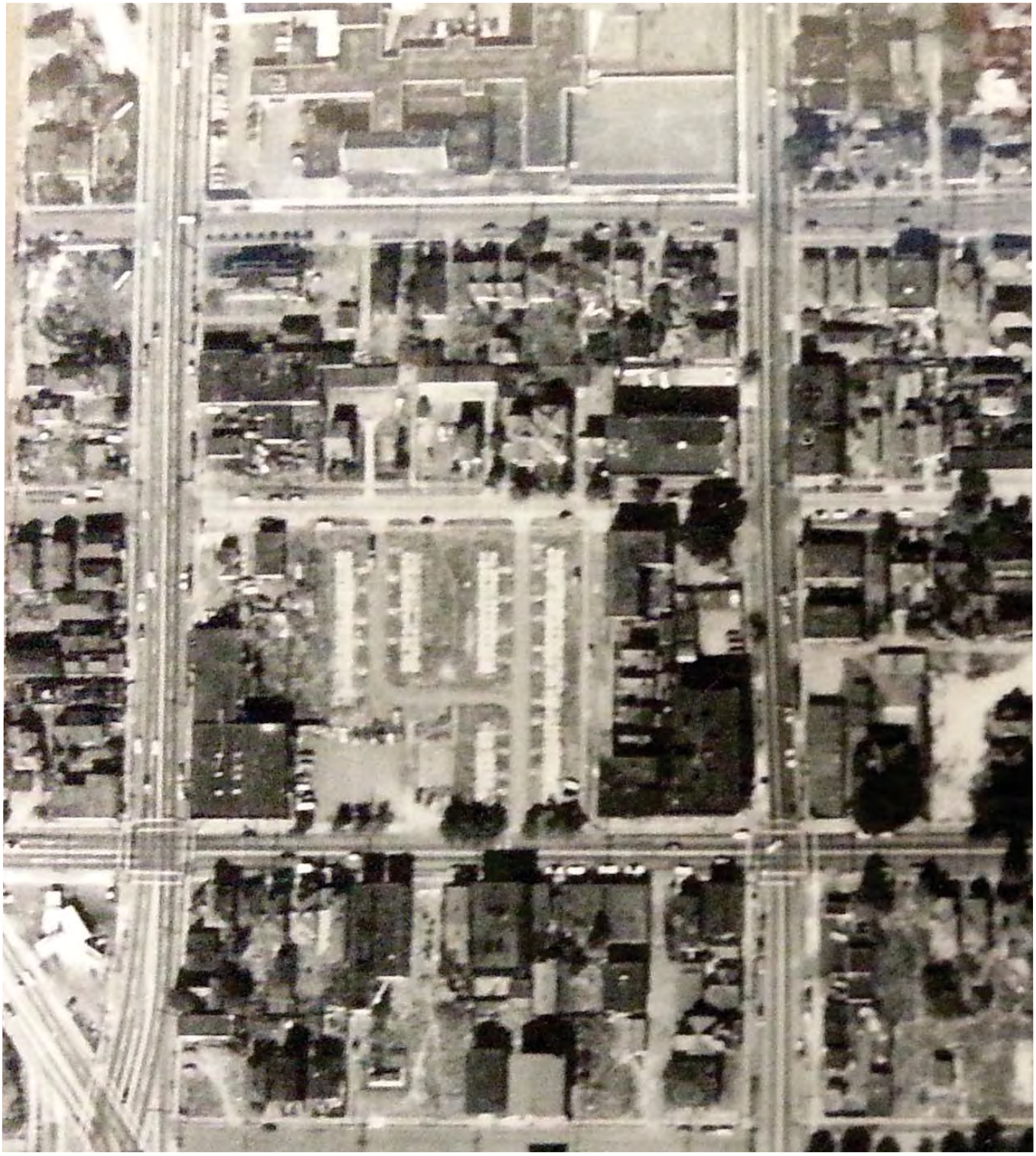
Historical Sanborn Map - 1950

104 12th Avenue
Seattle, Washington 98122

Project No.	WES - 1591
Date	Mar 11, 2017
File ID.	1591SM50

WHITMAN
Environmental Sciences

From Seattle Public Library



North

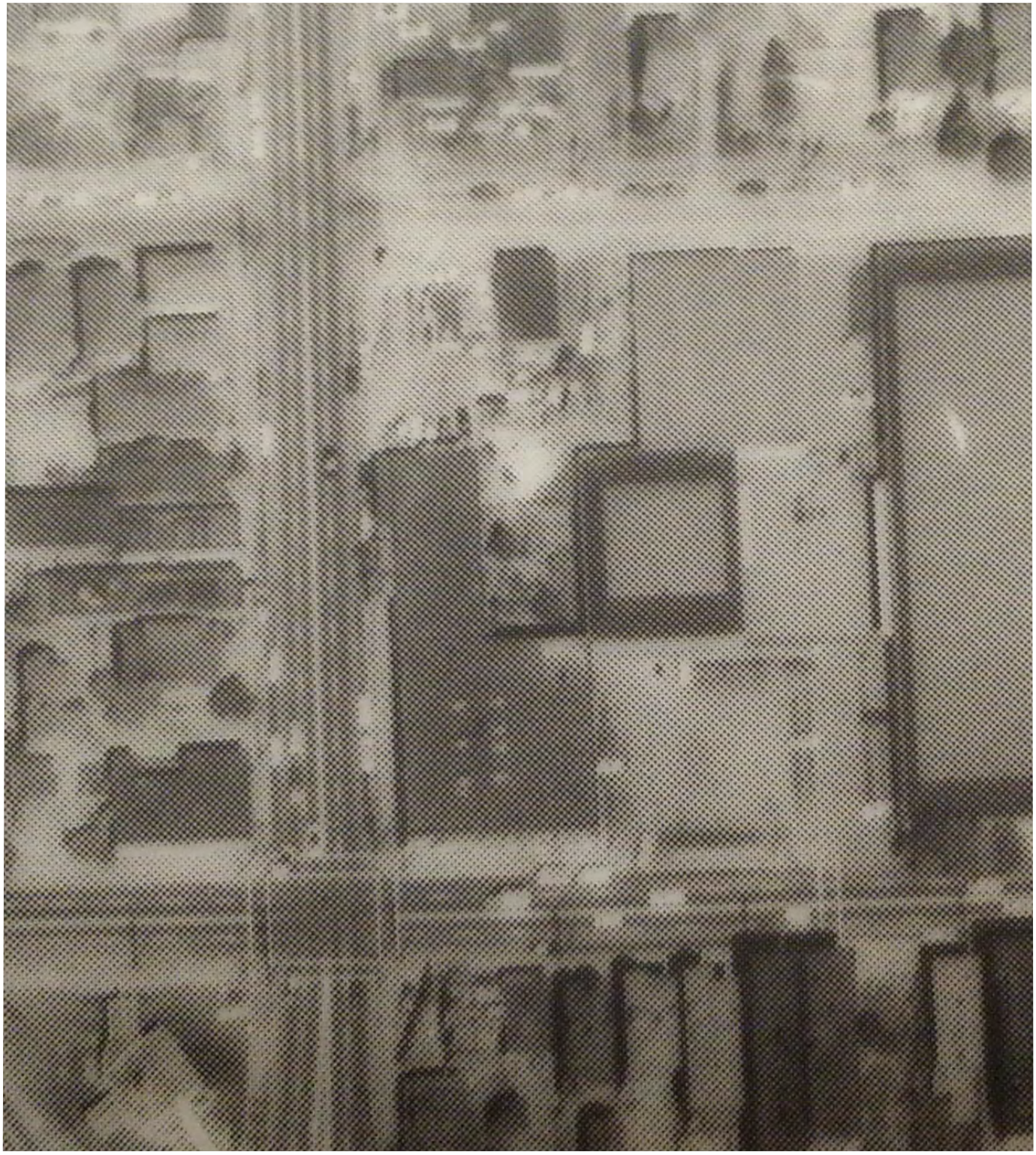
Historical Aerial Photograph - 1953

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

Project No.	WES - 1591
Date	Jun 20, 2017
File ID.	1591AP53

WHITMAN
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From UW Suzzallo Library Collection



North

Historical Aerial Photograph - 1961

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

Project No.	WES - 1591
Date	Jun 20, 2017
File ID.	1585AP61

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North

Historical Aerial Photograph - 1969

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

Project No.	WES - 1591
Date	Jun 20, 2017
File ID.	1591AP69

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From USGS Earth Explorer



North

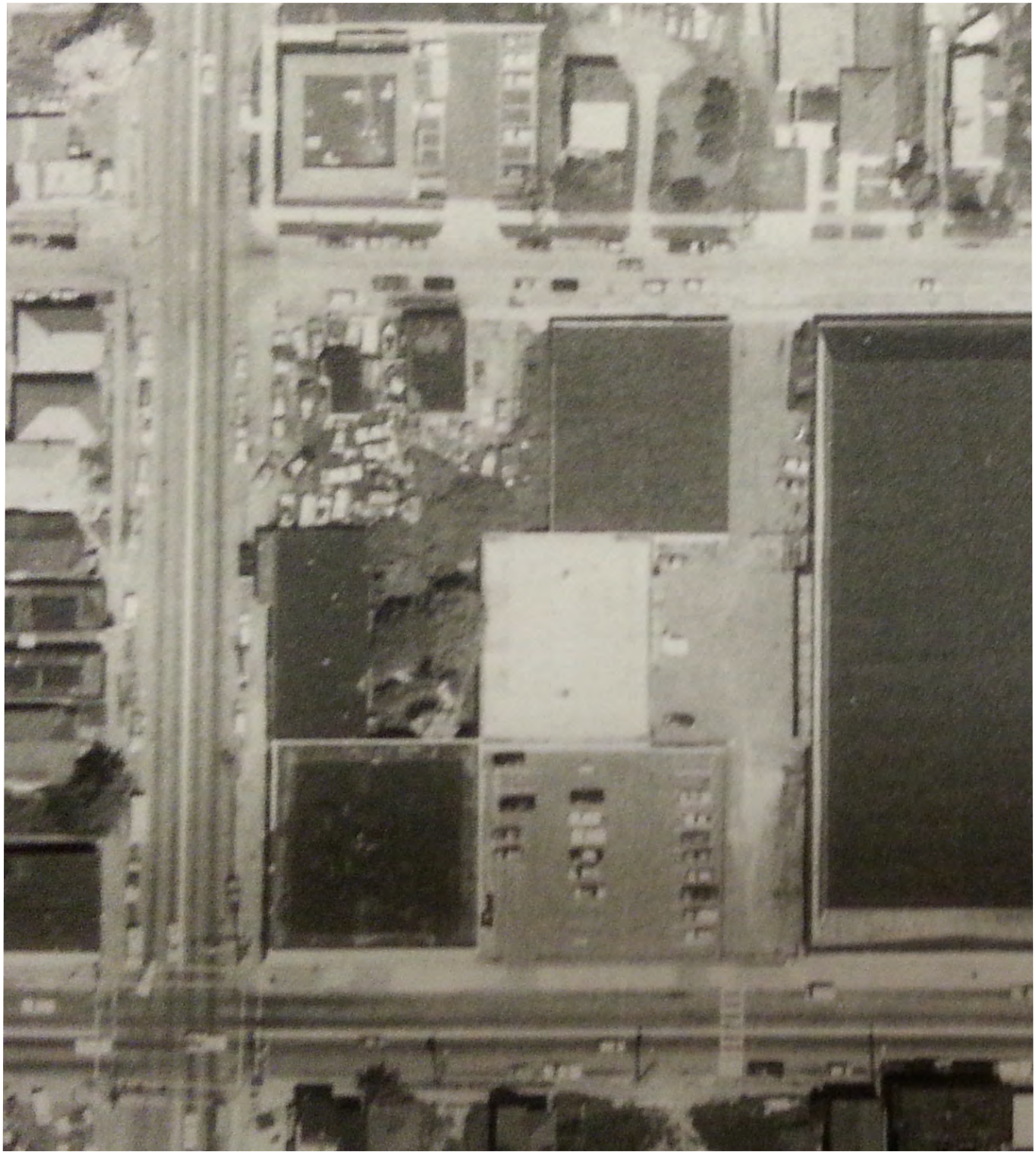
Historical Aerial Photograph - 1977

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

Project No.	WES - 1591
Date	Jun 20, 2017
File ID.	1591AP77

WHITMAN
Environmental Sciences

From USGS Earth Explorer



North

Historical Aerial Photograph - 1985

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

Project No.	WES - 1591
Date	Jun 20, 2017
File ID.	1591AP85

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From UW Suzzallo Library Collection



North

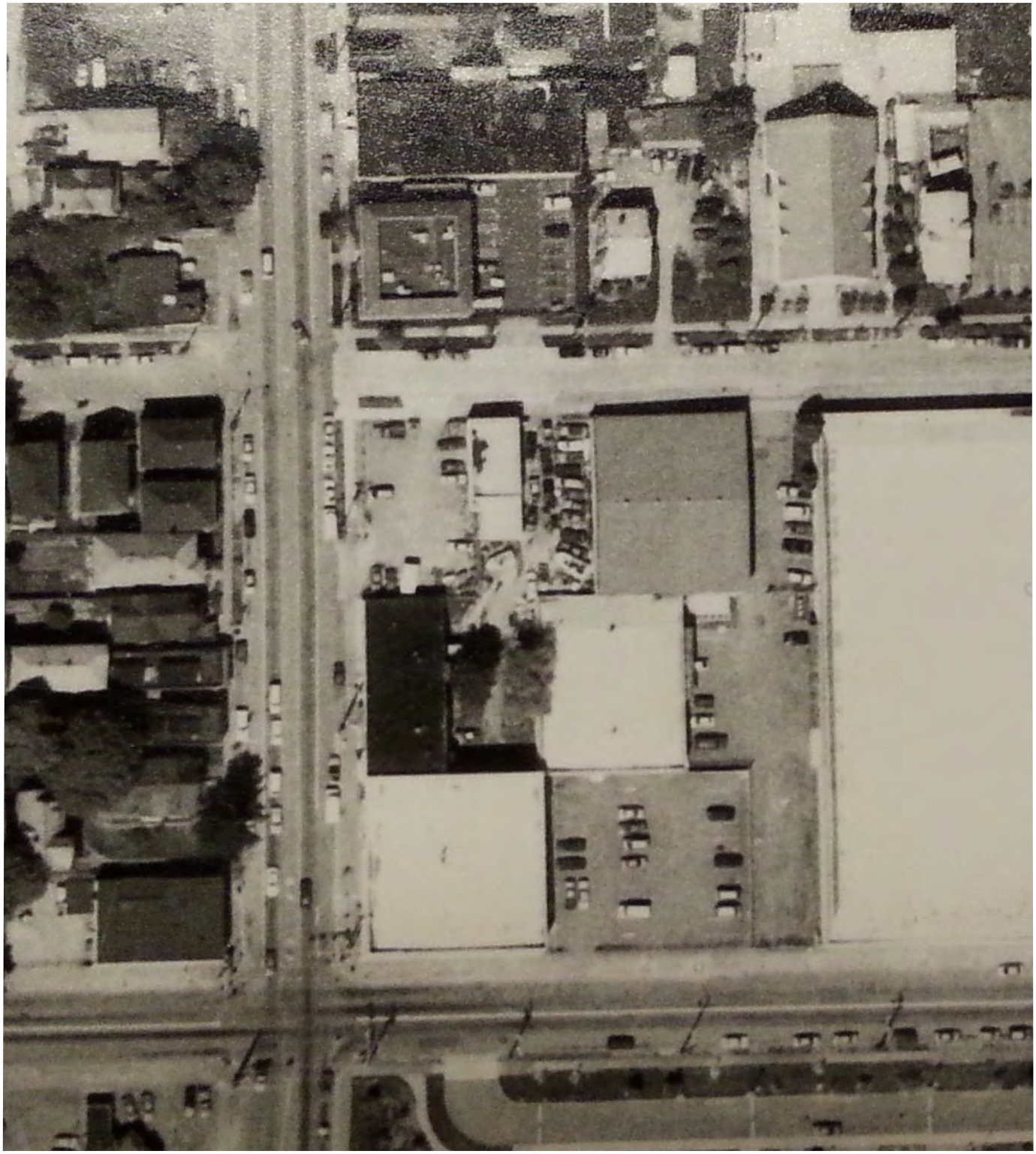
Historical Aerial Photograph - 1989

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

Project No.	WES - 1591
Date	Jun 20, 2017
File ID.	1591AP89

WHITMAN
Environmental Sciences

From UW Suzzallo Library Collection



North

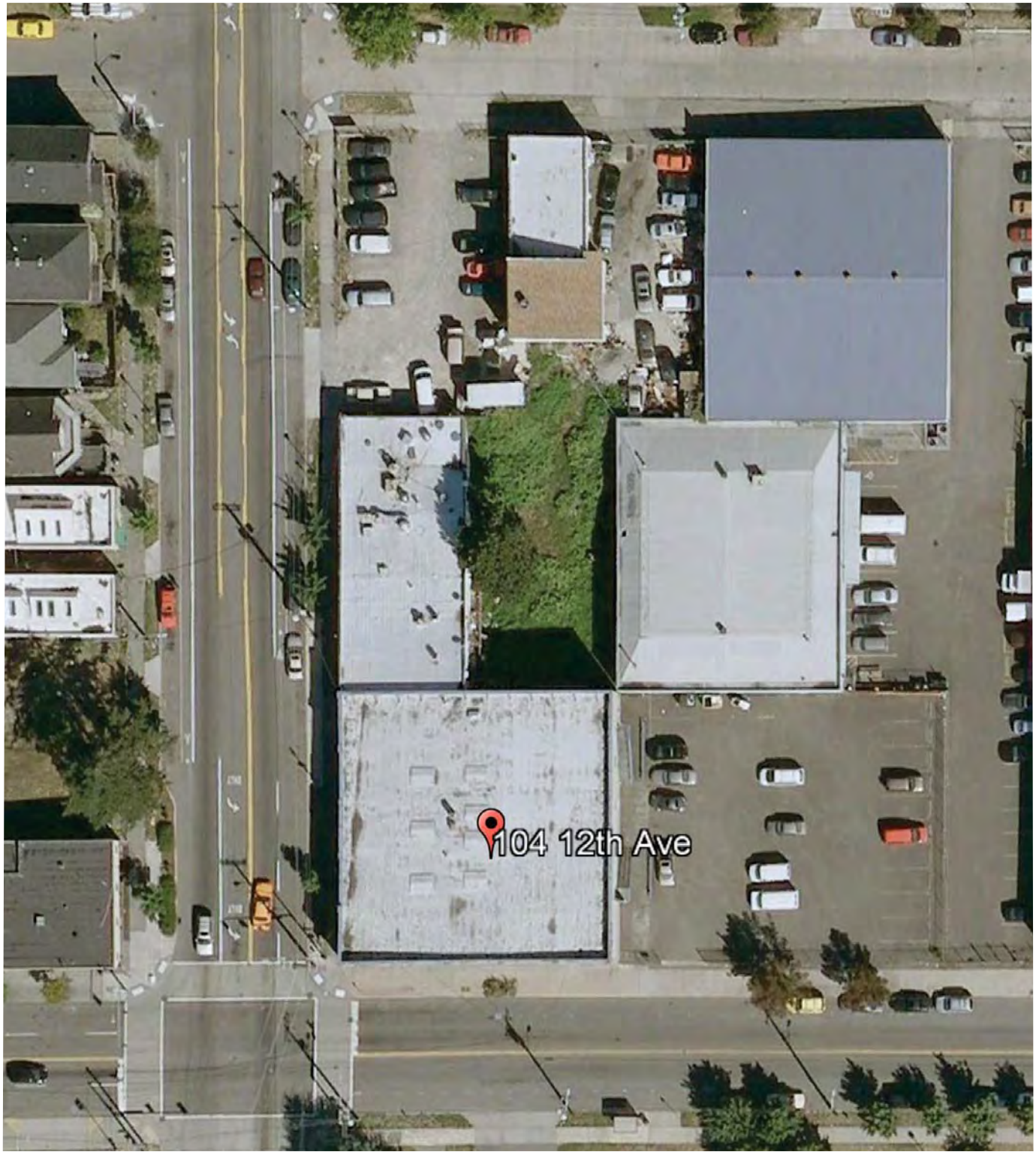
Historical Aerial Photograph - 1995

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

Project No.	WES - 1591
Date	Jun 20, 2017
File ID.	1591AP95

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Environmental Sciences

From UW Suzzallo Library Collection



North

Historical Aerial Photograph - 2007

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

Project No.	WES - 1591
Date	Jun 20, 2017
File ID.	1585AP07

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Environmental Sciences

From King County Map Vault



North

Historical Aerial Photograph - 2015

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

Project No.	WES - 1591
Date	Jun 20, 2017
File ID.	1585AP

WHITMAN
Environmental Sciences

From Google Earth

APPENDIX C

Soil Boring Logs and
Monitoring Well Construction Diagrams

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	WES-1
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data No.	Type	Depth	Recovery	N	Lab Sample	Soil Description
						Concrete floor over gravel base.
1	2” Lined Spoon		3’	--		Dark brown gravelly silty SAND, with organics (Fill or old topsoil), soft, moist.
		4.0				Grades into black clayey SAND and SILT.
2	2” Lined Spoon		4’		TPH-G TPH-D VOCs	Dark gray silty and clayey SAND, trace gravel, soft, moist, slight petroleum odor.
		8.0				Gray silty fine to medium SAND, trace gravel soft, wet, strong petroleum odor.
3	2” Lined Spoon		4’		TPH-D	
		12.0				Dark gray clayey SAND, with gravel, little silt, dense, moist, no petroleum odor.
4	2” Lined Spoon		4’			
		16.0				End of Boring at 16.0 ft. Petroleum odor and discoloration encountered at noted depths. Water sample collected from temporary well screen installed in boring to a depth of 12’. After sampling, completed boring to 16’ depth. Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
4-3-2017	First Encountered:	7.5’	4-3-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	WES-2
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data No.	Type	Depth	Recovery	N	Lab Sample	Soil Description
						Concrete floor over gravel base.
1	2” Lined Spoon	4.0	2’	--		Rusty brown clayey and gravelly SAND (Fill).
2	2” Lined Spoon	8.0	4’		TPH-G VOCs TPH-D	Dark gray silty and clayey SAND, with gravel, soft, moist to wet, oily petroleum odor.
3	2” Lined Spoon	12.0	4’		TPH-G TPH-D	Dark gray fine to coarse SAND, with gravel, trace silt soft, wet, slight petroleum odor.
						Dark gray silty and clayey SAND, trace gravel, dense, moist, no petroleum odor.
						End of Boring at 12.0 ft.
						Petroleum odor and discoloration encountered at noted depths.
						Water sample collected from adjacent pre-existing monitoring well MW-3.
						Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
4-3-2017	First Encountered:	8’	4-3-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	WES-3
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Concrete floor over gravel base.
1	2” Lined Spoon	2.0	2’	--		Dark brown to black silty SAND, with organics (Fill or old topsoil), soft, moist.
		4.0	2’			Rusty brown mottled clayey SAND, with darker zones, soft, moist.
2	2” Lined Spoon	6.0	2’		VOCs	Gray clayey fine to coarse SAND, with gravel, dense, moist to wet.
		8.0	2’			End of Boring at 8.0 ft. Two foot sample drives and slow progress due to low basement ceiling. No petroleum odor or discoloration encountered at any depth. Backfilled with bentonite upon completion.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Date Drilled:	Water Level Data	Depth	Date/Time
4-3-2017	First Encountered:	4’	4-3-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	WES-4
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Concrete floor over gravel base.
1	2” Lined Spoon		2’	--		Dark brown silty and clayey SAND (Fill or old topsoil), soft, moist.
		4.0				Dark gray silty and clayey SAND, soft, moist to wet.
2	2” Lined Spoon		4’		VOCs	
		8.0				Dark gray fine to medium SAND, trace coarse sand and gravel, medium dense, moist to wet.
3	2” Lined Spoon		4’			
		12.0				Dark gray clayey SAND, with gravel, dense, wet.
						End of Boring at 12.0 ft. No petroleum odor or discoloration encountered at any depth. Water sample collected from temporary well screen installed to a depth of 12 feet. Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
4-3-2017	First Encountered:	4’	4-3-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	WES-5
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Concrete floor.
1	2” Lined Spoon		2’	--		Dark brown silty SAND with organics (Fill or old topsoil), soft, moist.
		4.0				
2	2” Lined Spoon		4’		VOCs	Dark brown mottled with gray clayey SAND, trace gravel, soft, moist.
						Dark gray silty fine to medium SAND, little clay, trace coarse sand and gravel, increasingly dense with depth, moist.
		8.0				
						Dark gray coarse SAND, trace silt, dense, wet.
3	2” Lined Spoon		4’			Dark gray silty and clayey fine SAND, moist.
		12.0				
						End of Boring at 12.0 ft. No petroleum odor or discoloration encountered at any depth. Water sample collected from temporary well screen installed to a depth of 12 feet. Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
4-3-2017	First Encountered:	6’	4-3-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	WES-6
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Concrete floor.
						1 Dark brown clayey SAND and GRAVEL (Fill), soft, moist.
1	2” Lined Spoon		2’	--		2 Dark brown to black SILT, former topsoil horizon, soft, moist.
		4.0				3 4
						5 Greenish gray mottled sandy CLAY, trace gravel, increasingly dense with depth, moist.
2	2” Lined Spoon		4’			6 Dark gray fine to medium SAND, trace silt, wet.
						7 Dark gray silty and clayey SAND, little gravel, moist.
		8.0			VOCs	8
						9 Dark greenish gray sandy CLAY, trace gravel, increasingly dense with depth, moist.
3	2” Lined Spoon		4’			10 11
		12.0				12
						13 End of Boring at 12.0 ft. No petroleum odor or discoloration encountered at any depth.
						14 Water sample collected from temporary well screen installed to a depth of 12 feet.
						15 Backfilled with bentonite upon completion.
						16 17 18 19 20

Date Drilled:	Water Level Data	Depth	Date/Time
4-3-2017	First Encountered:	6’	4-3-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	WES-7
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Concrete floor.
						Gray fine to medium SAND (Fill), soft, wet.
1	2” Lined Spoon		1.5’	--		Dark brown to black SILT, former topsoil horizon, soft, moist.
		4.0				
						Greenish gray sandy CLAY, increasingly dense with depth, moist.
2	2” Lined Spoon		3.5’			
		8.0				
3	2” Lined Spoon		4’		VOCs	Dark gray fine to medium SAND, trace silt, wet.
						Dark greenish gray sandy CLAY, trace gravel, increasingly dense with depth, moist.
		12.0				
						End of Boring at 12.0 ft.
						No petroleum odor or discoloration encountered at any depth.
						Water sample collected from temporary well screen installed to a depth of 12 feet.
						Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
4-4-2017	First Encountered:	6’	4-4-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	MW-7 (Originally WES-8)
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: Top of Pipe: 199.56 / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Concrete floor.
1	2” Lined Spoon		4’	--		Dark brown to black SILT, former topsoil horizon, soft, moist.
		4.0				Greenish gray mottled sandy CLAY, dense, moist.
2	2” Lined Spoon		4’			
		8.0				
3	2” Lined Spoon		4’			
		12.0			VOCs	Dark gray fine SAND, interlayered with silt, wet.
						End of Boring at 13.0 ft.

No petroleum odor or discoloration encountered at any depth.

1” Sch. 40 PVC well screen installed from depth of 3 to 13 feet below ground surface, surrounded with #10-20 silica sand filter pack. Bentonite seal and flush-mounted steel monument at surface.



Date Drilled:	Water Level Data	Depth	Date/Time
4-4-2017	First Encountered:	11’	4-4-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	WES-9
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Concrete floor over gravel base.
1	2” Lined Spoon	2.0	0.7’	--		Dark brown to black silty SAND, with organics (Fill or old topsoil), soft, moist.
		4.0	0.7’			
			2’			Gray mottled clayey SAND, with gravel, increasingly dense with depth, moist to wet.
2	2” Lined Spoon	6.0	2’		VOCs	Gray fine to medium SAND, trace silt wet.
		8.0				End of Boring at 8.0 ft. Two foot sample drives and slow progress due to low basement ceiling. No petroleum odor and discoloration encountered at any depth. Backfilled with bentonite upon completion.

Date Drilled: 4-4-2017

Water Level Data	Depth	Date/Time
First Encountered:	6’	4-4-2017
Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	WES-10
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data No.	Type	Depth	Recovery	N	Lab Sample	Soil Description
						Asphalt over gravel base.
						1 Brown clayey SAND and GRAVEL (Fill), soft, moist.
1	2” Lined Spoon		2.5’	--		2 Dark brown organic SILT, former topsoil horizon, with roots and fibers, soft, moist.
		4.0				3 4 5
2	2” Lined Spoon		3’			6
					VOCs	7 Greenish gray clayey SILT, with fine to coarse sand, moist to wet.
		8.0				8 9
3	2” Lined Spoon		4’			10 Grades to mottled brown silty and clayey SAND, trace coarse sand or fine gravel, increasingly dense with depth, moist. 11
		12.0				12
						End of Boring at 12.0 ft. 13 No petroleum odor or discoloration encountered at any depth.
						14 Water sample collected from temporary well screen installed to a depth of 12 feet. 15
						Backfilled with bentonite upon completion. 16 17 18 19 20

Date Drilled:	Water Level Data	Depth	Date/Time
4-5-2017	First Encountered:	6’	4-5-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	WES-11
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data No.	Type	Depth	Recovery	N	Lab Sample	Soil Description
						Asphalt over gravel base.
						1 Brown clayey SAND and GRAVEL with brick debris (Fill), soft, moist.
1	2” Lined Spoon		3’	--		2 Light brown fine to medium SAND, (Fill), soft, moist to wet. 3
		4.0				4 Dark brown organic SILT, former topsoil horizon, with roots and fibers, soft, moist. 5
2	2” Lined Spoon		4’			6
		8.0				7 Grades to mottled greenish gray and brown silty and clayey SAND, moist to wet. 8 9
3	2” Lined Spoon		4’			10 Greenish gray silty fine to coarse SAND with gravel, wet. 11
		12.0				12 Gray silty CLAY with fine to coarse sand, interlayered with zones of fine to medium sand, dense, moist to wet. 13
4	2” Lined Spoon		4’		VOCs	14 15
		16.0				16
						End of Boring at 16.0 ft. 17 No petroleum odor or discoloration encountered at any depth. 18 Water sample collected from temporary well screen installed to a depth of 16 feet. Water sample also taken from adjacent pre-existing monitoring well MW-6. 19 Backfilled with bentonite upon completion. 20

Date Drilled:	Water Level Data	Depth	Date/Time
4-5-2017	First Encountered:	6’	4-5-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	WES-12
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
1	2” Lined Spoon		3’	--		Asphalt over gravel base. Brown silty GRAVEL (Fill), soft, moist.
		4.0				Brown fine to medium SAND, trace gravel (Fill), soft, moist to wet.
2	2” Lined Spoon		4’			Greenish gray mottled silty and clayey SAND, moist to wet.
		8.0				Greenish gray fine to medium SAND, trace gravel, wet.
3	2” Lined Spoon		4’			Gray mottled with rusty brown clayey SILT with fine to medium sand, moist to wet.
		12.0				
4	2” Lined Spoon		4’			
		16.0			VOCs	End of Boring at 16.0 ft. No petroleum odor or discoloration encountered at any depth. Water sample collected from temporary well screen installed to a depth of 16 feet. Water sample also taken from adjacent pre-existing monitoring well MW-2. Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
4-5-2017	First Encountered:	2’	4-5-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	WES-13
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Asphalt over gravel base.
1	2” Lined Spoon		2’	--		Dark brown clayey SAND and GRAVEL with brick debris, (Fill), soft, moist.
		4.0				Mottled brown silty CLAY with sand, trace gravel, moist to wet.
2	2” Lined Spoon		4’			
		8.0				
3	2” Lined Spoon		4’		VOCs	Brown silty fine to medium SAND, wet.
		12.0				
4	2” Lined Spoon		4’			
		16.0				End of Boring at 16.0 ft. No petroleum odor or discoloration encountered at any depth. Water sample collected from temporary well screen installed to a depth of 16 feet. Backfilled with bentonite upon completion.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Date Drilled:	Water Level Data	Depth	Date/Time
4-5-2017	First Encountered:	12’	4-5-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	WES-14
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Concrete floor over gravel base.
1	2” Lined Spoon	2.0	0.5’	--		Dark gray mottled silty SAND, trace gravel, (Fill), medium dense, moist.
2	2” Lined Spoon	4.0	1.7’			Dark brown to black silty SAND, with organics (Fill or old topsoil), soft, moist.
3	2” Lined Spoon	6.0	2’		TPH-G TPH-D VOCs	
4	2” Lined Spoon	8.0	2’			Gray silty fine SAND, interlayered with silt, medium dense, moist to wet in sandier zones.
5	2” Lined Spoon		2’		TPH-G TPH-D VOCs	Gray fine to coarse SAND, with gravel, wet.
						End of Boring at 10.0 ft. Two foot sample drives and slow progress due to low basement ceiling.
						No odor and discoloration encountered at any depth.
						Groundwater sample from temporary screen installed from depth of 5 to 10 feet.
						Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
7-23-2019	First Encountered:	6’	7-23-2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	WES-15
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Concrete floor over gravel base.
1	2” Lined Spoon	2.0	2’	--		Rusty brown clayey and gravelly SAND (Fill).
2	2” Lined Spoon	4.0				Brown silty SAND, soft, wet, no odor or discoloration.
3	2” Lined Spoon	6.0	2’		TPH-G TPH-D VOCs	Dark gray SILT, with fine sand lenses, medium dense moist to wet. No odor or discoloration.
4	2” Lined Spoon	8.0				Gray silty fine SAND, occasional gravel, dense, wet, no odor or discolortion.
5	2” Lined Spoon	10.0	2’			End of Boring at 10.0 ft.
						Water sample collected from temporary well screen installed at depth of 5-10 feet.
						Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
7-23-2019	First Encountered:	6.4’	7/23/2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	WES-16
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/- 201.5 / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Asphalt Surface.
1	2" Lined Spoon		2.5'		TPH-G TPH-D VOCs MTCA5 Metals	Dark brown mottled silty SAND, little GRAVEL (Fill), loose, moist.
		5.0				Brown silty and clayey fine to medium SAND, little gravel, weathered galcial till or till fill), medium dense, moist to wet.
2	2" Lined Spoon		4'		TPH-G TPH-D VOCs Lead	
		10.0				
3	2" Lined Spoon		4'			
		15.0				Gray fine to coarse SAND with gravel, wet.
4	2" Lined Spoon		5'			Gray clayey and silty SAND, soft, wet Increasingly dense with depth.
		20.0				End of Boring at 20.0 ft. No petroleum odor or discoloration encountered at any depth. Water sample obtained from temporary well. Backfilled with bentonite on completion.

Date Drilled:	Water Level Data	Depth	Date/Time
10-1-2019	First Encountered:	14'	10-1-2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-1
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Grass and topsoil containing brick & debris.
1	2” Lined Spoon		2.5’	--		Brown silty fine to coarse SAND, little gravel (Fill), loose, wet.
						Dark brown silty SAND buried topsoil with root fibers, moist to wet.
						Blueish gray clayey SAND, mottled with rusty brown, trace gravel, soft, moist.
		5.0				
2	2” Lined Spoon		4’		HCID VOCs	
		10.0				
3	2” Lined Spoon		5’			
						Gray fine to medium SAND, trace silt, wet.
						Blueish gray clayey SAND, little silt, firm, moist.
		15.0			VOCs	
						End of Boring at 15.0 ft. No petroleum odor or discoloration encountered at any depth. Water sample collected from temporary well screen installed in boring to a depth of 15’. Backfilled with bentonite upon completion.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Date Drilled:	Water Level Data	Depth	Date/Time
5-12-2017	First Encountered:	1’	5-12-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-2
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Grass and topsoil.
1	2” Lined Spoon		2.5’	--		Brown silty fine to medium SAND, trace clay (Fill), loose, wet.
					VOCs	Dark brown sandy SILT organic topsoil, moist to wet.
		5.0				
2	2” Lined Spoon		5’			Gradual transition to blueish gray, mottled clayey fine to medium SAND with thin lenses of clean sand, soft, moist.
		10.0				Gray SILT, mottled with rusty brown zones, firm, moist to wet.
3	2” Lined Spoon		5’		HCID VOCs	
		15.0				End of Boring at 15.0 ft.
						No petroleum odor or discoloration encountered at any depth.
						Water sample collected from temporary well screen installed in boring to a depth of 15’.
						Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
5-12-2017	First Encountered:	1’	5-12-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-3
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-210’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Grass and topsoil.
1	2” Lined Spoon		3’	--		Brown clayey GRAVEL and SAND (Fill), loose, wet.
						Dark brown clayey SAND organic topsoil, moist to wet.
		5.0				
2	2” Lined Spoon		5’		HCID VOCs	Gradual transition to blueish gray, mottled clayey fine to medium SAND with trace coarse sand and gravel, soft, moist.
		10.0				
3	2” Lined Spoon		5’		VOCs	Gray SILT with fine sand, firm, moist to wet.
		15.0				Gray fine to medium SAND, wet.
						End of Boring at 15.0 ft. No odor or discoloration encountered at any depth.
						Water sample collected from temporary well screen installed in boring to a depth of 15’.
						Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
5-12-2017	First Encountered:	1’	5-12-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-4
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Grass and topsoil.
1	2” Lined Spoon		3’	--		Dark brown SAND and GRAVEL with debris (Fill), loose, moist to wet.
		5.0				Mottled brown clayey SAND and GRAVEL, (likely Fill) moist to wet.
2	2” Lined Spoon		5’		HCID VOCs	Gray, mottled clayey and silty SAND with zones of fine to medium SAND, soft, moist.
		10.0				
3	2” Lined Spoon		5’			Gray fine to medium SAND, wet.
						Gray clayey and silty SAND, with zones of fine to medium SAND, soft, moist.
		15.0				End of Boring at 15.0 ft. No odor or discoloration encountered at any depth. Water sample collected from temporary well screen installed in boring to a depth of 15’. Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
5-12-2017	First Encountered:	4’	5-12-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-5
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Asphalt over gravel base.
1	2” Lined Spoon		2.5’	--		Dark brown silty SAND, little gravel, with organic material (Fill), loose, moist to wet.
		5.0			VOCs	Mottled brown silty SAND and GRAVEL, (likely Fill) moist to wet.
						Dark brown sandy organic SILT, soft, moist.
2	2” Lined Spoon		4’			Grayish brown, mottled clayey and silty SAND, firm, moist.
		10.0			HCID	
3	2” Lined Spoon		5’			Gray clayey and silty SAND, trace to little gravel, with zones of fine to medium SAND, harder with depth, moist.
		15.0				
4	2” Lined Spoon		5’		HCID	End of Boring at 20.0 ft. No odor or discoloration encountered at any depth. Water sample collected from temporary well screen installed in boring to a depth of 15’. Backfilled with bentonite upon completion.
		20.0				

Date Drilled:	Water Level Data	Depth	Date/Time
5-12-2017	First Encountered:	4’	5-12-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-6
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Broken concrete surface over gravel base.
1	2” Lined Spoon		2’	--	TPH-G VOCs	Dark brown clayey SAND and GRAVEL (Fill), loose, moist to wet.
		5.0				Dark brown sandy organic SILT, soft, moist.
2	2” Lined Spoon		4’		HCID	
		10.0				Grayish brown clayey and silty SAND, soft, moist.
3	2” Lined Spoon		5’		TPH-G VOCs	
		15.0				End of Boring at 15.0 ft. No odor or discoloration encountered at any depth. Water sample collected from temporary well screen installed in boring to a depth of 15’. Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
5-12-2017	First Encountered:	6’	5-12-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	MW-8 (Originally BN-7)
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: Top of Pipe: 216.51 / Reference: –	

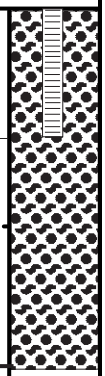
Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Gravel surface.
1	2" Lined Spoon		2.5'	--		Brown silty SAND and GRAVEL (Fill),some black spots of organic or burned wood, loose, moist.
						3'
		5.0			VOCs	
2	2" Lined Spoon		4'			
						Distinct transition to gray SAND and GRAVEL (Fill), medium dense, moist, with distinct petroleum odor.
		10.0				
						Grayish green sandy CLAY, trace to little gravel, weathered glacial till or till derived fill, harder with depth, moist to wet, strong petroleum odor.
					HCID	12'
3	2" Lined Spoon		5'			
		15.0				Dark brown sandy organic SILT, soft, moist, no petroleum odor.
						Grayish green silty and sandy CLAY, harder with depth, moist to wet, moderate petroleum odor.
4	2" Lined Spoon		5'		HCID	
		20.0				Gray fine to medium SAND, trace coarse sand and gravel, wet, no petroleum odor.
						Continued

Date Drilled:	Water Level Data	Depth	Date/Time
5-15-2017	First Encountered:	8'	5-15-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	MW-8 (BN-7 Continued)
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: Top of Pipe: 216.51 / Reference: –	

Sample Data					Lab Sample	Soil Description
No.	Type	Depth	Recovery	N		
5	2” Lined Spoon	20.0 – 25.0	5’	--		Gray fine to medium SAND, trace coarse sand and gravel, wet, no petroleum odor. 22’ Gray SILT with very fine sand, dilatant, wet, no petroleum odor. End of Boring at 25.0 ft. 2” Sch. 40 PVC well screen installed from depth of 12 to 22 feet below ground surface, surrounded with #10-20 silica sand filter pack. Bentonite seal and flush-mounted steel monument at surface.



Dept. of Ecology Unique Well ID: **BJR-852**	Water Level Data	Depth	Date/Time
	First Encountered:	+/-8’	5-15-17
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-8
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Gravel surface.
1	2” Lined Spoon		2’	--		Brown SAND and GRAVEL (Fill), medium dense, moist.
		5.0				
2	2” Lined Spoon		4’		HCID	Brown silty and clayey SAND with brick and asphalt debris (Fill), soft, moist to wet, musty odor.
		10.0				Dark brown sandy organic SILT, soft, moist.
3	2” Lined Spoon		3’			Grayish brown clayey and silty SAND with gravel, medium dense, moist.
		15.0				
4	2” Lined Spoon		5’		TPH-G BTEX	Gray silty SAND, trace clay, trace gravel, medium dense, moist to wet.
		20.0				End of Boring at 20.0 ft Water sample collected from temporary well screen installed in boring to a depth of 20’. Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
5-15-2017	First Encountered:	6’	5-15-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-9
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Gravel surface.
1	2” Lined Spoon		4’	--		Brown SAND and GRAVEL (Fill), medium dense, moist.
		5.0				
2	2” Lined Spoon		3’			Brown silty and clayey SAND with brick and asphalt debris (Fill), soft, moist.
		10.0				
3	2” Lined Spoon		2.5’		TPH-G BTEX	Gray clayey SAND, trace gravel, medium dense, moist to wet, possible slight petroleum odor.
		15.0				
4	2” Lined Spoon		5’			Dark brown sandy organic SILT, with wood fragments, trace gravel, soft, moist, no petroleum odor.
		20.0				Greenish gray clayey SAND, trace gravel, moist to wet, no petroleum odor.

Continued

Date Drilled:	Water Level Data	Depth	Date/Time
5-15-2017	First Encountered:	12’	5-15-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-9 Continued
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
5	2” Lined Spoon	20.0 – 25.0	5’	--		Greenish gray clayey SAND, trace coarse sand and gravel, with lenses of fine to medium SAND and laminar SILT, very moist to wet in sandy zones, no petroleum odor.
						End of Boring at 25.0 ft.
						Water sample collected from temporary well screen installed in boring to a depth of 20’.
						Backfilled with bentonite upon completion.

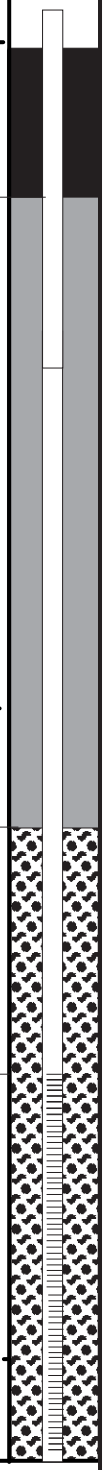
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

Date Drilled:	Water Level Data	Depth	Date/Time
5-15-2017	First Encountered:	+/-12’	5-15-17
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	MW-9 (Originally BN-10)
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: Top of Pipe: 214.25 / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Gravel surface.
1	2" Lined Spoon		0.5'	--		Brown silty SAND and GRAVEL with brick and debris (Fill), very soft, moist.
						3' Poor sample recovery
		5.0				
2	2" Lined Spoon		0.3'			Poor sample recovery
		10.0				
						Dark brown sandy organic SILT, soft, moist, moderate petroleum odor. 12'
3	2" Lined Spoon		0.2'		VOCs TPH-G TPH-D	Poor sample recovery
		15.0				15'
4	2" Lined Spoon		0.7'		HCID	Poor sample recovery
		20.0				Gray fine to medium SAND, trace coarse sand and gravel, wet, slight petroleum odor. Continued



Date Drilled:	Water Level Data	Depth	Date/Time
5-15-2017	First Encountered:	12'	5-15-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	MW-9 (BN-10 Continued)
	Driller: ESN Northwest / Method: Geoprobe	Project No.: WES-1591
	Elevation: Top of Pipe: 214.25 / Reference: –	

Sample Data					Lab Sample	Soil Description
No.	Type	Depth	Recovery	N		
5	2" Lined Spoon	20.0 25.0	5'	--		Gray fine to medium SAND, trace coarse sand and gravel, very moist, but no free water, no petroleum odor. 25' End of Boring at 25.0 ft. Poor sample recovery throughout upper 20'. Moved 3' west and redrilled using hollow stem auger for monitoring well installation. 2" Sch. 40 PVC well screen installed from depth of 15 to 25 feet below ground surface, surrounded with #10-20 silica sand filter pack. Bentonite seal and flush-mounted steel monument at surface.



Dept. of Ecology Unique Well ID: **BJR-853**	Water Level Data	Depth	Date/Time
	First Encountered:	+/-8'	5-15-17
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-11
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Gravel surface.
1	2” Lined Spoon		1.5’	--		Yellowish brown to brown silty SAND and GRAVEL with brick and debris(Fill), very soft, moist.
		5.0				
2	2” Lined Spoon		1.3’			Piece of fire brick
		10.0				
3	2” Lined Spoon		1’		Metals	Broken glass fragments and brick
		15.0				
4	2” Lined Spoon		0.7’			
		20.0				Gray clayey SAND, trace gravel, wet, no petroleum odor.
						Continued

Date Drilled:	Water Level Data	Depth	Date/Time
5-15-2017	First Encountered:	12’	5-15-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-11 Continued
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
5	2” Lined Spoon	20.0 – 25.0	5’	--	HCID	Gray clayey SAND, trace coarse sand and gravel, mottled with rusty brown coloration, moist, no petroleum odor.
						End of Boring at 25.0 ft.
						Water sample collected from temporary well screen installed in boring to a depth of 20’.
						Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
5-15-2017	First Encountered:	+/-12’	5-15-17
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-12
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Gravel surface.
1	2” Lined Spoon		1.5’	--		Brown clayey SAND, (Fill), medium dense, moist.
		5.0				
2	2” Lined Spoon		2.5’			Greenish gray silty and clayey SAND with sandier lenses (Fill), soft, moist to wet in sandier zones.
		10.0				
3	2” Lined Spoon		3.5’			Brown silty and clayey SAND, (Fill) medium dense, moist to wet.
		15.0				
4	2” Lined Spoon		2.5’		TPH-G VOCs	Wood fragments in dark greyish brown silty SAND, (Fill), soft, moist.
		20.0				Continued

Date Drilled:	Water Level Data	Depth	Date/Time
7-23-2019	First Encountered:	+/- 11’	7-23-2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-12 (Continued)
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215' / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
		20.0				
5	2" Lined Spoon		5'	--		Grayish brown silty and clayey SAND, trace gravel, medium dense, wet, native soil.
		25.0			TPH-G VOCs	
						Grayish brown fine to medium SAND, wet.
6	2" Lined Spoon		5'	--		Grayish brown fine SAND interlayered with SILT and clayey SAND (weathered till), trace gravel, medium dense, wet. Increasingly drier and silty with depth.
		30.0				
						End of Boring at 30.0 ft.
						No odor and discoloration encountered at any depth.
						Groundwater sample from temporary screen installed from depth of 10 to 30 ft.
						Backfilled with bentonite upon completion.

21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

Date Drilled:	Water Level Data	Depth	Date/Time
7/23/2019	First Encountered:	+/-9'	7-23-2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 1209 E. Fir Street Seattle, WA	Seattle Land Use Company	BN-13
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215' / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
1	2" Lined Spoon		3'	--		Brown clayey SAND, little gravel, (Fill), medium dense, moist.
		5.0				
2	2" Lined Spoon		2.5'		MTCA 5 Metals	Same.
		10.0				
3	2" Lined Spoon		2.5'		HCID MTCA 5 Metals	Brick and debris at 12 ft.
		15.0				
4	2" Lined Spoon		3.5'		MTCA 5 Metals	Dark brown to black organic SILT and silty SAND, (Fill), soft, moist.
						Greenish grey clayey SAND, mottled rusty areas, native soil, moist, not wet.
		20.0				End of Boring at 20.0 ft. Backfilled with bentonite.

Date Drilled:	Water Level Data	Depth	Date/Time
7-23-2019	First Encountered:	Dry	7-23-2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 1209 E. Fir Street Seattle, WA	Seattle Land Use Company	BN-14
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Concrete surface.
1	2” Lined Spoon		1.2’	--		Brown clayey SAND with gravel, (Fill), soft, moist.
		5.0				
2	2” Lined Spoon		2.5’			
		10.0				
3	2” Lined Spoon		2.5’			Greenish gray mottled clayey SAND (Fill), soft, moist to wet in thin sandier zones.
		15.0				
						Dark brown to black organic SILT, (Fill or buried topsoil), soft, moist, musty odor.
4	2” Lined Spoon		4’		TPH-G VOCs	
						Greenish gray mottled clayey SAND (Weathered till), medium dense, moist, slight musty odor.
		20.0				

Continued

Date Drilled:	Water Level Data	Depth	Date/Time
7-23-2019	First Encountered:	+/- 14’	7-23-2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 12109 E. Fir Street Seattle, WA	Seattle Land Use Company	BN-14 (Continued)
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
		20.0				
5	2” Lined Spoon		5’	--	TPH-D TPH-G VOCs	Brown fine to medium SAND, with rusty brown mottling, interlayered with silty and clayey SAND (weathered till), medium dense, wet.
		25.0				
						Grayish brown medium to coarse SAND, wet.
6	2” Lined Spoon		5’	--		Grayish brown clayey SAND (weathered till), with gravel, medium dense, moist to wet.
		30.0				
						End of Boring at 30.0 ft.
						Groundwater sample from temporary screen installed from depth of 10 to 30 ft.
						Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
7/23/2019	First Encountered:	+/-9’	7-23-2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-15
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Gravel surface.
1	2” Lined Spoon		3’	--		Mottled brown clayey SAND trace gravel (Fill), rusty areas, moist.
		5.0				
2	2” Lined Spoon		2’		TPH-G BTEX	Gray silty fine to medium SAND, (Fill), soft, moist.
		10.0				Dark brown mottled clayey SAND (Fill), some organic silt in lenses, soft, moist.
3	2” Lined Spoon		1.75’			
		15.0				Greenish gray silty and clayey SAND (Fill), with some organic silt zones, soft, moist.
4	2” Lined Spoon		4’		TPH-D TPH-G BTEX	
		20.0				Continued

Date Drilled:	Water Level Data	Depth	Date/Time
7-23-2019	First Encountered:	+/- 15’	7-23-2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-15 (Continued)
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
		20.0				Gray fine to coarse SAND, wet.
5	2” Lined Spoon		5’	--		Grayish brown silty fine to medium SAND, medium dense, moist to wet. Increasingly drier and silty with depth.
		25.0				
6	2” Lined Spoon		5’	--		
		30.0				End of Boring at 30.0 ft. No odor and discoloration encountered at any depth. Groundwater sample from temporary screen installed from depth of 10 to 30 ft. Backfilled with bentonite upon completion.

21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

Date Drilled:	Water Level Data	Depth	Date/Time
7/23/2019	First Encountered:	+/-14’	7-23-2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-16
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Gravel surface.
1	2” Lined Spoon		4’	--		Mottled brown clayey SAND trace gravel (Fill), moist.
		5.0				
2	2” Lined Spoon		4’			
		10.0				Greenish gray silty and clayey SAND (Fill), soft, moist slight petroleum odor.
3	2” Lined Spoon		3.5’		TPH-G BTEX	Dark brown to black silty SAND (Fill), with wood and organic, very soft, moist to wet, slight petroleum odor.
					TPH-D	
		15.0			TPH-G BTEX	Grayish brown silty and clayey fine to medium SAND (Weathered till), soft, moist, slight petroleum odor.
4	2” Lined Spoon		4’		TPH-G BTEX	Grayish brown silty fine to medium SAND, medium dense, wet, no odor.
		20.0				Gray SILT and very fine SAND, laminated, moist to wet in sandy zones.

Continued

Date Drilled:	Water Level Data	Depth	Date/Time
7-23-2019	First Encountered:	+/- 12’	7-23-2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-16 (Continued)
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
		20.0				
5	2” Lined Spoon		5’	--		Gray SILT and very fine SAND, medium dense, moist to wet in sandier zones. Increasingly drier and silty with depth.
		25.0				
6	2” Lined Spoon		5’	--		
		30.0				End of Boring at 30.0 ft.
						Some petroleum odor at depths noted.
						Groundwater sample from temporary screen installed from depth of 10 to 30 ft.
						Backfilled with bentonite upon completion.

Date Drilled:	Water Level Data	Depth	Date/Time
7/23/2019	First Encountered:	+/-12’	7-23-2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	BN-17
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
1	2” Lined Spoon		0.5’	--		Grayish brown silty fine to coarse SAND with gravel (Fill), medium dense, moist.
		5.0			MTCA 5 Metals	
2	2” Lined Spoon		1.5’			Dark brown silty and clayey SAND with brick, fabric and plastic debris (Fill), soft, moist, musty odor.
		10.0			MTCA 5 Metals	
3	2” Lined Spoon		4.5’		TPH-D VOCs Lead	Gray silty fine SAND interlayered with SILT, medium dense, moist, wet in sandier zones.
		15.0			Lead	
4	2” Lined Spoon		5’			End of Boring at 20 ft. Water sample from temporary screen installed from depth of 8.5 to 18.5 feet. No petroleum odor or discoloration encountered at any depth.
		20.0				

Date Drilled:	Water Level Data	Depth	Date/Time
7-23-2019	First Encountered:	+/- 10’	7-23-2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	GEO B-7
	Driller: Geologic Drilling / Method: Hollow-stem Auger	Project No. WES-1591
	Elevation: Top of Pipe: 201.12 / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Asphalt Surface.
						Greyish brown mottled silty SAND, little GRAVEL (Fill), loose, moist.
						3’
1	2” Split Spoon	5.0 – 6.5	1.5’	2/2/3		
						10’
2	2” Split Spoon	10.0 – 11.5	1.5’	4/10/18		
						Brown fine to medium SAND, wet.
3	2” Split Spoon	12.5 – 14.0	1.5’	3/5/7	TPH-G VOCs	
						Grayish brown clayey fine to medium SAND, little gravel, moist to wet.
4	2” Split Spoon	15.0 – 16.5	1.5’	1/1/2		
						Interlayered with dark grey fine to medium SAND zones, wet.
						2” Sch. 40 PVC well screen installed from depth of 10 to 20 feet below ground surface, surrounded with #10-20 silica sand filter pack. Bentonite seal and flush-mounted steel monument set in concrete at ground surface.
						20’
5	2” Split Spoon	20.0 – 21.5	1.5’	2/5/10		
						End of Boring at 21.5 ft. No petroleum odor or discoloration encountered at any depth.

Date Drilled:	Water Level Data	Depth	Date/Time
9-7-2018	First Encountered:	13’	9-7-2018
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	GEO B-8
	Driller: Geologic Drilling / Method: Hollow-stem Auger	Project No. WES-1591
	Elevation: Top of Pipe: 214.79 / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Gravel Surface.
						Brown silty SAND and GRAVEL (Fill), with debris and organic material, very soft, moist to wet.
						3’
1	2” Split Spoon	5.0 – 6.5	1.5’			
2	2” Split Spoon	7.5 – 9.0	1.5’			
						Grayish green mottled silty and clayey SAND, trace gravel (Fill), moist.
3	2” Split Spoon	10.0 – 11.5	1.5’		HCID VOCs	
4	2” Split Spoon	12.5 – 14.0	1.5’			
						15’
5	2” Split Spoon	15.0 – 16.5	1.5’		HCID VOCs	Dark brown to black sandy organic SILT, soft, wet.
6	2” Split Spoon	17.5 – 19.0			HCID VOCs	Greenish gray clayey fine to medium SAND, trace gravel, moist.
						Continued



Date Drilled:	Water Level Data	Depth	Date/Time
9-7-2018	First Encountered:		
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	GEO B-8 Continued
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: Top of Pipe: 214.79 / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
7	2" Split Spoon	20.0 – 21.5	1.5'			Gray fine to medium SAND, trace coarse sand and gravel, wet, no petroleum odor.
		25.0 – 26.5				Grey clayey SAND, trace gravel, with small sand seams, increasingly dense with depth, moist, no petroleum odor.
		30.0 – 31.5				Dark grey gravelly and silty SAND, wet, no petroleum odor.
		35.0 – 36.5				Dark grey SILT and silty fine SAND, trace clay, moist to wet, no petroleum odor. 35'
						End of Boring at 36.5 ft.
						2" Sch. 40 PVC well screen installed from depth of 15-35 feet below ground surface, surrounded with #10-20 silica sand filter pack. Bentonite seal and flush-mounted steel monument at surface.

Date Drilled:	Water Level Data	Depth	Date/Time
9-7-2018	First Encountered:	+/-22'	9-7-2018
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	GEO B-9
	Driller: Geologic Drilling / Method: Hollow-stem Auger	Project No. WES-1591
	Elevation: Top of Pipe: 200.69 / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Asphalt Surface.
						Brown silty SAND and GRAVEL (Fill), loose, moist.
						3’
1	2” Split Spoon	5.0 – 6.5	1.5’	7/4/4		
2	2” Split Spoon	7.5 – 9.0	1.5’	4/7/10		Grayish green mottled clayey SAND, little gravel, weathered glacial till or till derived fill, harder with depth, moist.
						10’
3	2” Split Spoon	10.0 – 11.5	1.5’	6/10/16	HCID	Brown fine to medium SAND, wet.
4	2” Split Spoon	12.5 – 14.0	1.5’	9/5/3		Grayish brown clayey fine to medium SAND, moist to wet. Interlayered with dark grey fine to medium SAND zones, wet.
						15’
5	2” Split Spoon	15.0 – 16.5	1.5’	2/2/10		
						End of Boring at 16.5 ft. No petroleum odor or discoloration encountered at any depth.
						2” Sch. 40 PVC well screen installed from depth of 10 to 15 feet below ground surface, surrounded with #10-20 silica sand filter pack. Bentonite seal and flush-mounted steel monument set in concrete at ground surface.



Date Drilled:	Water Level Data	Depth	Date/Time
9-7-2018	First Encountered:	11’	9-7-2018
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	MW-11
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: Top of Pipe: 198.20 / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Asphalt parking lot.
1	2" Lined Spoon		3'	--		Greenish gray mottled clayey and silty SAND, (Fill) with zones of black organic, medium dense, moist.
		5.0				
2	2" Lined Spoon		5'			
3	2" Lined Spoon	10.0			VOCs	6" zone of fine to medium SAND at 9 ft, wet.
						Brown clayey and silty SAND, medium dense, moist to wet.
			5'			Brown fine to medium SAND, medium dense, wet.
		15.0				Gray clayey SAND with trace gravel (weathered till), soft, moist to wet.
						End of Boring at 15.0 ft. No odor or discoloration encountered at any depth.
						2" Sch. 40 PVC well screen installed from depth of 5 to 15 feet below ground surface, surrounded with #10-20 silica sand filter pack. Bentonite seal and flush-mounted steel monument at surface.



Date Drilled:	Water Level Data	Depth	Date/Time
7-22-2019	First Encountered:	+/- 9'	7-22-2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	MW-12
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: Top of Pipe: 198.89 / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
1	2" Lined Spoon		2.5'	--		Asphalt parking lot. Greenish gray mottled clayey SAND, trace gravels, with black organic area at 3-3.5' (Fill), moist.
		5.0				3' 5'
2	2" Lined Spoon		5'			Grayish brown silty and clayey SAND, occasional large gravel (weathered glacial till), dense, moist.
3	2" Lined Spoon	10.0			VOCs	
			5'			Gray, silty and clayey SAND, soft, moist to wet.
		15.0				15'
			5'			Gray clayey SILT, interlayered with clayey fine to coarse sand, moist to wet. Wet in sandier zones. End of Boring at 20.0 ft. Drilled boring then backfilled with bentonite. 7-23-2019 moved to adjacent location and drove 4" casing to 15' to install monitoring well. 2" Sch. 40 PVC well screen installed from depth of 5 to 15 feet below ground surface, surrounded with #10-20 silica sand filter pack. Bentonite seal and flush-mounted steel monument at surface.
		20.0				



Date Drilled:	Water Level Data	Depth	Date/Time
7-22-2019	First Encountered:	12'	7-22-2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	MW-13
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: Top of Pipe:201.81’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Concrete floor over gravel base.
1	2” Lined Spoon		2’	--		2’ Dark brown mottled silty SAND (Fill), small zones of organic and occasional gravels, medium dense, moist, no odor or discoloration.
		5.0			TPH-G TPH-D VOCs	5’
2	2” Lined Spoon		3.5’			
		10.0				Gray silty and clayey SAND with gravel (Glacial till), very dense, moist, no odor or discoloration. Decreasing clay content with depth.
3	2” Lined Spoon		4’			Fine to medium sandier zones at 12 and 14 feet, moist to wet.
		15.0				Grades to fine SAND with SILT, medium dense, wet, no odor or discoloration.
4	2” Lined Spoon		4.5’			End of Boring at 20.0 ft. 2” Sch. 40 PVC well screen installed from depth of 5 to 20 feet below ground surface, surrounded with #10-20 silica sand filter pack. Bentonite seal and flush-mounted steel monument set in concrete at ground surface.
		20.0				20’

Date Drilled:	Water Level Data	Depth	Date/Time
10-1-2019	First Encountered:	12’	10/1/2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Redevelopment Property 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	MW-14
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: Top of Pipe: 203.09 / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Grass and topsoil.
1	2” Lined Spoon		4’	--		Brown silty fine to medium SAND with some gravel (Fill), loose, moist to wet.
		5.0				3’
2	2” Lined Spoon		4.5’			5’
		10.0			TPH-G VOCs MTCA 5 Metals	Gray SILT with fine sand, firm, moist to wet in sandier zones.
3	2” Lined Spoon		5’			Interlayered zones of SILT and very fine SAND, moist to wet.
		15.0				15’
						End of Boring at 15.0 ft. No odors or discoloration encountered at any depth.
						2” Sch. 40 PVC well screen installed from depth of 5 to 15 feet below ground surface, surrounded with #10-20 silica sand filter pack. Bentonite seal and flush-mounted steel monument at surface.



Date Drilled:	Water Level Data	Depth	Date/Time
7-23-2019	First Encountered:	12’	7-23-2019
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Off-Site Borings 104 12th Avenue Seattle, WA	Seattle Land Use Company	OS-1
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-196’ / Reference: –	

Sample Data No.	Type	Depth	Recovery	N	Lab Sample	Soil Description
						Concrete sidewalk.
1	2” Lined Spoon		1’	--		Brown clayey SAND and GRAVEL (Fill), soft, moist.
		4.0				Mottled grayish brown silty and sandy CLAY, trace gravel, medium dense, moist.
2	2” Lined Spoon		4’			
		8.0				
3	2” Lined Spoon		4’			
		12.0			HCID	Gray fine to medium SAND, medium dense, wet.
4	2” Lined Spoon		4’			Gray silty fine to coarse SAND, trace gravel, trace clay, medium dense, moist to wet.
		16.0				End of Boring at 16.0 ft. No petroleum odor or discoloration encountered at any depth. Water sample collected from temporary well screen installed to a depth of 16 feet. Backfilled with bentonite upon completion, concrete patch at sidewalk surface.

Date Drilled:	Water Level Data	Depth	Date/Time
8-3-2017	First Encountered:	+/- 12’	8-3-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Off-Site Borings 104 12th Avenue Seattle, WA	Seattle Land Use Company	OS-2
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205' / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Concrete sidewalk.
1	2" Lined Spoon		1'	--		Brown silty GRAVEL (Fill), soft, moist.
		4.0				Mottled brown to gray silty CLAY with fine to coarse SAND (Fill), soft, moist.
2	2" Lined Spoon		4'			Dark brown to black organic SILT (Fill or former topsoil) soft, moist.
		8.0			HCID	Gray silty and clayey SAND, trace gravel (Glacial till), medium dense, moist.
3	2" Lined Spoon		4'			Gray silty fine to medium SAND, wet.
		12.0			HCID	Gray silty and clayey SAND, trace gravel (Glacial till), increasingly denser and drier.
						End of Boring at 12.0 ft. No petroleum odor or discoloration encountered at any depth.
						Water sample collected from temporary well screen installed to a depth of 12 feet.
						Backfilled with bentonite upon completion, concrete patch at sidewalk surface.

Date Drilled:	Water Level Data	Depth	Date/Time
8-3-2017	First Encountered:	10'	8-3-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Off-Site Borings 104 12th Avenue Seattle, WA	Seattle Land Use Company	OS-3
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-202’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Concrete sidewalk over gravel base.
1	2” Lined Spoon		2.5’	--		Brown gravelly silty SAND with gravel (Fill), soft, moist.
						Rusty brown zones
		4.0				Black clayey SAND zone.
2	2” Lined Spoon		3’			Gray clayey fine to coarse SAND, medium dense, moist.
		8.0				Thin fine to medium sand zone at 7.5’, wet.
3	2” Lined Spoon		4’			Increasingly denser and drier with depth.
		12.0			HCID	
4	2” Lined Spoon		3’			Gray silty fine to medium SAND, trace gravel, soft, wet.
		15.0				End of Boring at 15.0 ft.
						No petroleum odor or discoloration encountered at any depth.
						Water sample collected from temporary well screen installed in boring to a depth of 16’.
						Backfilled with bentonite upon completion, concrete patch at sidewalk.

Date Drilled: 8-3-2017

Water Level Data	Depth	Date/Time
First Encountered:	7.5’	8-3-2017
Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Off-Site Borings 104 12th Avenue Seattle, WA	Seattle Land Use Company	OS-4
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data No.	Type	Depth	Recovery	N	Lab Sample	Soil Description
						Concrete sidewalk.
1	2” Lined Spoon	4.0	1.5’	--		Mottled brown clayey SAND with gravel (Fill), medium dense, moist.
2	2” Lined Spoon		3’		HCID	
		8.0				Light gray mottled clayey SAND, trace gravel, dense, moist.
3	2” Lined Spoon	9.0	1’		TPH-G VOCs	With gravels
						End of Boring at 9 ft. on refusal. No petroleum odor or discoloration encountered at any depth. Installed temporary screen, but had dry boring after one hour. No water sample could be collected. Backfilled with bentonite upon completion, concrete patch at sidewalk.

Date Drilled:	Water Level Data	Depth	Date/Time
8-3-2017	First Encountered:	Dry	8-3-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Off-Site Borings 104 12th Avenue Seattle, WA	Seattle Land Use Company	OS-5
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Concrete floor over gravel base.
1	2” Lined Spoon		2’	--		Rusty brown clayey and gravelly SAND (Fill).
		4.0				
2	2” Lined Spoon		3’		TPH-G VOCs TPH-D	Dark gray silty and clayey SAND, with gravel, soft, moist to wet, oily petroleum odor.
		8.0				Dark gray fine to coarse SAND, with gravel, trace silt soft, wet, slight petroleum odor.
3	2” Lined Spoon		4’		TPH-G TPH-D	Dark gray silty and clayey SAND, trace gravel, dense, moist, no petroleum odor.
		12.0				
			2’			
		14.0				End of Boring at 14.0 ft. No petroleum odor or discoloration encountered at any depth. Installed temporary screen, but had very limited flow. Obtained a total of two VOA Vials within one hour. Backfilled with bentonite upon completion, concrete patch at sidealk.

Date Drilled:	Water Level Data	Depth	Date/Time
8-3-2017	First Encountered:	8’	8-3-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Seattle Curtain Co. Property 104 12th Avenue Seattle, WA	Seattle Land Use Company	OS-6
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-205’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
1	2” Lined Spoon		3’			Concrete sidewalk.
						Brown clayey SAND, trace gravel (Fill), medium dense, moist to wet.
		4.0				
2	2” Lined Spoon		3’		TPH-G VOCs	Gray clayey SAND or sandy CLAY, medium dense, moist to wet.
		8.0				
3	2” Lined Spoon		3.5’			Dark brown to black organic SILT, with fibrous pieces, moist to wet.
					HCID	Greenish gray silty and clayey SAND, trace gravel (weathered till), moist. Increasingly dense with depth.
		12.0				End of Boring at 12.0 ft on refusal.
						No odor and discoloration encountered at any depth.
						Groundwater sample from temporary screen installed to a depth of 12 feet. Low flow conditions took approximately 45 minutes to collect sample volume.
						Backfilled with bentonite upon completion, concrete patch at sidewalk.

Date Drilled:	Water Level Data	Depth	Date/Time
8-3-2017	First Encountered:	6’	8-3-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Off-Site Borings 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	OS-7
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Concrete surface.
1	2” Lined Spoon		3’	--		Mottled brown clayey SAND trace gravel (Fill), moist.
		4.0				Gray clayey SAND with gravel (Fill), moist to wet, harder with depth.
			3’			
2	2” Lined Spoon	8.0			HCID	
						Dark brown to black organic SILT with wood and fibrous material, very soft, moist to wet.
			3.5’			
					TPH-G VOCs	Dark brown mottled silty and clayey SAND (Fill), roots, soft, moist to wet.
3	2” Lined Spoon	12.0				
			4’			
		16.0			TPH-G VOCs	
4	2” Lined Spoon		4’			Gray fine to coarse SAND, trace silt, moist to wet.
		20.0				No odor and discoloration encountered at any depth. Groundwater sample from temporary screen installed to a depth of 12 feet. Backfilled with bentonite upon completion.
						End of Boring at 20.0 ft.

Date Drilled:	Water Level Data	Depth	Date/Time
8-3-2017	First Encountered:	+/- 15’	8-3-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Off-Site Borings 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	OS-8
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-216’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Gravel surface.
1	2” Lined Spoon		2’	--		Brown to dark brown clayey and silty SAND (Fill), soft, moist.
		5.0				Dark greenish gray silty fine for coarse SAND (Fll), soft, moist to wet.
2	2” Lined Spoon		1.5’		HCID	
		10.0				Dark brown to black organic SILT with wood and fibrous material, very soft, moist to wet.
3	2” Lined Spoon		3’			Greenish gray clayey SAND with gravel, medium dense, moist.
		15.0				
4	2” Lined Spoon		4.5’		TPH-G BTEX	Thin zones of fine to coarse SAND, trace silt, wet.
		20.0				No odor and discoloration encountered at any depth. Groundwater sample from temporary screen installed to a depth of 20 feet. Backfilled with bentonite upon completion. End of Boring at 20.0 ft.

Date Drilled:	Water Level Data	Depth	Date/Time
8-4-2017	First Encountered:	+/- 15’	8-4-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Off-Site Borings 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	OS-9
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-216’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Gravel surface.
1	2” Lined Spoon		4’	--		Brown to dark brown clayey and silty SAND (Fill), soft, moist.
		5.0				
2	2” Lined Spoon		3’			Distinct change to dark gray sandy CLAY (Fll), soft, moist.
		10.0				Gray silty fine to coarse SAND with gravel, medium dense, moist. Interlayered with clayey SAND and gravel (weathered glacial till).
3	2” Lined Spoon		4’		HCID	
		15.0				Thin zones of fine to coarse SAND, trace silt, wet.
4	2” Lined Spoon		5’			
		20.0				Dark gray silty and clayey SAND with gravel, very dense, moist (glacial till).
						Continued

Date Drilled:	Water Level Data	Depth	Date/Time
8-4-2017	First Encountered:	+/- 15’	8-4-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Off-site Borings 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	OS-9 (Continued)
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-215’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
5	2” Lined Spoon	20.0 – 25.0	5’	--		Glacial Till Gray SILT and very fine SAND, medium dense, moist to wet in sandier zones. Increasingly drier and silty with depth. End of Boring at 25.0 ft. No petroleum odor or discoloration encountered at any depth. Water sample obtained from temporary screen Sealed with bentonite upon completion, concrete patch at sidewalk.

Date Drilled:	Water Level Data	Depth	Date/Time
8/4/2017	First Encountered:	+/-16’	8-4-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Off-Site Borings 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	OS-10
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-210’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Asphalt surface.
1	2” Lined Spoon		3’	--		Dark greenish gray clayey and silty SAND (Fill), root fibers, soft, moist.
		5.0				
					HCID	
2	2” Lined Spoon		3’			Dark brown to black organic SILT with gravel, medium dense, moist.
		10.0			HCID	Mottled with dark gray, moist to wet.
3	2” Lined Spoon		4’			Greenish gray clayey and silty SAND, increasingly dense with depth, moist.
		15.0				Greenish gray silty fine to medium SAND, very soft, moist.
4	2” Lined Spoon		4’			
		20.0				Continued

Date Drilled:	Water Level Data	Depth	Date/Time
8-4-2017	First Encountered:	Dry’	8-4-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Off-site Borings 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	OS-10 (Continued)
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-210’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
5	2” Lined Spoon	20.0 25.0 30.0	3’ 5’	--		Greenish gray silty fine to medium SAND, very soft, moist. Gray clayey SILT, little fine SAND, medium dense, slightly moist. No free water in boring . End of Boring at 30.0 ft. No petroleum odor or discoloration encountered at any depth. Installed temporary screen, but no water accumulated after one hour. Sealed with bentonite upon completion, asphalt patch in roadway.

Date Drilled:	Water Level Data	Depth	Date/Time
8/4/2017	First Encountered:	Dry	8-4-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Off-Site Borings 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	OS-11
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-210’ / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Asphalt surface over brick over gravel base.
1	2” Lined Spoon		3’	--		Brown clayey and silty SAND (Fill), medium dense, moist.
		5.0				Greenish gray clayey and silty SAND (Fill), hard, moist.
2	2” Lined Spoon		3’		HCID	
		10.0			HCID	Dark brown sandy organic SILT, medium dense, moist.
3	2” Lined Spoon		4’			
		15.0				Gray silty CLAY with thin sandier zones, increasingly dense with depth, moist to wet but no free water.
4	2” Lined Spoon		4’			No odor and discoloration encountered at any depth. Installed temporary screen, but no water accumulation after one half hour.. Backfilled with bentonite upon completion, asphalt patch at roadway surface.
		20.0				End of Boring at 20.0 ft.

Date Drilled:	Water Level Data	Depth	Date/Time
8-4-2017	First Encountered:	Dry’	8-4-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Project:	Client:	Boring:
Off-Site Borings 104 - 124 12th Avenue Seattle, WA	Seattle Land Use Company	OS-12
	Driller: ESN Northwest / Method: Geoprobe	Project No. WES-1591
	Elevation: +/-210' / Reference: –	

Sample Data						Soil Description
No.	Type	Depth	Recovery	N	Lab Sample	
						Broken concrete.
1	2" Lined Spoon		2.5'	--		Brown clayey and silty SAND with gravel (Fill), variable density, some very soft, moist.
		5.0				
2	2" Lined Spoon		3'			Gray clayey and silty SAND with fine sand lenses, hard, moist.
					HCID	
		10.0				Gray clayey and silty SAND (Fill), loose and sticky, moist to wet.
					HCID	
3	2" Lined Spoon		3'			
		15.0				Dark brown sandy organic SILT with gravels, medium dense, moist.
4	2" Lined Spoon		4'			Greenish gray silty and sandy CLAY, ncreasingly dense with depth, moist to wet but no free water.
						No odor and discoloration encountered at any depth. Water sample from temporary screen installed to depth of 20 feet. Very low water flow. Backfilled with bentonite upon completion, asphalt patch at roadway surface.
		20.0				End of Boring at 20.0 ft.

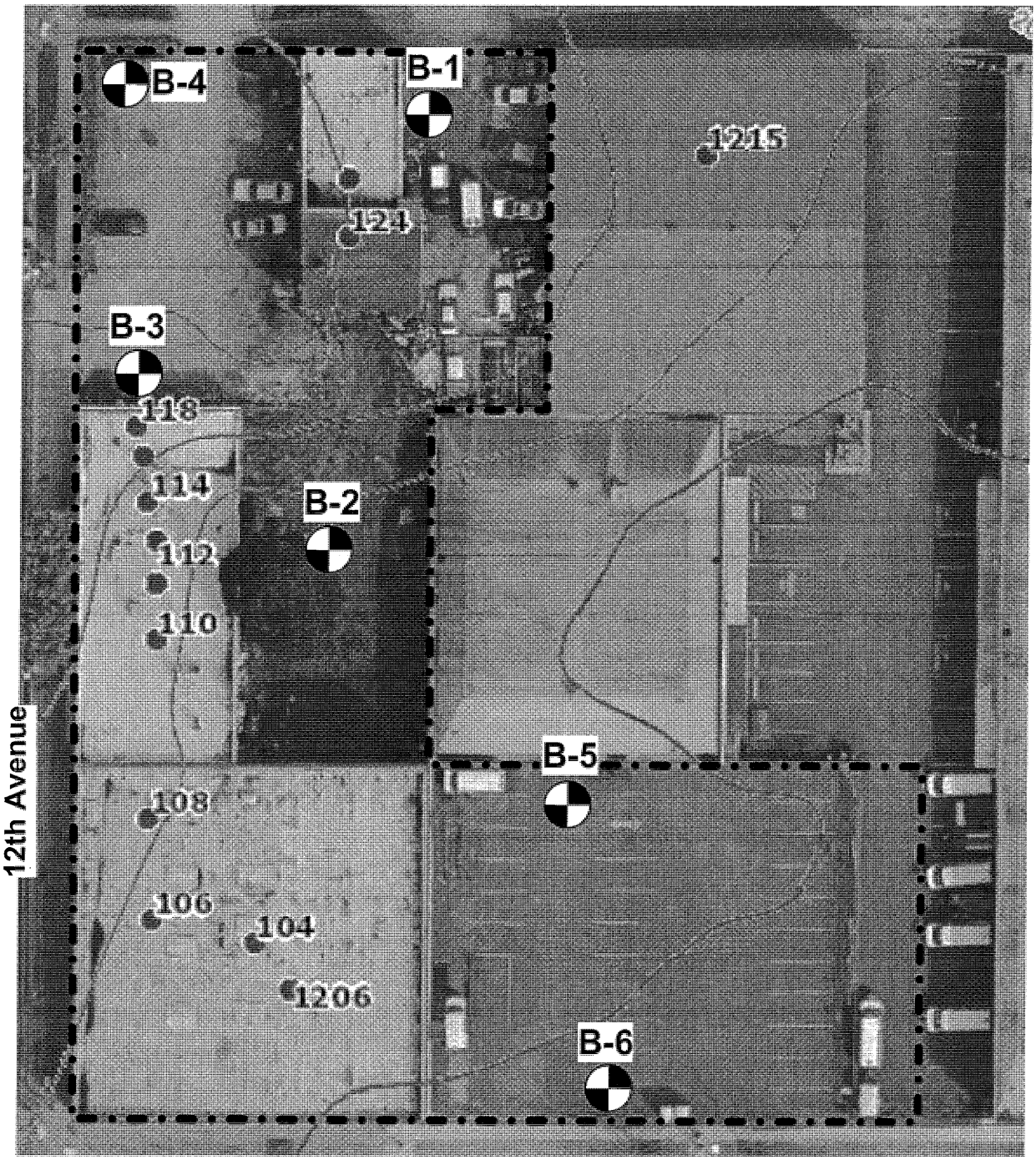
Date Drilled:	Water Level Data	Depth	Date/Time
8-4-2017	First Encountered:	+/-18''	8-4-2017
	Stabilized:		

WHITMAN
Environmental Sciences

Bore Logs from Geotechnical Borings
Geotech Consultants, Inc.

NORTH

East Fir Street



East Yesler Way

Legend:

Test boring location

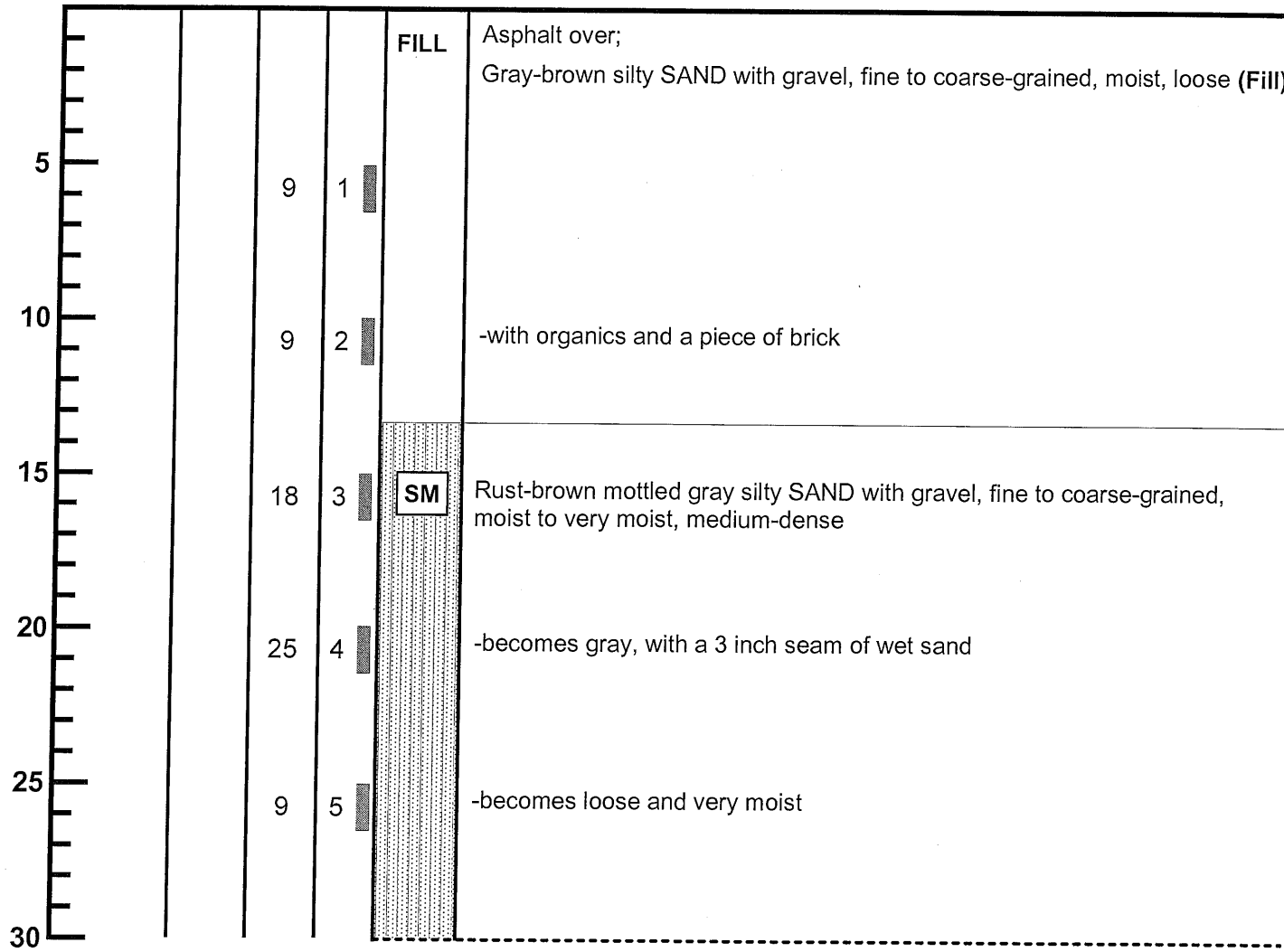
GEOTECH CONSULTANTS, INC.

SITE EXPLORATION PLAN

104, 110, and 124 - 12th Avenue
Seattle, Washington

Job No:	Date:		Plate:
17357	July 2017	No Scale	2

BORING 1



CONTINUED ON PLATE 4

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG

104, 110, and 124 - 12th Avenue
Seattle, Washington

Job	Date:	Logged by:	Plate:
17357	July 2017	TRC	3

BORING 1 (CONTINUED)

Depth (ft.)	Moisture	Water Table	Blows per Foot	Sample	USCS	Description
30		▼	26	6	SW	Gray SAND, fine to coarse-grained, wet, medium-dense
35			31	7	ML SP	Gray SILT to SAND, non-plastic, very fine-grained, wet, dense
40						

*** Test boring was terminated at 36.5 feet on June 30, 2017.**

*** Groundwater was encountered at 32 feet during drilling.**

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG

104, 110, and 124 - 12th Avenue
Seattle, Washington

Job	Date:	Logged by:	Plate:
17357	July 2017	TRC	4

BORING 2

Depth (ft.)	Moisture	Water Table	Blows per Foot	Sample	USCS	Description
					FILL	Topsoil over; Brown silty SAND with gravel, fine to coarse-grained, moist, loose **(Fill)**
5			4	1		Topsoil
10			15	2	SM	Brown-mottled gray SAND with silt, fine to coarse-grained, very moist, medium-dense
15	▼		14	3		-becomes silty and gray-brown
20			8	4	SM ML	Gray-brown silty SAND to sandy SILT, non-plastic, fine to medium-grained, very moist, loose
25			9	5		-becomes wet and gray
30						

CONTINUED ON PLATE 6

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG

104, 110, and 124 - 12th Avenue
Seattle, Washington

Job	Date:	Logged by:	Plate:
17357	July 2017	TRC	5

BORING 2 (CONTINUED)

Depth (ft.)	Moisture	Water Table	Blows per Foot	Sample	USCS	Description
30			7	6	ML	Gray sandy clayey SILT, plastic, fine to medium-grained, very moist, medium stiff
35			13	7	SW	Gray SAND, fine to medium-grained, moist, medium-dense
40			50/ 3"	8		
			46	9	ML	Gray clayey SILT, plastic, very moist, hard -refusal on a rock
45						* **Test boring was terminated at 43.5 feet on June 30, 2017.** * **Groundwater was encountered at 15 feet during drilling.**
50						

GEOTECH CONSULTANTS, INC.

TEST BORING LOG

104, 110, and 124 - 12th Avenue
Seattle, Washington

Job	Date:	Logged by:	Plate:
17357	July 2017	TRC	6

BORING 3

Depth (ft.)	Moisture	Water Table	Blows per Foot	Sample	USCS	Description
					FILL	Gravel over; Brown silty SAND with gravel, fine to coarse-grained, moist, loose **(Fill)**
			4	1		
5						
			13	2		-becomes medium-dense
10						
			7	3		-becomes loose and gray
					PT	Dark brown PEAT, wet, soft
15		▼				
			11	4	SM	Gray silty SAND with gravel, fine to coarse-grained, very moist, loose to medium-dense
20						
			11	5		
25						
			11	6	SW	Gray SAND, fine to coarse-grained, wet, loose to medium-dense
30						

CONTINUED ON PLATE 8

GEOTECH CONSULTANTS, INC.

TEST BORING LOG

104, 110, and 124 - 12th Avenue
Seattle, Washington

Job	Date:	Logged by:	Plate:
17357	July 2017	TRC	7

BORING 3 (CONTINUED)

Depth (ft.)	Moisture	Water Table	Blows per Foot	Sample	USCS	Description
30			22	7	ML	Gray clayey SILT, plastic, very moist, very stiff
35			19	8		
40			13	9	SP	Gray SAND, fine-grained, very moist, medium-dense
45			41	10	ML	Gray clayey SILT, plastic, very moist, hard
50						
55						

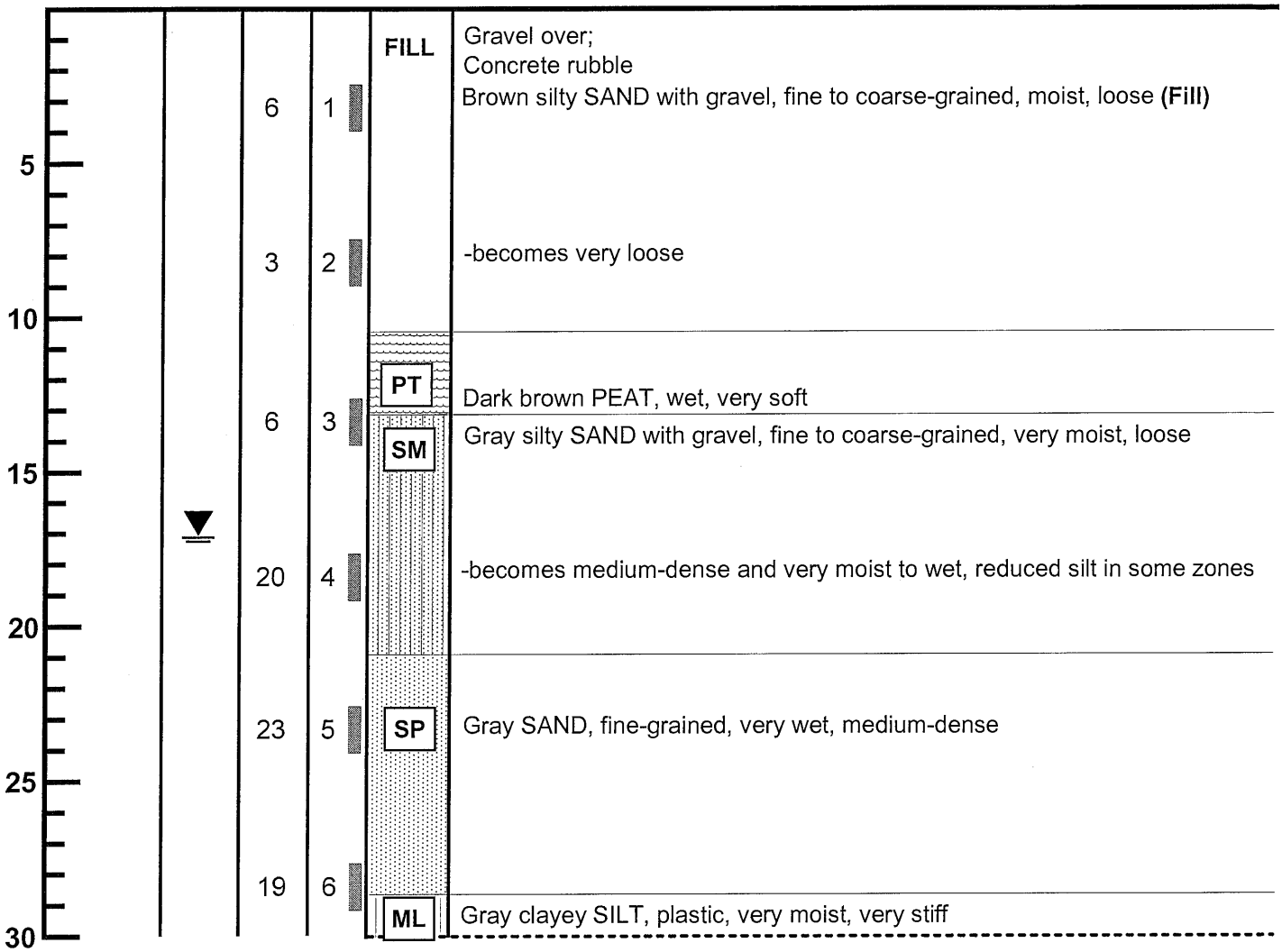
*** Test boring was terminated at 49 feet on July 12, 2017.**
*** Groundwater was encountered at 16 feet during drilling.**

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG
104, 110, and 124 - 12th Avenue
Seattle, Washington

Job	Date:	Logged by:	Plate:
17357	July 2017	TRC	8

BORING 4



CONTINUED ON PLATE 10

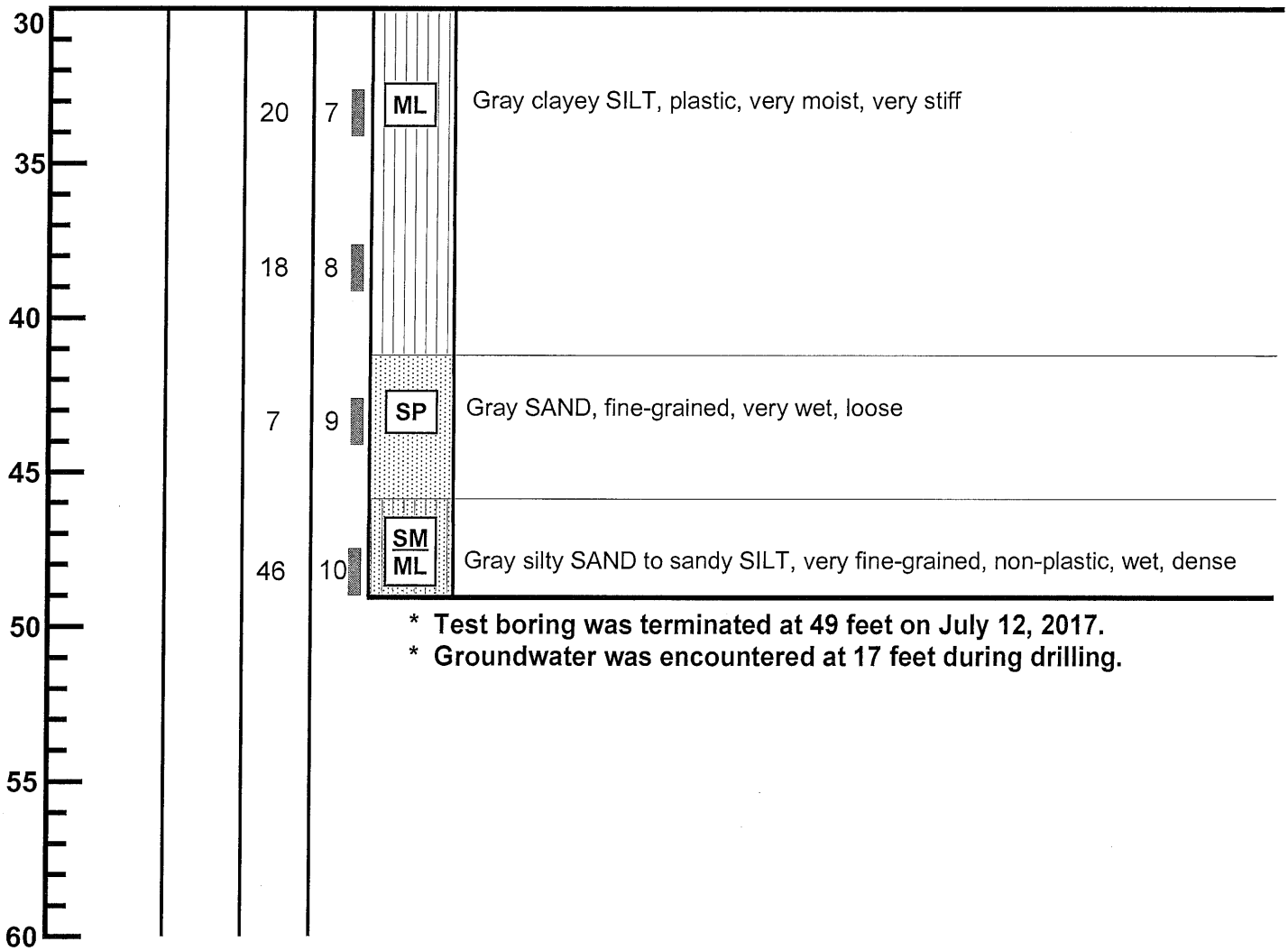
GEOTECH
CONSULTANTS, INC.

TEST BORING LOG

104, 110, and 124 - 12th Avenue
Seattle, Washington

Job	Date:	Logged by:	Plate:
17357	July 2017	TRC	9

BORING 4 (CONTINUED)



*** Test boring was terminated at 49 feet on July 12, 2017.**

*** Groundwater was encountered at 17 feet during drilling.**

GEOTECH
CONSULTANTS, INC.

TEST BORING LOG

104, 110, and 124 - 12th Avenue
Seattle, Washington

Job	Date:	Logged by:	Plate:
17357	July 2017	TRC	10

BORING 5

Depth (ft.)	Moisture	Water Table	Blows per Foot	Sample	USCS	Description
			3	1	FILL	Asphalt over; Brown to gray-brown silty SAND with gravel, fine to coarse-grained, moist to very moist, very loose **(Fill)**
5			21	2		-becomes medium-dense and moist to wet, reduced silt in some zones
10			5	3		-becomes loose
15			31	4	SP	Gray SAND, fine-grained, moist, dense
20			12	5	SM	Gray silty SAND, fine to medium-grained, moist, medium-dense
25			12	6	ML	Gray SILT to sandy SILT, non-plastic, very moist, medium-dense
30						

CONTINUED ON PLATE 12

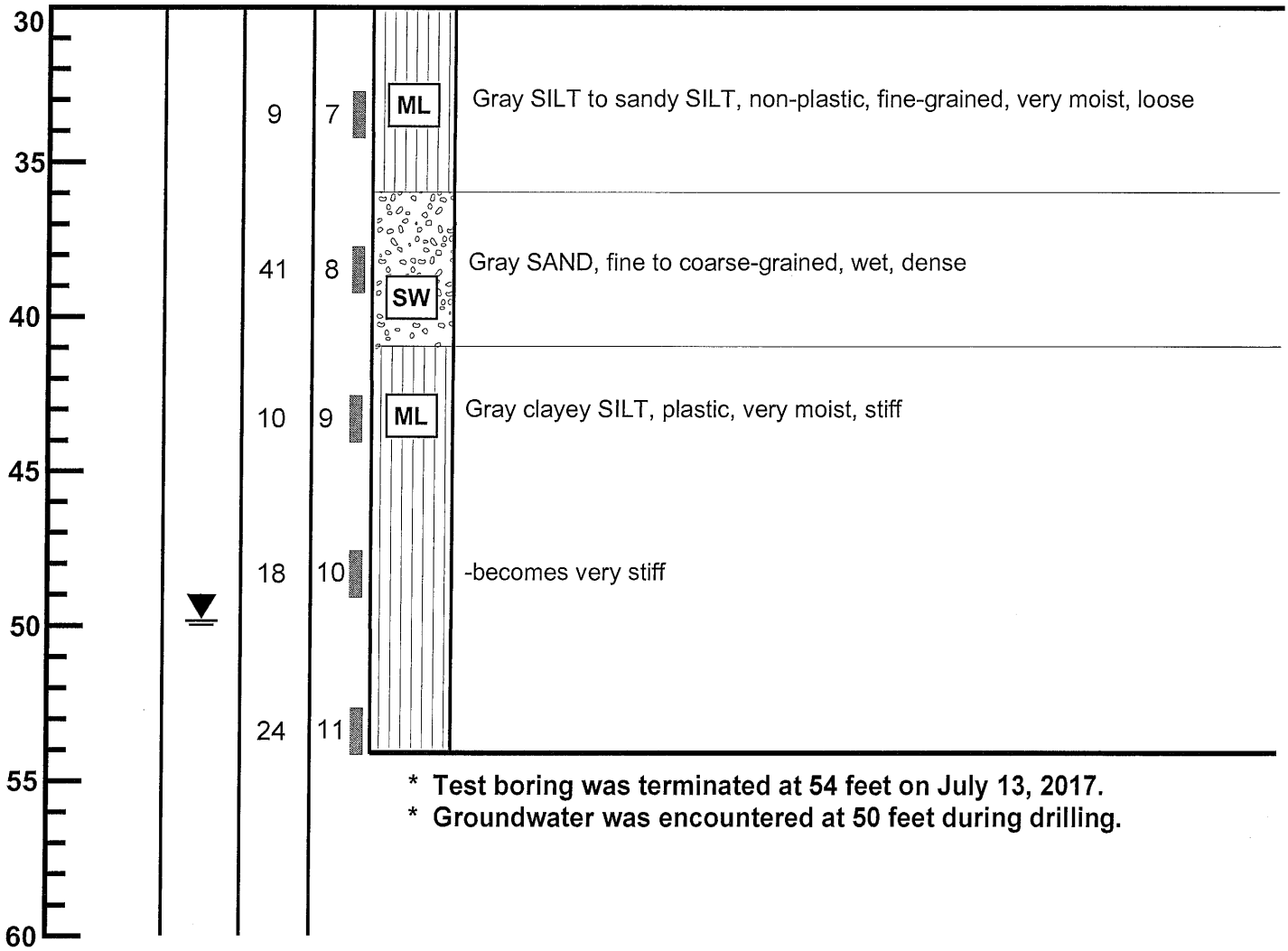
GEOTECH CONSULTANTS, INC.

TEST BORING LOG

104, 110, and 124 - 12th Avenue
Seattle, Washington

Job	Date:	Logged by:	Plate:
17357	July 2017	TRC	11

BORING 5 (CONTINUED)



* **Test boring was terminated at 54 feet on July 13, 2017.**

* **Groundwater was encountered at 50 feet during drilling.**

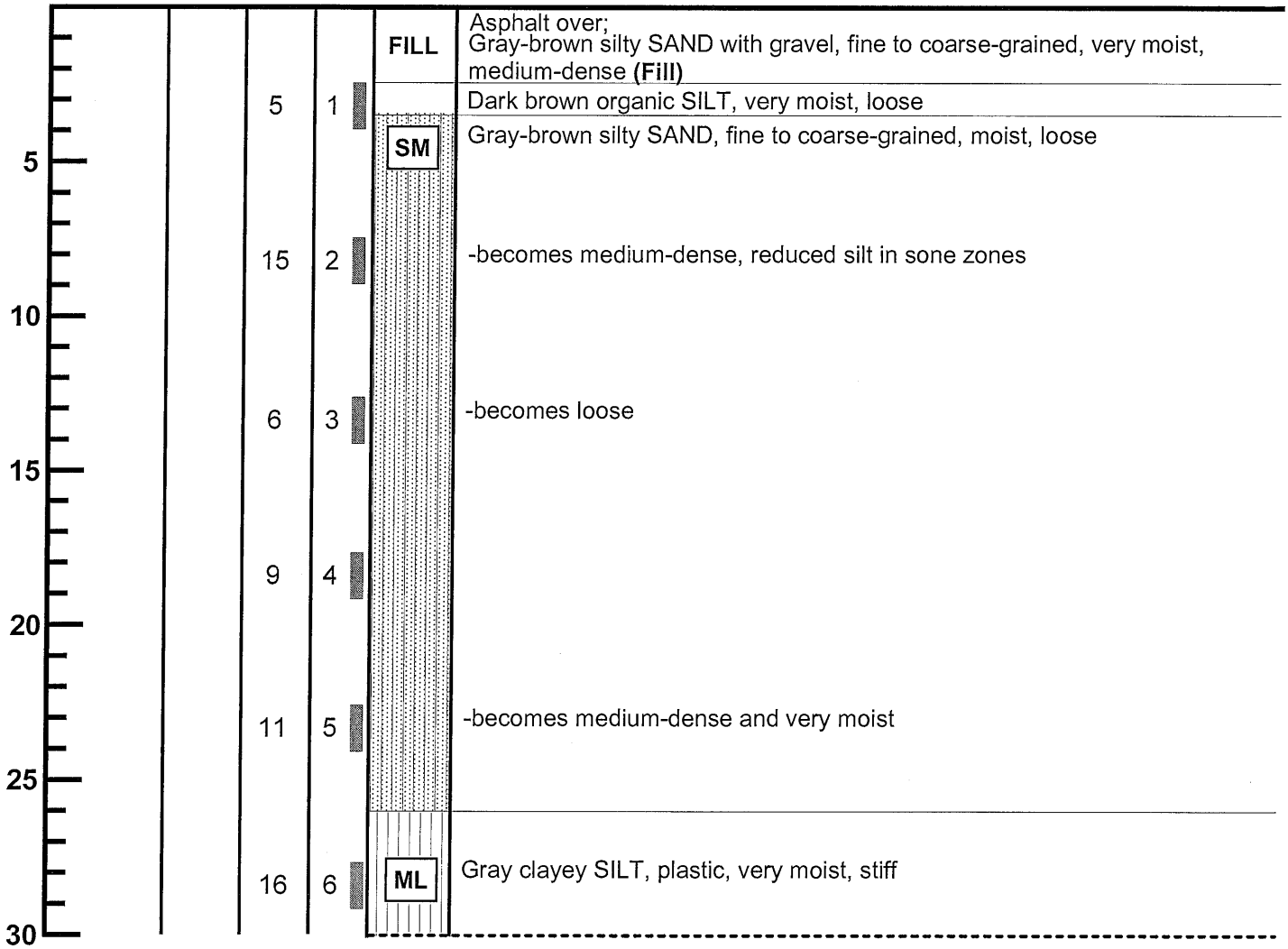
GEOTECH CONSULTANTS, INC.

TEST BORING LOG

104, 110, and 124 - 12th Avenue
Seattle, Washington

Job	Date:	Logged by:	Plate:
17357	July 2017	TRC	12

BORING 6



CONTINUED ON PLATE 14

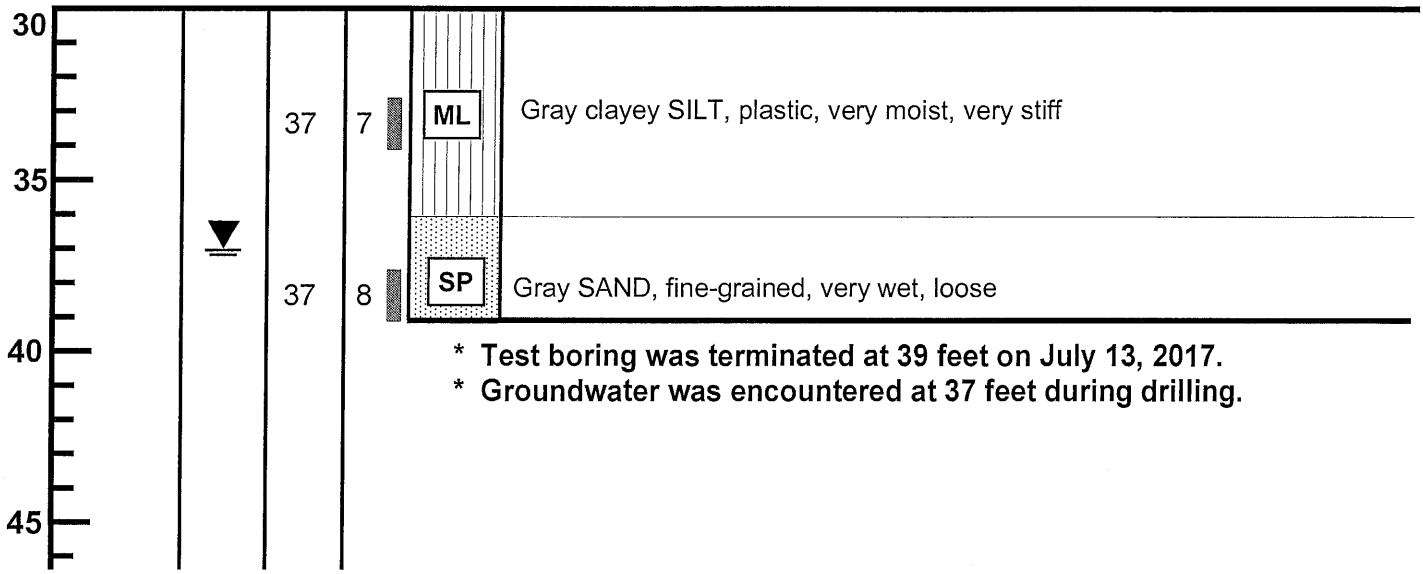
GEOTECH CONSULTANTS, INC.

TEST BORING LOG

104, 110, and 124 - 12th Avenue
Seattle, Washington

Job	Date:	Logged by:	Plate:
17357	July 2017	TRC	13

BORING 6 (CONTINUED)



* **Test boring was terminated at 39 feet on July 13, 2017.**
* **Groundwater was encountered at 37 feet during drilling.**

GEOTECH CONSULTANTS, INC.

TEST BORING LOG

104, 110, and 124 - 12th Avenue
Seattle, Washington

Job	Date:	Logged by:	Plate:
17357	July 2017	TRC	14

APPENDIX D

Laboratory Analytical Reports
Friedman & Bruya, Inc.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

April 19, 2017

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on April 5, 2017 from the 104 12th PO WES 1591, F&BI 704063 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0419R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on April 5, 2017 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 104 12th PO WES 1591, F&BI 704063 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
704063 -01	WES-1-7.5'
704063 -02	WES-2-6'
704063 -03	WES-3-7'
704063 -04	WES-4-6'
704063 -05	WES-5-6'
704063 -06	WES-6-8'
704063 -07	WES-7-10'
704063 -08	WES-8-11.5'
704063 -09	WES-9-8'
704063 -10	WES-10-7'
704063 -11	WES-11-15'
704063 -12	WES-12-16'
704063 -13	WES-13-12'
704063 -14	WES-2-7'
704063 -15	WES-2-9'
704063 -16	WES-1-10'

All quality control requirements were acceptable.

Date of Report: 04/19/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704063
Date Extracted: 04/06/17 and 04/13/17
Date Analyzed: 04/06/17 and 04/13/17

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

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

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 58-139)
WES-1-7.5' 704063-01 1/10	710	100
WES-2-6' 704063-02 1/5	390	94
WES-2-9' 704063-15	230	ip
Method Blank 07-702 MB	<2	81
Method Blank 07-715 MB	<2	110

Date of Report: 04/19/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704063
Date Extracted: 04/06/17
Date Analyzed: 04/06/17

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

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

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
WES-1-7.5' 704063-01	160 x	<250	87
WES-2-7' 704063-14	340 x	<250	100
WES-2-9' 704063-15	440 x	<250	96
WES-1-10' 704063-16	<50	<250	88
Method Blank 07-725 MB	<50	<250	89

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-1-7.5'	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/06/17	Lab ID:	704063-01
Date Analyzed:	04/06/17	Data File:	040619.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	102	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	0.35
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-2-6'	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/06/17	Lab ID:	704063-02
Date Analyzed:	04/06/17	Data File:	040620.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	102	55	145
4-Bromofluorobenzene	99	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	0.086
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-3-7'	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/06/17	Lab ID:	704063-03
Date Analyzed:	04/06/17	Data File:	040638.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	102	65	139

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-4-6'	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/06/17	Lab ID:	704063-04
Date Analyzed:	04/06/17	Data File:	040639.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	104	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	0.11
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-5-6'	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/06/17	Lab ID:	704063-05
Date Analyzed:	04/06/17	Data File:	040640.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-6-8'	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/06/17	Lab ID:	704063-06
Date Analyzed:	04/06/17	Data File:	040641.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	101	65	139

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-7-10'	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/06/17	Lab ID:	704063-07
Date Analyzed:	04/06/17	Data File:	040642.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	101	65	139

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-8-11.5'	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/06/17	Lab ID:	704063-08
Date Analyzed:	04/07/17	Data File:	040643.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-9-8'	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/06/17	Lab ID:	704063-09
Date Analyzed:	04/07/17	Data File:	040644.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-10-7'	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/06/17	Lab ID:	704063-10
Date Analyzed:	04/07/17	Data File:	040645.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-11-15'	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/06/17	Lab ID:	704063-11
Date Analyzed:	04/07/17	Data File:	040646.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-12-16'	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/06/17	Lab ID:	704063-12
Date Analyzed:	04/07/17	Data File:	040647.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	102	65	139

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-13-12'	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/06/17	Lab ID:	704063-13
Date Analyzed:	04/07/17	Data File:	040648.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	104	55	145
4-Bromofluorobenzene	101	65	139

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	104 12th PO WES 1591
Date Extracted:	04/06/17	Lab ID:	07-677 mb
Date Analyzed:	04/06/17	Data File:	040606.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Date of Report: 04/19/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704063

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

Laboratory Code: 704074-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	90	61-153

Date of Report: 04/19/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704063

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

Laboratory Code: 704063-15 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	230	370	47 hr

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	95	71-131

Date of Report: 04/19/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704063

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

Laboratory Code: 704070-02 (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	170	101	102	63-146	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	89	79-144

Date of Report: 04/19/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704063

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

Laboratory Code: 704063-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	25	25	10-142	0
Chloromethane	mg/kg (ppm)	2.5	<0.5	58	60	10-126	3
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	61	59	10-138	3
Bromomethane	mg/kg (ppm)	2.5	<0.5	73	76	10-163	4
Chloroethane	mg/kg (ppm)	2.5	<0.5	69	71	10-176	3
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	65	67	10-176	3
Acetone	mg/kg (ppm)	12.5	<0.5	108	95	10-163	13
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	88	87	10-160	1
Hexane	mg/kg (ppm)	2.5	<0.25	73	73	10-137	0
Methylene chloride	mg/kg (ppm)	2.5	<0.5	101	95	10-156	6
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	100	97	21-145	3
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	94	92	14-137	2
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	94	91	19-140	3
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	98	93	10-158	5
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	95	93	25-135	2
Chloroform	mg/kg (ppm)	2.5	<0.05	96	94	21-145	2
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	94	94	19-147	0
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	92	92	12-160	0
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	90	89	10-156	1
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	93	91	17-140	2
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	88	87	9-164	1
Benzene	mg/kg (ppm)	2.5	<0.03	93	93	29-129	0
Trichloroethene	mg/kg (ppm)	2.5	<0.02	91	90	21-139	1
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	94	94	30-135	0
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	89	87	23-155	2
Dibromomethane	mg/kg (ppm)	2.5	<0.05	93	92	23-145	1
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	93	93	24-155	0
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	94	94	28-144	0
Toluene	mg/kg (ppm)	2.5	<0.05	92	91	35-130	1
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	89	89	26-149	0
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	99	99	10-205	0
2-Hexanone	mg/kg (ppm)	12.5	<0.5	91	95	15-166	4
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	90	90	31-137	0
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	87	87	20-133	0
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	82	81	28-150	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	89	89	28-142	0
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	89	89	32-129	0
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	90	90	32-137	0
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	84	82	31-143	2
m,p-Xylene	mg/kg (ppm)	5	<0.1	89	89	34-136	0
o-Xylene	mg/kg (ppm)	2.5	<0.05	91	89	33-134	2
Styrene	mg/kg (ppm)	2.5	<0.05	90	90	35-137	0
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	90	88	31-142	2
Bromoform	mg/kg (ppm)	2.5	<0.05	71	70	21-156	1
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	91	91	23-146	0
Bromobenzene	mg/kg (ppm)	2.5	<0.05	89	90	34-130	1
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	91	91	18-149	0
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	115	121	28-140	5
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	87	89	25-144	2
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	92	91	31-134	1
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	90	90	31-136	0
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	90	89	30-137	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	89	89	10-182	0
sec-Butylbenzene	mg/kg (ppm)	2.5	0.30	86	86	23-145	0
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	92	92	21-149	0
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	91	90	30-131	1
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	90	89	29-129	1
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	88	88	31-132	0
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	73	75	11-161	3
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	92	91	22-142	1
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	100	98	10-142	2
Naphthalene	mg/kg (ppm)	2.5	<0.05	84	84	14-157	0
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	88	88	20-144	0

Date of Report: 04/19/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704063

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	61	10-146
Chloromethane	mg/kg (ppm)	2.5	82	27-133
Vinyl chloride	mg/kg (ppm)	2.5	89	22-139
Bromomethane	mg/kg (ppm)	2.5	95	38-114
Chloroethane	mg/kg (ppm)	2.5	95	10-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	96	10-196
Acetone	mg/kg (ppm)	12.5	121	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	110	47-128
Hexane	mg/kg (ppm)	2.5	111	43-142
Methylene chloride	mg/kg (ppm)	2.5	116	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	114	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	111	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	109	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	113	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	109	72-113
Chloroform	mg/kg (ppm)	2.5	109	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	112	57-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	107	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	107	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	109	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	104	60-139
Benzene	mg/kg (ppm)	2.5	108	68-114
Trichloroethene	mg/kg (ppm)	2.5	107	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	110	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	101	72-130
Dibromomethane	mg/kg (ppm)	2.5	108	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	107	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	106	75-136
Toluene	mg/kg (ppm)	2.5	104	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	98	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	102	75-113
2-Hexanone	mg/kg (ppm)	12.5	105	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	103	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	101	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	91	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	102	74-132
Chlorobenzene	mg/kg (ppm)	2.5	102	76-111
Ethylbenzene	mg/kg (ppm)	2.5	102	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	94	69-135
m,p-Xylene	mg/kg (ppm)	5	102	78-122
o-Xylene	mg/kg (ppm)	2.5	102	77-124
Styrene	mg/kg (ppm)	2.5	103	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	101	76-127
Bromoform	mg/kg (ppm)	2.5	79	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	101	74-124
Bromobenzene	mg/kg (ppm)	2.5	101	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	102	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	103	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	99	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	103	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	101	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	100	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	99	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	101	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	101	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	100	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	100	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	99	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	81	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	101	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	101	50-153
Naphthalene	mg/kg (ppm)	2.5	92	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	99	63-138

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.

704063

SAMPLE CHAIN OF CUSTODY

ME 04-05-17

B01 / WF VS2

Report To Ron Williams

Company Ahtna Env. Services

Address 6812 16th Ave NE

City, State, ZIP Seattle, WA 98115

Phone 206-523-3060 Email

SAMPLERS (*signature*)

PROJECT NAME: 104 / 27H

PO # 4665 1591

REMARKS

INVOICE TO

Page # 01 of 01

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	Notes
WES-1-7.5	01 A-E	4-3	AM	SOIL	5		X	X		X			
WES-2-6'	02 A-D	4-3	"	"	4			X		X			
WES-3-7'	03	"	"	"	"					X			
WES-4-6'	04	"	"	"	"					X			
WES-5-6'	05	"	"	"	"					X			
WES-6-8'	06	"	"	"	"					X			
WES-7-10	07	4/4	"	"	"					X			
WES-8-11.5	08	"	"	"	"					X			
WES-9-8'	09	"	"	"	"					X			
WES-10-7'	10	4/5	"	"	"					X			

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		WES	4-5-17	12:45
Received by:	Nhan Phan	FCBJ	4/5/17	12:45
Relinquished by:				
Received by:				

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

704063

SAMPLE CHAIN OF CUSTODY

ME 04/05/17

B01 / VW2 VS2

Page # CD1 of _____

Report To Dan Wilcox

Company Wilcox Env. Services

Address 6812 163rd Ave NE

City, State, ZIP Seattle, WA 98115

Phone 206-583-3805 Email _____

SAMPLERS (*signature*)	
PROJECT NAME: 104 / 29th	PO #: 1591
REMARKS	INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
CBES-11-15'	11A-D	4-5-17	AM	Soil	4					X							
CBES-12-16'	12	11			4					X							
CBES-13-16'	13	11			4					X							⊗ - per DW
CBES-2-7'	14	4-3		Soil	1		X										4/13/17
CBES-2-9'	15	4-3		11	1		X	⊗									"
CBES-1-10'	16	4-3		11	1		X										

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		CBES	4-5-17	12:45
Received by:	Nham Phan	FLBI	4/5/17	1245
Relinquished by:				
Received by:		Samples received at 16 °C		

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

April 19, 2017

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on April 5, 2017 from the 104 12th PO WES 1591, F&BI 704061 project. There are 25 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0419R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on April 5, 2017 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 104 12th PO WES 1591, F&BI 704061 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
704061 -01	WES-1-GW
704061 -02	WES-4-GW
704061 -03	WES-5-GW
704061 -04	WES-6-GW
704061 -05	WES-7-GW
704061 -06	WES-9-GW
704061 -07	WES-10-GW
704061 -08	WES-11-GW
704061 -09	WES-12-GW
704061 -10	WES-13-GW
704061 -11	MW-2
704061 -12	MW-3
704061 -13	MW-4
704061 -14	MW-5
704061 -15	MW-6

Bromomethane in the 8260C 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.

Date of Report: 04/19/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704061
Date Extracted: 04/17/17
Date Analyzed: 04/17/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
WES-1-GW 704061-01	1,700	94
WES-4-GW 704061-02	560	82
WES-5-GW 704061-03	220	82
WES-10-GW 704061-07	<100	80
MW-3 704061-12	110	78
Method Blank 07-780 MB	<100	72

Date of Report: 04/19/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704061
Date Extracted: 04/06/17
Date Analyzed: 04/06/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
WES-1-GW 704061-01	690 x	<250	85
WES-4-GW 704061-02	1,000 x	680	91
WES-5-GW 704061-03 1/1.2	460 x	<300	100
WES-6-GW 704061-04	78 x	<250	83
WES-7-GW 704061-05	56 x	<250	92
WES-9-GW 704061-06	<50	<250	94
WES-10-GW 704061-07	180 x	530	77
WES-12-GW 704061-09	<50	<250	69
WES-13-GW 704061-10	120 x	<250	86
MW-2 704061-11	<50	<250	85
MW-3 704061-12	400 x	<250	92

Date of Report: 04/19/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704061
Date Extracted: 04/06/17
Date Analyzed: 04/06/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW-4 704061-13	67 x	<250	84
MW-5 704061-14	<50	<250	94
MW-6 704061-15	<50	<250	89
Method Blank 07-722 MB	<50	<250	99

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-1-GW	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	704061-01
Date Analyzed:	04/06/17	Data File:	040624.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	2.2
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	13
Hexane	<1	o-Xylene	7.5
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	1.2
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	1.7
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	2.7
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	12
Benzene	0.42	sec-Butylbenzene	5.3
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	6.7	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	14
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-4-GW	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	704061-02
Date Analyzed:	04/06/17	Data File:	040625.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	1.5
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	9.0
Hexane	<1	o-Xylene	4.7
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	1.9
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	9.0
Benzene	<0.35	sec-Butylbenzene	1.7
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	3.6	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	6.4
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-5-GW	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	704061-03
Date Analyzed:	04/06/17	Data File:	040626.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	2.3
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	14
Hexane	<1	o-Xylene	7.3
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	1.0
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	2.7
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	14
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	6.0	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	6.0
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-6-GW	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	704061-04
Date Analyzed:	04/06/17	Data File:	040627.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	3.9
Hexane	<1	o-Xylene	1.8
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	3.9	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	3.6
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	1.4	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	1.4
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-7-GW	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	704061-05
Date Analyzed:	04/06/17	Data File:	040628.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	2.7
Hexane	<1	o-Xylene	1.3
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	2.5
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	1.1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-9-GW	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	704061-06
Date Analyzed:	04/06/17	Data File:	040629.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	5.2
Hexane	<1	o-Xylene	2.4
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	4.6
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	1.6	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	1.5
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-10-GW	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	704061-07
Date Analyzed:	04/06/17	Data File:	040630.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	2.5
Hexane	<1	o-Xylene	1.2
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	2.2
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-11-GW	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	704061-08
Date Analyzed:	04/06/17	Data File:	040631.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	12
Vinyl chloride	0.39	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	27	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	2.7
Hexane	<1	o-Xylene	1.4
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	9.4	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	2.6
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	17	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-12-GW	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	704061-09
Date Analyzed:	04/05/17	Data File:	040532.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	29	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-13-GW	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	704061-10
Date Analyzed:	04/06/17	Data File:	040533.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	3.1
Vinyl chloride	0.23	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	12	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	10	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-2	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	704061-11
Date Analyzed:	04/06/17	Data File:	040534.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-3	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	704061-12
Date Analyzed:	04/06/17	Data File:	040535.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.34	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	11	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	5.3
Hexane	<1	o-Xylene	2.6
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	1.1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	4.9
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	2.5	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	4.7
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-4	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	704061-13
Date Analyzed:	04/06/17	Data File:	040536.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	101	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-5	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	704061-14
Date Analyzed:	04/06/17	Data File:	040537.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	12	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-6	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	704061-15
Date Analyzed:	04/06/17	Data File:	040538.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	3.8
Hexane	<1	o-Xylene	1.7
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	1.3	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	3.4
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	1.2	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	104 12th PO WES 1591
Date Extracted:	04/05/17	Lab ID:	07-673 mb
Date Analyzed:	04/05/17	Data File:	040520.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	100	60	133

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

Date of Report: 04/19/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704061

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

Laboratory Code: 704244-01 (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	87	69-134

Date of Report: 04/19/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704061

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	97	107	61-133	10

Date of Report: 04/19/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704061

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

Laboratory Code: 704061-15 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	116	10-172
Chloromethane	ug/L (ppb)	50	<10	103	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	108	36-166
Bromomethane	ug/L (ppb)	50	<1	158	47-169
Chloroethane	ug/L (ppb)	50	<1	113	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	110	44-165
Acetone	ug/L (ppb)	250	<10	114	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	118	60-136
Hexane	ug/L (ppb)	50	<1	107	52-150
Methylene chloride	ug/L (ppb)	50	<5	107	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	109	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	110	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	106	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	85	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	1.3	109	71-127
Chloroform	ug/L (ppb)	50	<1	104	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	106	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	102	69-133
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	103	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	106	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	101	56-152
Benzene	ug/L (ppb)	50	<0.35	103	76-125
Trichloroethene	ug/L (ppb)	50	<1	100	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	105	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	96	61-150
Dibromomethane	ug/L (ppb)	50	<1	102	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	103	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	94	72-132
Toluene	ug/L (ppb)	50	1.2	98	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	87	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	97	68-131
2-Hexanone	ug/L (ppb)	250	<10	101	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	98	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	93	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	86	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	97	69-134
Chlorobenzene	ug/L (ppb)	50	<1	95	77-122
Ethylbenzene	ug/L (ppb)	50	<1	94	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	89	73-137
m,p-Xylene	ug/L (ppb)	100	3.8	94	69-135
o-Xylene	ug/L (ppb)	50	1.7	94	60-140
Styrene	ug/L (ppb)	50	<1	94	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	92	65-142
Bromoform	ug/L (ppb)	50	<1	75	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	94	58-144
Bromobenzene	ug/L (ppb)	50	<1	95	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	93	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	101	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	96	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	96	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	94	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	93	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	3.4	90	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	92	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	92	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	95	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	92	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	92	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	81	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	93	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<1	89	60-143
Naphthalene	ug/L (ppb)	50	<1	88	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	91	69-148

Date of Report: 04/19/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704061

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	121	119	25-158	2
Chloromethane	ug/L (ppb)	50	110	112	45-156	2
Vinyl chloride	ug/L (ppb)	50	113	114	50-154	1
Bromomethane	ug/L (ppb)	50	160 vo	163 vo	55-143	2
Chloroethane	ug/L (ppb)	50	114	117	58-146	3
Trichlorofluoromethane	ug/L (ppb)	250	117	117	50-150	0
Acetone	ug/L (ppb)	250	131	122	53-131	7
1,1-Dichloroethene	ug/L (ppb)	50	123	122	67-136	1
Hexane	ug/L (ppb)	50	124	121	57-137	2
Methylene chloride	ug/L (ppb)	50	111	110	39-148	1
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	116	116	64-147	0
trans-1,2-Dichloroethene	ug/L (ppb)	50	116	115	68-128	1
1,1-Dichloroethane	ug/L (ppb)	50	111	110	79-121	1
2,2-Dichloropropane	ug/L (ppb)	50	118	118	55-143	0
cis-1,2-Dichloroethene	ug/L (ppb)	50	110	108	80-123	2
Chloroform	ug/L (ppb)	50	109	108	80-121	1
2-Butanone (MEK)	ug/L (ppb)	250	115	113	57-149	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	108	107	73-132	1
1,1,1-Trichloroethane	ug/L (ppb)	50	108	108	83-130	0
1,1-Dichloropropene	ug/L (ppb)	50	112	110	77-129	2
Carbon tetrachloride	ug/L (ppb)	50	109	108	75-158	1
Benzene	ug/L (ppb)	50	109	108	69-134	1
Trichloroethene	ug/L (ppb)	50	106	106	80-120	0
1,2-Dichloropropane	ug/L (ppb)	50	111	110	77-123	1
Bromodichloromethane	ug/L (ppb)	50	105	104	81-133	1
Dibromomethane	ug/L (ppb)	50	108	107	82-125	1
4-Methyl-2-pentanone	ug/L (ppb)	250	110	108	65-138	2
cis-1,3-Dichloropropene	ug/L (ppb)	50	111	110	82-132	1
Toluene	ug/L (ppb)	50	106	104	72-122	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	107	104	80-136	3
1,1,2-Trichloroethane	ug/L (ppb)	50	104	102	75-124	2
2-Hexanone	ug/L (ppb)	250	107	104	60-136	3
1,3-Dichloropropane	ug/L (ppb)	50	103	101	76-126	2
Tetrachloroethene	ug/L (ppb)	50	102	100	76-121	2
Dibromochloromethane	ug/L (ppb)	50	102	100	84-133	2
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	103	102	82-125	1
Chlorobenzene	ug/L (ppb)	50	102	100	83-114	2
Ethylbenzene	ug/L (ppb)	50	102	100	77-124	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	98	97	84-127	1
m,p-Xylene	ug/L (ppb)	100	101	100	83-125	1
o-Xylene	ug/L (ppb)	50	101	101	81-121	0
Styrene	ug/L (ppb)	50	102	101	84-119	1
Isopropylbenzene	ug/L (ppb)	50	100	99	85-117	1
Bromoform	ug/L (ppb)	50	98	96	74-136	2
n-Propylbenzene	ug/L (ppb)	50	102	100	74-126	2
Bromobenzene	ug/L (ppb)	50	101	99	80-121	2
1,3,5-Trimethylbenzene	ug/L (ppb)	50	102	100	78-123	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	106	104	66-126	2
1,2,3-Trichloropropane	ug/L (ppb)	50	101	99	67-124	2
2-Chlorotoluene	ug/L (ppb)	50	102	101	77-127	1
4-Chlorotoluene	ug/L (ppb)	50	101	99	78-128	2
tert-Butylbenzene	ug/L (ppb)	50	100	99	80-123	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	99	97	79-122	2
sec-Butylbenzene	ug/L (ppb)	50	101	99	80-125	2
p-Isopropyltoluene	ug/L (ppb)	50	101	99	81-123	2
1,3-Dichlorobenzene	ug/L (ppb)	50	101	100	85-116	1
1,4-Dichlorobenzene	ug/L (ppb)	50	99	98	84-121	1
1,2-Dichlorobenzene	ug/L (ppb)	50	99	98	85-116	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	91	90	57-141	1
1,2,4-Trichlorobenzene	ug/L (ppb)	50	101	100	72-130	1
Hexachlorobutadiene	ug/L (ppb)	50	99	98	53-141	1
Naphthalene	ug/L (ppb)	50	90	90	64-133	0
1,2,3-Trichlorobenzene	ug/L (ppb)	50	95	96	65-136	1

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.

784061

SAMPLE CHAIN OF CUSTODY

ME 04-05-17 B64 / VW3

Page # ____ of ____

Report To Ron Wilson

Company Wilson Env. Services

Address 6812 163rd Ave NE

City, State, ZIP Seattle, WA 98115

Phone 206-523-3600 Email

SAMPLERS (*signature*)

PROJECT NAME: 104 / 27th

PO #: WES 1591

REMARKS

INVOICE TO

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
						ANALYSES REQUESTED											
WES-1-GW	01 A-D	4-3	AM	GRAB	4		X	(X)		X							(X) per DW
WES-4-GW	02 T	"	"	"	"		X	(X)		X							4/13/17
WES-5-GW	03	"	"	"	"		X	(X)		X							AM
WES-6-GW	04	V	"	"	"		X			X							
WES-7-GW	05	4-4	AM	"	"		X			X							
WES-9-GW	06	V	"	"	"		X			X							
WES-10-GW	07	4-5	AM	"	"		X	(X)		X							Samples received at 4
WES-11-GW	08 A-C	"	"	"	3					X							
WES-R-GW	09 A-D	"	"	"	4		X			X							Samples received at ____
WES-13-GW	10 T	V	"	V	V		X			X							

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		WES	4-5-17	12:45
Received by:	Nhan Phan	FedEx	4/8/17	1205
Relinquished by:				
Received by:				

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

704061

SAMPLE CHAIN OF CUSTODY

ME 04-05-17

B04/VW3

Report To Dan Gilman

Company Gilman Env. Services

Address 6812 165th Ave NE

City, State, ZIP Seattle, WA 98115

Phone 206-523-3505 Email

SAMPLERS (*signature*)	
PROJECT NAME: 104 / 124	PO #: 065 / 1591
REMARKS	INVOICE TO

Page # _____ of _____

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
						ANALYSES REQUESTED											
MW-2	11 A-D	4/4	AM	water	4		X			X							
MW-3	12	4/5	↓	↓	↓		X	X		X							
MW-4	13	4/5					X			X							
MW-5	14	4/5					X			X							
MW-6	15	4/4					X			X							
													Samples received				4

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		GES	4-5-17	12:45
Received by:	Nhan Phan	FEBI	4/5/17	1245
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West
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fbi@isomedia.com
www.friedmanandbruya.com

April 20, 2017

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on April 5, 2017 from the 104 12th PO WES 1591, F&BI 704062 project. There are 8 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0420R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on April 5, 2017 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 104 12th PO WES 1591, F&BI 704062 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
704062 -01	SSVP-2
704062 -02	SSVP-1
704062 -03	SSVP-3

Several compounds in the TO-15 laboratory control sample exceeded the acceptance criteria. The analytes were not detected in the sample, therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SSVP-2	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Collected:	04/04/17	Lab ID:	704062-01 1/2.5
Date Analyzed:	04/14/17	Data File:	041406.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<0.88	<0.25	1-Butanol	<15	<5
Propene	3.8	2.2	Carbon tetrachloride	<1.6	<0.25
Dichlorodifluoromethane	<1.2	<0.25	Benzene	2.0	0.64
Chloromethane	<0.52	<0.25	Cyclohexane	<17	<5
F-114	<1.7	<0.25	2-Pentanone	<8.8	<2.5
Isobutene	<2.3	<1	3-Pentanone	<8.8	<2.5
Acetaldehyde	<23	<12	Pentanal	<8.8	<2.5
Vinyl chloride	<0.64	<0.25	1,2-Dichloropropane	<1.2	<0.25
1,3-Butadiene	<0.55	<0.25	1,4-Dioxane	<1.8	<0.5
Bromomethane	<0.97	<0.25	Bromodichloromethane	5.1	0.77
Chloroethane	<0.66	<0.25	Trichloroethene	<1.3	<0.25
Ethanol	<19	<10	cis-1,3-Dichloropropene	<1.1	<0.25
Acetonitrile	<4.2	<2.5	4-Methyl-2-pentanone	<10	<2.5
Acrolein	<2.3	<1	trans-1,3-Dichloropropene	<1.1	<0.25
Acrylonitrile	<0.54	<0.25	Toluene	24	6.4
Pentane	36	12	1,1,2-Trichloroethane	<1.4	<0.25
Trichlorofluoromethane	<1.4	<0.25	3-Hexanone	<10	<2.5
Acetone	<12	<5	2-Hexanone	<10	<2.5
2-Propanol	<22	<8.7	Hexanal	<10	<2.5
Isoprene	<0.7	<0.25	Tetrachloroethene	8.6	1.3
Iodomethane	<1.5	<0.25	Dibromochloromethane	<2.1	<0.25
1,1-Dichloroethene	<0.99	<0.25	1,2-Dibromoethane (EDB)	<1.9	<0.25
Methacrolein	<7.2	<2.5	Chlorobenzene	<1.2	<0.25
trans-1,2-Dichloroethene	<0.99	<0.25	Ethylbenzene	6.9	1.6
Cyclopentane	4.5	1.6	1,1,2,2-Tetrachloroethane	<1.7	<0.25
Methyl vinyl ketone	<2.9	<1	m,p-Xylene	40	9.3
Butanal	<7.4	<2.5	o-Xylene	11	2.6
Methylene chloride	<700	<197	Styrene	<2.1	<0.5
CFC-113	<1.9	<0.25	Bromoform	<5.2	<0.5
Carbon disulfide	<16	<5	Benzyl chloride	<1.3	<0.25
Methyl t-butyl ether	<0.9	<0.25	1,3,5-Trimethylbenzene	<6.1	<1.2
Vinyl acetate	<18	<5	1,2,4-Trimethylbenzene	19	3.9
1,1-Dichloroethane	<1	<0.25	1,3-Dichlorobenzene	<3	<0.5
cis-1,2-Dichloroethene	<0.99	<0.25	1,4-Dichlorobenzene	<1.5	<0.25
Hexane	14	3.9	1,2,3-Trimethylbenzene	<6.1	<1.2
Chloroform	96	20	1,2-Dichlorobenzene	<3	<0.5
2-Butanone (MEK)	<7.4	<2.5	1,2,4-Trichlorobenzene	<1.9	<0.25
1,2-Dichloroethane (EDC)	<1	<0.25	Naphthalene	6.9	1.3
1,1,1-Trichloroethane	<1.4	<0.25	Hexachlorobutadiene	<2.7	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SSVP-1	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Collected:	04/04/17	Lab ID:	704062-02 1/2.5
Date Analyzed:	04/14/17	Data File:	041407.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Chlorodifluoromethane	<0.88	<0.25	1-Butanol	<15	<5
Propene	56	33	Carbon tetrachloride	<1.6	<0.25
Dichlorodifluoromethane	<1.2	<0.25	Benzene	2.6	0.81
Chloromethane	<0.52	<0.25	Cyclohexane	<17	<5
F-114	<1.7	<0.25	2-Pentanone	<8.8	<2.5
Isobutene	14	6.1	3-Pentanone	<8.8	<2.5
Acetaldehyde	<23	<12	Pentanal	<8.8	<2.5
Vinyl chloride	<0.64	<0.25	1,2-Dichloropropane	<1.2	<0.25
1,3-Butadiene	<0.55	<0.25	1,4-Dioxane	<1.8	<0.5
Bromomethane	<0.97	<0.25	Bromodichloromethane	<1.7	<0.25
Chloroethane	<0.66	<0.25	Trichloroethene	<1.3	<0.25
Ethanol	27 ca	14 ca	cis-1,3-Dichloropropene	<1.1	<0.25
Acetonitrile	<4.2	<2.5	4-Methyl-2-pentanone	<10	<2.5
Acrolein	<2.3	<1	trans-1,3-Dichloropropene	<1.1	<0.25
Acrylonitrile	<0.54	<0.25	Toluene	24	6.4
Pentane	24	8.3	1,1,2-Trichloroethane	<1.4	<0.25
Trichlorofluoromethane	<1.4	<0.25	3-Hexanone	<10	<2.5
Acetone	210	87	2-Hexanone	<10	<2.5
2-Propanol	110	43	Hexanal	<10	<2.5
Isoprene	<0.7	<0.25	Tetrachloroethene	<1.7	<0.25
Iodomethane	<1.5	<0.25	Dibromochloromethane	<2.1	<0.25
1,1-Dichloroethene	<0.99	<0.25	1,2-Dibromoethane (EDB)	<1.9	<0.25
Methacrolein	<7.2	<2.5	Chlorobenzene	<1.2	<0.25
trans-1,2-Dichloroethene	<0.99	<0.25	Ethylbenzene	6.1	1.4
Cyclopentane	2.6	0.90	1,1,2,2-Tetrachloroethane	<1.7	<0.25
Methyl vinyl ketone	<2.9	<1	m,p-Xylene	34	7.8
Butanal	<7.4	<2.5	o-Xylene	8.9	2.1
Methylene chloride	<700	<197	Styrene	<2.1	<0.5
CFC-113	<1.9	<0.25	Bromoform	<5.2	<0.5
Carbon disulfide	<16	<5	Benzyl chloride	<1.3	<0.25
Methyl t-butyl ether	<0.9	<0.25	1,3,5-Trimethylbenzene	<6.1	<1.2
Vinyl acetate	<18	<5	1,2,4-Trimethylbenzene	9.7	2.0
1,1-Dichloroethane	<1	<0.25	1,3-Dichlorobenzene	<3	<0.5
cis-1,2-Dichloroethene	<0.99	<0.25	1,4-Dichlorobenzene	<1.5	<0.25
Hexane	33	9.3	1,2,3-Trimethylbenzene	<6.1	<1.2
Chloroform	<1.2	<0.25	1,2-Dichlorobenzene	<3	<0.5
2-Butanone (MEK)	16	5.3	1,2,4-Trichlorobenzene	<1.9	<0.25
1,2-Dichloroethane (EDC)	<1	<0.25	Naphthalene	3.1	0.60
1,1,1-Trichloroethane	<1.4	<0.25	Hexachlorobutadiene	<2.7	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SSVP-3	Client:	Whitman Environmental Sciences
Date Received:	04/05/17	Project:	104 12th PO WES 1591
Date Collected:	04/04/17	Lab ID:	704062-03 1/2.5
Date Analyzed:	04/14/17	Data File:	041408.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Chlorodifluoromethane	<0.88	<0.25	1-Butanol	<15	<5
Propene	3.4	2.0	Carbon tetrachloride	<1.6	<0.25
Dichlorodifluoromethane	1.3	0.25	Benzene	2.7	0.85
Chloromethane	<0.52	<0.25	Cyclohexane	<17	<5
F-114	<1.7	<0.25	2-Pentanone	<8.8	<2.5
Isobutene	<2.3	<1	3-Pentanone	<8.8	<2.5
Acetaldehyde	<23	<12	Pentanal	<8.8	<2.5
Vinyl chloride	<0.64	<0.25	1,2-Dichloropropane	<1.2	<0.25
1,3-Butadiene	<0.55	<0.25	1,4-Dioxane	<1.8	<0.5
Bromomethane	<0.97	<0.25	Bromodichloromethane	<1.7	<0.25
Chloroethane	<0.66	<0.25	Trichloroethene	<1.3	<0.25
Ethanol	50 ca	27 ca	cis-1,3-Dichloropropene	<1.1	<0.25
Acetonitrile	<4.2	<2.5	4-Methyl-2-pentanone	<10	<2.5
Acrolein	<2.3	<1	trans-1,3-Dichloropropene	<1.1	<0.25
Acrylonitrile	<0.54	<0.25	Toluene	39	10
Pentane	26	8.7	1,1,2-Trichloroethane	<1.4	<0.25
Trichlorofluoromethane	<1.4	<0.25	3-Hexanone	<10	<2.5
Acetone	73	31	2-Hexanone	<10	<2.5
2-Propanol	98	40	Hexanal	<10	<2.5
Isoprene	<0.7	<0.25	Tetrachloroethene	15	2.2
Iodomethane	<1.5	<0.25	Dibromochloromethane	<2.1	<0.25
1,1-Dichloroethene	<0.99	<0.25	1,2-Dibromoethane (EDB)	<1.9	<0.25
Methacrolein	<7.2	<2.5	Chlorobenzene	<1.2	<0.25
trans-1,2-Dichloroethene	<0.99	<0.25	Ethylbenzene	12	2.7
Cyclopentane	2.9	1.0	1,1,2,2-Tetrachloroethane	<1.7	<0.25
Methyl vinyl ketone	<2.9	<1	m,p-Xylene	68	16
Butanal	<7.4	<2.5	o-Xylene	18	4.2
Methylene chloride	<700	<197	Styrene	<2.1	<0.5
CFC-113	<1.9	<0.25	Bromoform	<5.2	<0.5
Carbon disulfide	<16	<5	Benzyl chloride	<1.3	<0.25
Methyl t-butyl ether	1.1	0.3	1,3,5-Trimethylbenzene	<6.1	<1.2
Vinyl acetate	<18	<5	1,2,4-Trimethylbenzene	25	5.2
1,1-Dichloroethane	<1	<0.25	1,3-Dichlorobenzene	<3	<0.5
cis-1,2-Dichloroethene	<0.99	<0.25	1,4-Dichlorobenzene	<1.5	<0.25
Hexane	23	6.5	1,2,3-Trimethylbenzene	<6.1	<1.2
Chloroform	5.8	1.2	1,2-Dichlorobenzene	<3	<0.5
2-Butanone (MEK)	<7.4	<2.5	1,2,4-Trichlorobenzene	<1.9	<0.25
1,2-Dichloroethane (EDC)	<1	<0.25	Naphthalene	5.8	1.1
1,1,1-Trichloroethane	<1.4	<0.25	Hexachlorobutadiene	<2.7	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	104 12th PO WES 1591
Date Collected:	Not Applicable	Lab ID:	07-676 mb
Date Analyzed:	04/06/17	Data File:	040606.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	95	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<0.35	<0.1	1-Butanol	<6.1	<2
Propene	<0.69	<0.4	Carbon tetrachloride	<0.63	<0.1
Dichlorodifluoromethane	<0.49	<0.1	Benzene	<0.32	<0.1
Chloromethane	<0.21	<0.1	Cyclohexane	<6.9	<2
F-114	<0.7	<0.1	2-Pentanone	<3.5	<1
Isobutene	<0.92	<0.4	3-Pentanone	<3.5	<1
Acetaldehyde	<9	<5	Pentanal	<3.5	<1
Vinyl chloride	<0.26	<0.1	1,2-Dichloropropane	<0.46	<0.1
1,3-Butadiene	<0.22	<0.1	1,4-Dioxane	<0.36	<0.1
Bromomethane	<0.39	<0.1	Bromodichloromethane	<0.67	<0.1
Chloroethane	<0.26	<0.1	Trichloroethene	<0.54	<0.1
Ethanol	<7.5	<4	cis-1,3-Dichloropropene	<0.45	<0.1
Acetonitrile	<1.7	<1	4-Methyl-2-pentanone	<4.1	<1
Acrolein	<0.92	<0.4	trans-1,3-Dichloropropene	<0.45	<0.1
Acrylonitrile	<0.22	<0.1	Toluene	<0.38	<0.1
Pentane	<3	<1	1,1,2-Trichloroethane	<0.55	<0.1
Trichlorofluoromethane	<0.56	<0.1	3-Hexanone	<4.1	<1
Acetone	<4.8	<2	2-Hexanone	<4.1	<1
2-Propanol	<8.6	<3.5	Hexanal	<4.1	<1
Isoprene	<0.28	<0.1	Tetrachloroethene	<0.68	<0.1
Iodomethane	<0.58	<0.1	Dibromochloromethane	<0.85	<0.1
1,1-Dichloroethene	<0.4	<0.1	1,2-Dibromoethane (EDB)	<0.77	<0.1
Methacrolein	<2.9	<1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Cyclopentane	<0.29	<0.1	1,1,2,2-Tetrachloroethane	<0.69	<0.1
Methyl vinyl ketone	<1.1	<0.4	m,p-Xylene	<0.87	<0.2
Butanal	<2.9	<1	o-Xylene	<0.43	<0.1
Methylene chloride	<87	<25	Styrene	<0.85	<0.2
CFC-113	<0.77	<0.1	Bromoform	<2.1	<0.2
Carbon disulfide	<6.2	<2	Benzyl chloride	<0.52	<0.1
Methyl t-butyl ether	<0.36	<0.1	1,3,5-Trimethylbenzene	<2.5	<0.5
Vinyl acetate	<7	<2	1,2,4-Trimethylbenzene	<2.5	<0.5
1,1-Dichloroethane	<0.4	<0.1	1,3-Dichlorobenzene	<1.2	<0.2
cis-1,2-Dichloroethene	<0.4	<0.1	1,4-Dichlorobenzene	<0.6	<0.1
Hexane	<3.5	<1	1,2,3-Trimethylbenzene	<2.5	<0.5
Chloroform	<0.49	<0.1	1,2-Dichlorobenzene	<1.2	<0.2
2-Butanone (MEK)	<2.9	<1	1,2,4-Trichlorobenzene	<0.74	<0.1
1,2-Dichloroethane (EDC)	<0.4	<0.1	Naphthalene	<0.52	<0.1
1,1,1-Trichloroethane	<0.55	<0.1	Hexachlorobutadiene	<1.1	<0.1

Date of Report: 04/20/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704062

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chlorodifluoromethane	ppbv	10	109	70-130
Propene	ppbv	10	87	70-130
Dichlorodifluoromethane	ppbv	10	113	70-130
Chloromethane	ppbv	10	117	70-130
F-114	ppbv	10	130	70-130
Isobutene	ppbv	10	113	70-130
Acetaldehyde	ppbv	10	116	70-130
Vinyl chloride	ppbv	10	128	70-130
1,3-Butadiene	ppbv	10	125	70-130
Bromomethane	ppbv	10	146 vo	70-130
Chloroethane	ppbv	10	141 vo	70-130
Ethanol	ppbv	10	140 vo	70-130
Acetonitrile	ppbv	10	131 vo	70-130
Acrolein	ppbv	10	135 vo	70-130
Acrylonitrile	ppbv	10	96	70-130
Pentane	ppbv	10	93	70-130
Trichlorofluoromethane	ppbv	10	134 vo	70-130
Acetone	ppbv	10	120	70-130
2-Propanol	ppbv	10	127	70-130
Isoprene	ppbv	10	102	70-130
Iodomethane	ppbv	10	116	70-130
1,1-Dichloroethene	ppbv	10	107	70-130
Methacrolein	ppbv	10	96	70-130
trans-1,2-Dichloroethene	ppbv	10	111	70-130
Cyclopentane	ppbv	10	74	70-130
Methyl Vinyl Ketone	ppbv	10	106	70-130
Butanal	ppbv	10	107	70-130
Methylene chloride	ppbv	10	111	70-130
CFC-113	ppbv	10	116	70-130
Carbon disulfide	ppbv	10	119	70-130
Methyl t-butyl ether	ppbv	10	98	70-130
Vinyl acetate	ppbv	10	83	70-130
1,1-Dichloroethane	ppbv	10	107	70-130
cis-1,2-Dichloroethene	ppbv	10	108	70-130
Hexane	ppbv	10	99	70-130
Chloroform	ppbv	10	112	70-130
2-Butanone (MEK)	ppbv	10	107	70-130
1,2-Dichloroethane (EDC)	ppbv	10	107	70-130
1,1,1-Trichloroethane	ppbv	10	107	70-130
1-Butanol	ppbv	10	98	70-130
Carbon tetrachloride	ppbv	10	114	70-130

Date of Report: 04/20/17
Date Received: 04/05/17
Project: 104 12th PO WES 1591, F&BI 704062

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ppbv	10	107	70-130
Cyclohexane	ppbv	10	98	70-130
2-Pentanone	ppbv	10	109	70-130
3-Pentanone	ppbv	10	114	70-130
Pentanal	ppbv	10	101	70-130
1,2-Dichloropropane	ppbv	10	117	70-130
1,4-Dioxane	ppbv	10	125	70-130
Bromodichloromethane	ppbv	10	123	70-130
Trichloroethene	ppbv	10	121	70-130
cis-1,3-Dichloropropene	ppbv	10	111	70-130
4-Methyl-2-pentanone	ppbv	10	116	70-130
trans-1,3-Dichloropropene	ppbv	10	114	70-130
Toluene	ppbv	10	114	70-130
1,1,2-Trichloroethane	ppbv	10	124	70-130
3-Hexanone	ppbv	10	113	70-130
2-Hexanone	ppbv	10	112	70-130
Hexanal	ppbv	10	106	70-130
Tetrachloroethene	ppbv	10	123	70-130
Dibromochloromethane	ppbv	10	137 vo	70-130
1,2-Dibromoethane (EDB)	ppbv	10	127	70-130
Chlorobenzene	ppbv	10	125	70-130
Ethylbenzene	ppbv	10	121	70-130
1,1,2,2,-Tetrachloroethane	ppbv	10	131 vo	70-130
m,p-Xylene	ppbv	20	123	70-130
o-Xylene	ppbv	10	123	70-130
Styrene	ppbv	10	121	70-130
Bromoform	ppbv	10	143 vo	70-130
Benzyl chloride	ppbv	10	123	70-130
1,3,5-Trimethylbenzene	ppbv	10	122	70-130
1,2,4-Trimethylbenzene	ppbv	10	123	70-130
1,3-Dichlorobenzene	ppbv	10	130	70-130
1,4-Dichlorobenzene	ppbv	10	128	70-130
1,2,3-Trimethylbenzene	ppbv	10	122	70-130
1,2-Dichlorobenzene	ppbv	10	129	70-130
1,2,4-Trichlorobenzene	ppbv	10	101	70-130
Naphthalene	ppbv	10	100	70-130
Hexachlorobutadiene	ppbv	10	107	70-130

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.

704062

SAMPLE CHAIN OF CUSTODY

ME 04/05/17

Report To [illegible]

Company [illegible]

Address [illegible]

City, State, ZIP [illegible]

Phone [illegible] Email

SAMPLERS (*signature*)

PROJECT NAME: 104 1RTH

PO #: 055 1591

REMARKS

INVOICE TO

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

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

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	TO-15 BTEXN	TO-15 cVOCs		Notes
SSVP-2	01	FI07 3R55		4/4/17	-28	12:25	-4.9	12:23	X				
SSVP-1	02	FB110 3R56		"	-30	12:58	-6.5	1:07	X				GAUGE SEEMED TO STOP AT 6.5"
SSVP-3	03	FB108 2484		"	-29.5	1:13	-5.0	1:19	X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		[illegible]	4-5-17	12:36
Received by:	Nhan Phan	FB I	4/5/17	12:36
Relinquished by:				
Received by:				

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

FORMS\COC\COCTO-15.DOC

Samples received at 20 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

July 31, 2017

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

Dear Mr Whitman:

Included is the amended report from the testing of material submitted on May 15, 2017 from the 110 12th PO WES 1591A, F&BI 705265 project. The HCID motor oil range concentrations have been estimated.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0524R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

May 24, 2017

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on May 15, 2017 from the 110 12th PO WES 1591A, F&BI 705265 project. There are 57 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0524R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on May 15, 2017 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 110 12th PO WES 1591A, F&BI 705265 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
705265 -01	BN-1-GW
705265 -02	BN-2-GW
705265 -03	BN-3-GW
705265 -04	BN-4-GW
705265 -05	BN-5-GW
705265 -06	BN-6-GW
705265 -07	BN-8-GW
705265 -08	BN-9-GW
705265 -09	BN-11-GW
705265 -10	HA-N-GW
705265 -11	HA-S-GW
705265 -12	BN-1-9'
705265 -13	BN-1-15'
705265 -14	BN-2-3'
705265 -15	BN-2-13'
705265 -16	BN-3-7'
705265 -17	BN-3-14.5'
705265 -18	BN-4-7'
705265 -19	BN-5-5'
705265 -20	BN-5-11'
705265 -21	BN-5-18'
705265 -22	BN-6-1'
705265 -23	BN-6-9'
705265 -24	BN-6-15'
705265 -25	SLOPE 1
705265 -26	SLOPE 2
705265 -27	HA-N-2.5'
705265 -28	HA-N-9'
705265 -29	HA-S-2.5'
705265 -30	HA-S-6'
705265 -31	BN-7-9'
705265 -32	BN-7-12'
705265 -33	BN-7-17'
705265 -34	BN-7-19'
705265 -35	BN-8-7'

CASE NARRATIVE (CONTINUED)

Laboratory ID	Whitman Environmental Sciences
705265 -36	BN-8-17'
705265 -37	BN-8-20'
705265 -38	BN-9-12'
705265 -39	BN-9-24'
705265 -40	BN-10-15-20'
705265 -41	BN-10-20'
705265 -42	BN-11-12'
705265 -43	BN-11-20'

All quality control requirements were acceptable.

Date of Report: 05/24/17
Date Received: 05/15/17
Project: 110 12th PO WES 1591A, F&BI 705265
Date Extracted: 05/16/17
Date Analyzed: 05/16/17 and 05/18/17

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

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

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

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 56-165)
BN-1-9' 705265-12	ND	ND	ND	76
BN-2-13' 705265-15	ND	ND	ND	76
BN-3-7' 705265-16	ND	ND	ND	73
BN-4-7' 705265-18	ND	ND	ND	75
BN-5-11' 705265-20	ND	ND	ND	83
BN-5-18' 705265-21	ND	ND	ND	81
BN-6-9' 705265-23	ND	ND	ND	84
SLOPE 1 705265-25	ND	ND	ND	83
SLOPE 2 705265-26	ND	ND	660	84
BN-7-19' 705265-34	ND	ND	ND	81

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

Date of Report: 05/24/17
Date Received: 05/15/17
Project: 110 12th PO WES 1591A, F&BI 705265
Date Extracted: 05/16/17
Date Analyzed: 05/16/17 and 05/18/17

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

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

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

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 56-165)
BN-8-7' 705265-35	ND	ND	3,300	87
BN-11-20' 705265-43	ND	ND	ND	83
Method Blank 07-1076 MB	ND	ND	ND	84

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

Date of Report: 05/24/17
Date Received: 05/15/17
Project: 110 12th PO WES 1591A, F&BI 705265
Date Extracted: 05/16/17 and 05/17/17
Date Analyzed: 05/16/17 and 05/17/17

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

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

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 58-139)
BN-6-1' 705265-22	2.7	87
BN-6-15' 705265-24	<2	88
HA-N-2.5' 705265-27 1/10	730	93
HA-N-9' 705265-28	3.9	88
HA-S-2.5' 705265-29	7.0	90
HA-S-6' 705265-30	11	90
BN-7-12' 705265-32 1/20	780	107
BN-10-15-20' 705265-40 1/10	490	108
Method Blank 07-980 MB	<2	87
Method Blank 07-984 MB	<2	90

Date of Report: 05/24/17
Date Received: 05/15/17
Project: 110 12th PO WES 1591A, F&BI 705265
Date Extracted: 05/16/17
Date Analyzed: 05/16/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
BN-1-GW 705265-01	<100	88
BN-2-GW 705265-02	<100	90
BN-3-GW 705265-03	<100	88
BN-4-GW 705265-04	<100	88
BN-5-GW 705265-05	<100	88
BN-6-GW 705265-06	<100	89
BN-8-GW 705265-07	1,300	82
BN-9-GW 705265-08	<100	90
BN-11-GW 705265-09	<100	90
HA-N-GW 705265-10	770	109

Date of Report: 05/24/17
Date Received: 05/15/17
Project: 110 12th PO WES 1591A, F&BI 705265
Date Extracted: 05/16/17
Date Analyzed: 05/16/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
HA-S-GW 705265-11	600	86
Method Blank 07-982 MB	<100	87

Date of Report: 05/24/17
Date Received: 05/15/17
Project: 110 12th PO WES 1591A, F&BI 705265
Date Extracted: 05/17/17
Date Analyzed: 05/17/17

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

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

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
BN-7-9' 705265-31	<0.02	<0.02	<0.02	0.082	14	81
BN-7-17' 705265-33	0.033	<0.02	0.26	2.0	24	82
BN-8-17' 705265-36	<0.02	<0.02	<0.02	<0.06	<2	79
BN-9-12' 705265-38	<0.02	<0.02	<0.02	<0.06	<2	80
Method Blank 07-984 MB	<0.02	<0.02	<0.02	<0.06	<2	80

Date of Report: 05/24/17
Date Received: 05/15/17
Project: 110 12th PO WES 1591A, F&BI 705265
Date Extracted: 05/16/17
Date Analyzed: 05/16/17

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

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

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
HA-N-2.5' 705265-27	230 x	<250	89
BN-10-15-20' 705265-40	160 x	<250	88
Method Blank 07-1073 MB	<50	<250	85

Date of Report: 05/24/17
Date Received: 05/15/17
Project: 110 12th PO WES 1591A, F&BI 705265
Date Extracted: 05/16/17
Date Analyzed: 05/16/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
BN-1-GW 705265-01	<50	<250	86
BN-2-GW 705265-02	<50	<250	83
BN-3-GW 705265-03	79 x	<250	93
BN-4-GW 705265-04	<50	<250	76
BN-5-GW 705265-05	64 x	<250	88
BN-6-GW 705265-06	100 x	<250	91
BN-8-GW 705265-07	830 x	<250	83
BN-9-GW 705265-08	120 x	<250	95
BN-11-GW 705265-09	460 x	<250	88
HA-N-GW 705265-10	410 x	<250	85

Date of Report: 05/24/17
Date Received: 05/15/17
Project: 110 12th PO WES 1591A, F&BI 705265
Date Extracted: 05/16/17
Date Analyzed: 05/16/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
HA-S-GW 705265-11	730 x	<250	91
Method Blank 07-1064 MB2	<50	<250	88

Analysis For Total Metals By EPA Method 6020A

Client ID:	SLOPE 1	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/18/17	Lab ID:	705265-25
Date Analyzed:	05/19/17	Data File:	705265-25.070
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.13
Cadmium	<1
Chromium	12.9
Lead	2.20
Mercury	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	SLOPE 2	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/18/17	Lab ID:	705265-26
Date Analyzed:	05/19/17	Data File:	705265-26.071
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.91
Cadmium	1.21
Chromium	16.5
Lead	243
Mercury	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	BN-11-12'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/18/17	Lab ID:	705265-42
Date Analyzed:	05/19/17	Data File:	705265-42.072
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.03
Cadmium	<1
Chromium	16.8
Lead	305 ve
Mercury	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	BN-11-12'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/18/17	Lab ID:	705265-42 x2
Date Analyzed:	05/19/17	Data File:	705265-42 x2.095
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.30
Cadmium	<2
Chromium	17.5
Lead	330
Mercury	<2

Analysis For Total Metals By EPA Method 6020A

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	NA	Project:	110 12th PO WES 1591A
Date Extracted:	05/18/17	Lab ID:	I7-273 mb
Date Analyzed:	05/18/17	Data File:	I7-273 mb.059
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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-1-9'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-12
Date Analyzed:	05/17/17	Data File:	051644.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-1-15'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-13
Date Analyzed:	05/17/17	Data File:	051645.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-2-3'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-14
Date Analyzed:	05/17/17	Data File:	051646.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-2-13'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-15
Date Analyzed:	05/17/17	Data File:	051647.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-3-7'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-16
Date Analyzed:	05/17/17	Data File:	051648.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-3-14.5'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-17
Date Analyzed:	05/17/17	Data File:	051649.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-4-7'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-18
Date Analyzed:	05/17/17	Data File:	051650.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-5-5'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-19
Date Analyzed:	05/17/17	Data File:	051651.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-6-1'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-22
Date Analyzed:	05/17/17	Data File:	051652.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-6-15'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-24
Date Analyzed:	05/17/17	Data File:	051653.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HA-N-2.5'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-27
Date Analyzed:	05/17/17	Data File:	051654.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	0.24
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	0.60
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HA-N-9'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-28
Date Analyzed:	05/17/17	Data File:	051655.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HA-S-2.5'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-29
Date Analyzed:	05/17/17	Data File:	051656.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HA-S-6'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-30
Date Analyzed:	05/17/17	Data File:	051710.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	0.12
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-7-12'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-32
Date Analyzed:	05/18/17	Data File:	051819.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	94	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	6.8
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	42 ve
Hexane	<0.25	o-Xylene	15 ve
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	2.6
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	10
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	19 ve
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	52 ve
Benzene	<0.03	sec-Butylbenzene	1.2
Trichloroethene	<0.02	p-Isopropyltoluene	0.55
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	4.9
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-7-12'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-32 1/10
Date Analyzed:	05/18/17	Data File:	051813.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	102	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<5	1,3-Dichloropropane	<0.5
Chloromethane	<5	Tetrachloroethene	<0.25
Vinyl chloride	<0.5	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.5
Chloroethane	<5	Chlorobenzene	<0.5
Trichlorofluoromethane	<5	Ethylbenzene	6.9
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.5
1,1-Dichloroethene	<0.5	m,p-Xylene	44
Hexane	<2.5	o-Xylene	15
Methylene chloride	<5	Styrene	<0.5
Methyl t-butyl ether (MTBE)	<0.5	Isopropylbenzene	2.6
trans-1,2-Dichloroethene	<0.5	Bromoform	<0.5
1,1-Dichloroethane	<0.5	n-Propylbenzene	10
2,2-Dichloropropane	<0.5	Bromobenzene	<0.5
cis-1,2-Dichloroethene	<0.5	1,3,5-Trimethylbenzene	20
Chloroform	<0.5	1,1,2,2-Tetrachloroethane	<0.5
2-Butanone (MEK)	<5	1,2,3-Trichloropropane	<0.5
1,2-Dichloroethane (EDC)	<0.5	2-Chlorotoluene	<0.5
1,1,1-Trichloroethane	<0.5	4-Chlorotoluene	<0.5
1,1-Dichloropropene	<0.5	tert-Butylbenzene	<0.5
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	63
Benzene	<0.3	sec-Butylbenzene	1.2
Trichloroethene	<0.2	p-Isopropyltoluene	0.56
1,2-Dichloropropane	<0.5	1,3-Dichlorobenzene	<0.5
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<0.5
Dibromomethane	<0.5	1,2-Dichlorobenzene	<0.5
4-Methyl-2-pentanone	<5	1,2-Dibromo-3-chloropropane	<5
cis-1,3-Dichloropropene	<0.5	1,2,4-Trichlorobenzene	<2.5
Toluene	<0.5	Hexachlorobutadiene	<2.5
trans-1,3-Dichloropropene	<0.5	Naphthalene	4.6
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<2.5
2-Hexanone	<5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-10-15-20'	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-40
Date Analyzed:	05/17/17	Data File:	051712.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	2.6
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	0.44
Hexane	5.1	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	2.0
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	8.5
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	1.7
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	3.5
Benzene	<0.03	sec-Butylbenzene	0.94
Trichloroethene	<0.02	p-Isopropyltoluene	0.36
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	0.86
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	07-1020 mb
Date Analyzed:	05/17/17	Data File:	051643.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-1-GW	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-01
Date Analyzed:	05/16/17	Data File:	051610.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	94	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-2-GW	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-02
Date Analyzed:	05/16/17	Data File:	051611.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	94	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-3-GW	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-03
Date Analyzed:	05/16/17	Data File:	051612.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	95	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	0.65	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-4-GW	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-04
Date Analyzed:	05/16/17	Data File:	051613.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	94	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-5-GW	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-05
Date Analyzed:	05/16/17	Data File:	051614.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	95	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-6-GW	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-06
Date Analyzed:	05/16/17	Data File:	051615.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	94	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	11	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-8-GW	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-07
Date Analyzed:	05/16/17	Data File:	051616.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	95	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	12
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	6.9
Hexane	1.1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	28
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	39
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	3.9
Benzene	1.6	sec-Butylbenzene	1.5
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	1.3	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	2.1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-9-GW	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-08
Date Analyzed:	05/16/17	Data File:	051617.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	95	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-11-GW	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-09
Date Analyzed:	05/16/17	Data File:	051618.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	95	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HA-N-GW	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-10
Date Analyzed:	05/16/17	Data File:	051620.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	1.9	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	3.5
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	12
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	5.3	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	1.9	sec-Butylbenzene	9.9
Trichloroethene	1.6	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HA-S-GW	Client:	Whitman Environmental Sciences
Date Received:	05/15/17	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	705265-11
Date Analyzed:	05/16/17	Data File:	051619.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	9.3
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	45
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	7.5
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	110 12th PO WES 1591A
Date Extracted:	05/16/17	Lab ID:	07-1019 mb
Date Analyzed:	05/16/17	Data File:	051609.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	94	60	133

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

Date of Report: 05/24/17
Date Received: 05/15/17
Project: 110 12th PO WES 1591A, F&BI 705265

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

Laboratory Code: 705266-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	95	61-153

Date of Report: 05/24/17
Date Received: 05/15/17
Project: 110 12th PO WES 1591A, F&BI 705265

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

Laboratory Code: 705284-01 (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	90	69-134

Date of Report: 05/24/17
Date Received: 05/15/17
Project: 110 12th PO WES 1591A, F&BI 705265

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

Laboratory Code: 705308-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	93	66-121
Toluene	mg/kg (ppm)	0.5	94	72-128
Ethylbenzene	mg/kg (ppm)	0.5	101	69-132
Xylenes	mg/kg (ppm)	1.5	98	69-131
Gasoline	mg/kg (ppm)	20	100	61-153

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

Laboratory Code: 705272-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	82	95	98	73-135	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	96	74-139

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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 Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	80	80	63-142	0

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

Laboratory Code: 705285-03 (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	1.01	102	96	75-125	6
Cadmium	mg/kg (ppm)	10	<1	98	95	75-125	3
Chromium	mg/kg (ppm)	50	12.1	92	86	75-125	7
Lead	mg/kg (ppm)	50	1.08	96	93	75-125	3
Mercury	mg/kg (ppm	5	<1	95	97	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	92	80-120
Cadmium	mg/kg (ppm)	10	93	80-120
Chromium	mg/kg (ppm)	50	90	80-120
Lead	mg/kg (ppm)	50	93	80-120
Mercury	mg/kg (ppm)	5	96	80-120

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

Laboratory Code: 705265-13 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	32	10-142
Chloromethane	mg/kg (ppm)	2.5	<0.5	62	10-126
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	63	10-138
Bromomethane	mg/kg (ppm)	2.5	<0.5	70	10-163
Chloroethane	mg/kg (ppm)	2.5	<0.5	76	10-176
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	70	10-176
Acetone	mg/kg (ppm)	12.5	<0.5	86	10-163
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	77	10-160
Hexane	mg/kg (ppm)	2.5	<0.25	63	10-137
Methylene chloride	mg/kg (ppm)	2.5	<0.5	93	10-156
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	84	21-145
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	82	14-137
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	83	19-140
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	79	10-158
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	82	25-135
Chloroform	mg/kg (ppm)	2.5	<0.05	84	21-145
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	87	19-147
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	81	12-160
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	82	10-156
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	81	17-140
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	84	9-164
Benzene	mg/kg (ppm)	2.5	<0.03	80	29-129
Trichloroethene	mg/kg (ppm)	2.5	<0.02	81	21-139
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	82	30-135
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	85	23-155
Dibromomethane	mg/kg (ppm)	2.5	<0.05	83	23-145
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	87	24-155
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	87	28-144
Toluene	mg/kg (ppm)	2.5	<0.05	81	35-130
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	89	26-149
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	85	10-205
2-Hexanone	mg/kg (ppm)	12.5	<0.5	83	15-166
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	82	31-137
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	80	20-133
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	89	28-150
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	84	28-142
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	82	32-129
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	83	32-137
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	89	31-143
m,p-Xylene	mg/kg (ppm)	5	<0.1	82	34-136
o-Xylene	mg/kg (ppm)	2.5	<0.05	83	33-134
Styrene	mg/kg (ppm)	2.5	<0.05	84	35-137
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	83	31-142
Bromoform	mg/kg (ppm)	2.5	<0.05	91	21-156
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	81	23-146
Bromobenzene	mg/kg (ppm)	2.5	<0.05	83	34-130
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	81	18-149
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	84	28-140
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	82	25-144
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	81	31-134
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	82	31-136
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	82	30-137
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	82	10-182
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	81	23-145
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	81	21-149
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	82	30-131
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	81	29-129
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	82	31-132
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	84	11-161
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	81	22-142
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	86	10-142
Naphthalene	mg/kg (ppm)	2.5	<0.05	84	14-157
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	82	20-144

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	46	43	10-146	7
Chloromethane	mg/kg (ppm)	2.5	65	65	27-133	0
Vinyl chloride	mg/kg (ppm)	2.5	75	76	22-139	1
Bromomethane	mg/kg (ppm)	2.5	84	82	38-114	2
Chloroethane	mg/kg (ppm)	2.5	87	87	10-163	0
Trichlorofluoromethane	mg/kg (ppm)	2.5	84	86	10-196	2
Acetone	mg/kg (ppm)	12.5	95	103	52-141	8
1,1-Dichloroethene	mg/kg (ppm)	2.5	86	89	47-128	3
Hexane	mg/kg (ppm)	2.5	84	85	43-142	1
Methylene chloride	mg/kg (ppm)	2.5	97	101	42-132	4
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	93	97	60-123	4
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	92	97	67-127	5
1,1-Dichloroethane	mg/kg (ppm)	2.5	92	97	68-115	5
2,2-Dichloropropane	mg/kg (ppm)	2.5	93	93	52-170	0
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	93	98	72-113	5
Chloroform	mg/kg (ppm)	2.5	93	98	66-120	5
2-Butanone (MEK)	mg/kg (ppm)	12.5	99	104	57-123	5
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	93	98	56-135	5
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	93	96	62-131	3
1,1-Dichloropropene	mg/kg (ppm)	2.5	92	96	69-128	4
Carbon tetrachloride	mg/kg (ppm)	2.5	96	100	60-139	4
Benzene	mg/kg (ppm)	2.5	90	95	68-114	5
Trichloroethene	mg/kg (ppm)	2.5	94	98	64-117	4
1,2-Dichloropropane	mg/kg (ppm)	2.5	94	97	72-127	3
Bromodichloromethane	mg/kg (ppm)	2.5	96	101	72-130	5
Dibromomethane	mg/kg (ppm)	2.5	93	99	70-120	6
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	97	102	45-145	5
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	99	104	75-136	5
Toluene	mg/kg (ppm)	2.5	91	96	66-126	5
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	100	106	72-132	6
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	96	102	75-113	6
2-Hexanone	mg/kg (ppm)	12.5	93	99	33-152	6
1,3-Dichloropropane	mg/kg (ppm)	2.5	93	99	72-130	6
Tetrachloroethene	mg/kg (ppm)	2.5	90	96	72-114	6
Dibromochloromethane	mg/kg (ppm)	2.5	101	106	74-125	5
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	95	101	74-132	6
Chlorobenzene	mg/kg (ppm)	2.5	92	97	76-111	5
Ethylbenzene	mg/kg (ppm)	2.5	93	98	64-123	5
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	101	104	69-135	3
m,p-Xylene	mg/kg (ppm)	5	93	98	78-122	5
o-Xylene	mg/kg (ppm)	2.5	94	99	77-124	5
Styrene	mg/kg (ppm)	2.5	96	100	74-126	4
Isopropylbenzene	mg/kg (ppm)	2.5	95	99	76-127	4
Bromoform	mg/kg (ppm)	2.5	103	109	56-132	6
n-Propylbenzene	mg/kg (ppm)	2.5	91	96	74-124	5
Bromobenzene	mg/kg (ppm)	2.5	92	99	72-122	7
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	92	96	76-126	4
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	92	97	56-143	5
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	90	97	61-137	7
2-Chlorotoluene	mg/kg (ppm)	2.5	90	96	74-121	6
4-Chlorotoluene	mg/kg (ppm)	2.5	90	96	75-122	6
tert-Butylbenzene	mg/kg (ppm)	2.5	92	97	73-130	5
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	92	96	76-125	4
sec-Butylbenzene	mg/kg (ppm)	2.5	92	96	71-130	4
p-Isopropyltoluene	mg/kg (ppm)	2.5	92	96	70-132	4
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	93	98	75-121	5
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	92	97	74-117	5
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	93	98	76-121	5
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	96	100	58-138	4
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	92	96	64-135	4
Hexachlorobutadiene	mg/kg (ppm)	2.5	101	102	50-153	1
Naphthalene	mg/kg (ppm)	2.5	96	100	63-140	4
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	95	98	63-138	3

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

Laboratory Code: 705265-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	<1	87	87	10-172	0
Chloromethane	ug/L (ppb)	50	<10	86	86	25-166	0
Vinyl chloride	ug/L (ppb)	50	<0.2	93	93	36-166	0
Bromomethane	ug/L (ppb)	50	<1	117	117	47-169	0
Chloroethane	ug/L (ppb)	50	<1	107	107	46-160	0
Trichlorofluoromethane	ug/L (ppb)	50	<1	95	95	44-165	0
Acetone	ug/L (ppb)	250	<10	86	86	10-182	0
1,1-Dichloroethene	ug/L (ppb)	50	<1	90	90	60-136	0
Hexane	ug/L (ppb)	50	<1	85	85	52-150	0
Methylene chloride	ug/L (ppb)	50	<5	96	96	67-132	0
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	91	91	74-127	0
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	91	91	72-129	0
1,1-Dichloroethane	ug/L (ppb)	50	<1	91	91	70-128	0
2,2-Dichloropropane	ug/L (ppb)	50	<1	85	85	36-154	0
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	89	89	71-127	0
Chloroform	ug/L (ppb)	50	<1	90	90	65-132	0
2-Butanone (MEK)	ug/L (ppb)	250	<10	97	97	10-129	0
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	89	89	69-133	0
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	90	90	60-146	0
1,1-Dichloropropene	ug/L (ppb)	50	<1	88	88	69-133	0
Carbon tetrachloride	ug/L (ppb)	50	<1	93	93	56-152	0
Benzene	ug/L (ppb)	50	0.65	87	87	76-125	0
Trichloroethene	ug/L (ppb)	50	<1	88	88	66-135	0
1,2-Dichloropropane	ug/L (ppb)	50	<1	89	89	78-125	0
Bromodichloromethane	ug/L (ppb)	50	<1	95	95	61-150	0
Dibromomethane	ug/L (ppb)	50	<1	91	91	66-141	0
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	97	97	10-185	0
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	95	95	72-132	0
Toluene	ug/L (ppb)	50	<1	87	87	76-122	0
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	98	98	76-130	0
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	94	94	68-131	0
2-Hexanone	ug/L (ppb)	250	<10	92	92	10-185	0
1,3-Dichloropropane	ug/L (ppb)	50	<1	90	90	71-128	0
Tetrachloroethene	ug/L (ppb)	50	<1	86	86	10-226	0
Dibromochloromethane	ug/L (ppb)	50	<1	103	103	70-139	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	93	93	69-134	0
Chlorobenzene	ug/L (ppb)	50	<1	88	88	77-122	0
Ethylbenzene	ug/L (ppb)	50	<1	88	88	69-135	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	98	98	73-137	0
m,p-Xylene	ug/L (ppb)	100	<2	87	87	69-135	0
o-Xylene	ug/L (ppb)	50	<1	89	89	60-140	0
Styrene	ug/L (ppb)	50	<1	90	90	71-133	0
Isopropylbenzene	ug/L (ppb)	50	<1	88	88	65-142	0
Bromoform	ug/L (ppb)	50	<1	108	108	65-142	0
n-Propylbenzene	ug/L (ppb)	50	<1	84	84	58-144	0
Bromobenzene	ug/L (ppb)	50	<1	88	88	75-124	0
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	86	86	66-137	0
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	92	92	51-154	0
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	89	89	53-150	0
2-Chlorotoluene	ug/L (ppb)	50	<1	85	85	66-127	0
4-Chlorotoluene	ug/L (ppb)	50	<1	85	85	65-130	0
tert-Butylbenzene	ug/L (ppb)	50	<1	86	86	65-137	0
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	86	86	59-146	0
sec-Butylbenzene	ug/L (ppb)	50	<1	85	85	64-140	0
p-Isopropyltoluene	ug/L (ppb)	50	<1	85	85	65-141	0
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	88	88	72-123	0
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	86	86	69-126	0
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	88	88	69-128	0
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	98	98	32-164	0
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	86	86	66-136	0
Hexachlorobutadiene	ug/L (ppb)	50	<1	89	89	60-143	0
Naphthalene	ug/L (ppb)	50	<1	91	91	44-164	0
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	88	88	69-148	0

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	86	25-158
Chloromethane	ug/L (ppb)	50	86	45-156
Vinyl chloride	ug/L (ppb)	50	87	50-154
Bromomethane	ug/L (ppb)	50	123	55-143
Chloroethane	ug/L (ppb)	50	99	58-146
Trichlorofluoromethane	ug/L (ppb)	250	105	50-150
Acetone	ug/L (ppb)	250	98	53-131
1,1-Dichloroethene	ug/L (ppb)	50	100	67-136
Hexane	ug/L (ppb)	50	101	57-137
Methylene chloride	ug/L (ppb)	50	85	39-148
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	99	64-147
trans-1,2-Dichloroethene	ug/L (ppb)	50	99	68-128
1,1-Dichloroethane	ug/L (ppb)	50	94	79-121
2,2-Dichloropropane	ug/L (ppb)	50	108	55-143
cis-1,2-Dichloroethene	ug/L (ppb)	50	97	80-123
Chloroform	ug/L (ppb)	50	94	80-121
2-Butanone (MEK)	ug/L (ppb)	250	103	57-149
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	91	73-132
1,1,1-Trichloroethane	ug/L (ppb)	50	101	83-130
1,1-Dichloropropene	ug/L (ppb)	50	97	77-129
Carbon tetrachloride	ug/L (ppb)	50	107	75-158
Benzene	ug/L (ppb)	50	95	69-134
Trichloroethene	ug/L (ppb)	50	92	80-120
1,2-Dichloropropane	ug/L (ppb)	50	97	77-123
Bromodichloromethane	ug/L (ppb)	50	103	81-133
Dibromomethane	ug/L (ppb)	50	101	82-125
4-Methyl-2-pentanone	ug/L (ppb)	250	108	65-138
cis-1,3-Dichloropropene	ug/L (ppb)	50	105	82-132
Toluene	ug/L (ppb)	50	102	72-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	113	80-136
1,1,2-Trichloroethane	ug/L (ppb)	50	104	75-124
2-Hexanone	ug/L (ppb)	250	102	60-136
1,3-Dichloropropane	ug/L (ppb)	50	106	76-126
Tetrachloroethene	ug/L (ppb)	50	110	76-121
Dibromochloromethane	ug/L (ppb)	50	119	84-133
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	113	82-125
Chlorobenzene	ug/L (ppb)	50	106	83-114
Ethylbenzene	ug/L (ppb)	50	103	77-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	114	84-127
m,p-Xylene	ug/L (ppb)	100	102	83-125
o-Xylene	ug/L (ppb)	50	103	81-121
Styrene	ug/L (ppb)	50	106	84-119
Isopropylbenzene	ug/L (ppb)	50	105	85-117
Bromoform	ug/L (ppb)	50	116	74-136
n-Propylbenzene	ug/L (ppb)	50	101	74-126
Bromobenzene	ug/L (ppb)	50	109	80-121
1,3,5-Trimethylbenzene	ug/L (ppb)	50	103	78-123
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	105	66-126
1,2,3-Trichloropropane	ug/L (ppb)	50	101	67-124
2-Chlorotoluene	ug/L (ppb)	50	101	77-127
4-Chlorotoluene	ug/L (ppb)	50	100	78-128
tert-Butylbenzene	ug/L (ppb)	50	106	80-123
1,2,4-Trimethylbenzene	ug/L (ppb)	50	104	79-122
sec-Butylbenzene	ug/L (ppb)	50	102	80-125
p-Isopropyltoluene	ug/L (ppb)	50	106	81-123
1,3-Dichlorobenzene	ug/L (ppb)	50	108	85-116
1,4-Dichlorobenzene	ug/L (ppb)	50	106	84-121
1,2-Dichlorobenzene	ug/L (ppb)	50	108	85-116
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	108	57-141
1,2,4-Trichlorobenzene	ug/L (ppb)	50	107	72-130
Hexachlorobutadiene	ug/L (ppb)	50	108	53-141
Naphthalene	ug/L (ppb)	50	101	64-133
1,2,3-Trichlorobenzene	ug/L (ppb)	50	107	65-136

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.

705265

SAMPLE CHAIN OF CUSTODY ME 05/15/17 DO4/VS3/VW3

Page # 1 of 5

Report To [illegible]

Company [illegible]

Address [illegible]

City, State, ZIP [illegible]

Phone [illegible] Email [illegible]

SAMPLERS (*signature*)

PROJECT NAME: 110 12TH

PO #: 1591A

REMARKS

INVOICE TO

TURNAROUND TIME
- ☐ Standard Turnaround
- ☐ RUSH WATER SAMPLES
- Rush charges authorized by: BY THURSDAY PM

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
BW-1-GW	01 A-D	5-12		WATER	4		X	X		X							3 DAY
BW-2-GW	02																ON WATER
BW-3-GW	03																SAMPLES
BW-4-GW	04 A-C				3												PLEASE
BW-5-GW	05 A-D				4												
BW-6-GW	06																
BW-8-GW	07	5-15															
BW-9-GW	08																
~~BW-10-GW~~																	DO NOT (NP) received
BW-11-GW	09 A-D																

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		[illegible]	5/15/17	1525
Received by:	Khan Phan	FCBI	5/15/17	1525
Relinquished by:				
Received by:		Samples received at 6 °C		

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

705265

SAMPLE CHAIN OF CUSTODY ME 5/15/17

DO4/VS3/VW3

Page # 2 of 3

Report To [illegible]

Company [illegible]

Address [illegible]

City, State, ZIP [illegible]

Phone [illegible] Email [illegible]

SAMPLERS (*signature*)

PROJECT NAME: 110 12TH

PO # 0665 15911

REMARKS

INVOICE TO

TURNAROUND TIME
- ☐ Standard Turnaround
- ☐ RUSH SEE 100765

Rush charges authorized by:

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
HA-N-GW	10 A-D	5-15		WATER	4		X	X		X							3 DAY
HA-S-GW	11	11		11	11		X	X		X							↓
BW-1-9'	12	5-12		SOIL	4	X				X							3 DAY
BW-1-15'	13	↓		↓	↓					X							
BW-2-3'	14									↓							
BW-2-13'	15					X											3 DAY
BW-3-7'	16					X											
BW-3-14.5'	17																
BW-4-7'	18					X											
BW-5-5'	19	↓		↓	↓					↓							

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		[illegible]	5/15/17	1525
Received by:	Nhan Phan	FEBT	5/18/17	1525
Relinquished by:				
Received by:		Samples received at 6 °C		

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Seattle, WA 98119-2029
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SAMPLE CHAIN OF CUSTODY ME 05/15/17 D04/VS3/VW3

Page # 3 of 5

Report To [illegible]

Company [illegible] ENV. SERVICES

Address [illegible]

City, State, ZIP SEATTLE, WA 98115

Phone [illegible] Email [illegible]@YAHOO.COM

SAMPLERS (*signature*)

PROJECT NAME: 110 12TH

PO #: 0605 15911

REMARKS

INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	Metals				Notes
BW-5-11'	20	5-12		SOIL	1	X											FOLLOW UP ON ANY HOC DETECTIONS PLEASE TPH-G IF TPH-D TO G-BTEX
BW-5-18'	21	"		"	1	X											
BW-6-1'	22 A-D	"		"	4			X		X							
BW-6-9'	23	"		"	1	X											
BW-6-15'	24 A-D	"		"	4			X		X							
SLOPE 1	25	5 11		"	1	X	[illegible]						X				
SLOPE 2	26	"		"	1	X	[illegible]						X				
HA-W-2.5'	27 A-E	"		"	5		X	X		X							3 DAY
HA-W-9'	28 A-D	"		"	4			X		X							
HA-S-2.5'	29 V	"		"	4			X		X							3 DAY

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]		[illegible]	5/15/17	1525
Received by: [signature]	Nhan Phan	FE BT	5/15/17	V
Relinquished by:				
Received by:		Samples received at 6 °C		

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

705265

SAMPLE CHAIN OF CUSTODY ME 05/15/17 D04/V53

Page # 4 of 5

Report To [illegible]

Company [illegible]

Address [illegible]

City, State, ZIP [illegible]

Phone [illegible] Email [illegible]

SAMPLERS (*signature*)

PROJECT NAME: 110 12TH

PO #: WES 15911

REMARKS

INVOICE TO

TURNAROUND TIME
- ☐ Standard Turnaround
- ☐ RUSH SEE 10765
- Rush charges authorized by:

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
						ANALYSES REQUESTED											
[redacted] HA-S-6'	30 A-D	5-12		SOIL	4			X		X							
BD-7-9'	31	5-15			4			X	X								
BD-7-12'	32				4			X		X							3 DAY
BD-7-17'	33				4			X	X								
BD-7-19'	34				1	X											
BD-8-9'	35				[redacted]1	X											
BD-8-17'	36 A-D				4			X	X								
BD-8-20'	37				1												HOLD
BD-9-12'	38 A-D				4			X	X								
BD-9-24'	39				1												HOLD

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		WES	5/15/17	
Received by:	Khan Phan	FCBI	5/15/17	1525
Relinquished by:				
Received by:		~~Samples received at~~ 4 °C		

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

705265

SAMPLE CHAIN OF CUSTODY ME 05/15/17 DO4 / VS3 / VW3

Page # 5 of 5

Report To [illegible]

Company [illegible]

Address [illegible]

City, State, ZIP [illegible]

Phone [illegible] Email [illegible]

SAMPLERS (*signature*)

PROJECT NAME: 110 12TH

PO #: 1591A

REMARKS

INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	METALS				Notes
BO-10-15-20'	40 A-E	5-15		SOIL	5		X	X		X							3 DAY
BO-10-20'	41	"		"	1												HOLD
BO-11-12'	42	"		"	1								X				
BO-11-20'	43	"		"	1	X											

Samples received at 6 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		LDES	5/15/17	
Received by:	Nhan Phan	FEBI	5/15/17	1529
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
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Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West
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fbi@isomedia.com
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July 7, 2017

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on June 30, 2017 from the 104 12th PO WES 1591, F&BI 706523 project. There are 11 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0707R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 30, 2017 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 104 12th PO WES 1591, F&BI 706523 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
706523 -01	MW-1-GW
706523 -02	MW-7-GW

All quality control requirements were acceptable.

Date of Report: 07/07/17
Date Received: 06/30/17
Project: 104 12th PO WES 1591, F&BI 706523
Date Extracted: 07/05/17
Date Analyzed: 07/05/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW-1-GW 706523-01	<100	95
MW-7-GW 706523-02	<100	92
Method Blank 07-1423 MB	<100	73

Date of Report: 07/07/17
Date Received: 06/30/17
Project: 104 12th PO WES 1591, F&BI 706523
Date Extracted: 07/05/17
Date Analyzed: 07/05/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW-1-GW 706523-01	<50	<250	90
MW-7-GW 706523-02	<50	<250	97
Method Blank 07-1424 MB	<50	<250	94

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-1-GW	Client:	Whitman Environmental Sciences
Date Received:	06/30/17	Project:	104 12th PO WES 1591, F&BI 706523
Date Extracted:	07/03/17	Lab ID:	706523-01
Date Analyzed:	07/03/17	Data File:	070315.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	109	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.20	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-7-GW	Client:	Whitman Environmental Sciences
Date Received:	06/30/17	Project:	104 12th PO WES 1591, F&BI 706523
Date Extracted:	07/03/17	Lab ID:	706523-02
Date Analyzed:	07/03/17	Data File:	070316.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	109	63	127
4-Bromofluorobenzene	99	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	104 12th PO WES 1591, F&BI 706523
Date Extracted:	07/03/17	Lab ID:	07-1399 mb
Date Analyzed:	07/03/17	Data File:	070314.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	109	63	127
4-Bromofluorobenzene	99	60	133

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

Date of Report: 07/07/17
Date Received: 06/30/17
Project: 104 12th PO WES 1591, F&BI 706523

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

Laboratory Code: 707006-01 (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	102	69-134

Date of Report: 07/07/17
Date Received: 06/30/17
Project: 104 12th PO WES 1591, F&BI 706523

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	104	104	61-133	0

Date of Report: 07/07/17
Date Received: 06/30/17
Project: 104 12th PO WES 1591, F&BI 706523

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

Laboratory Code: 707015-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	97	10-172
Chloromethane	ug/L (ppb)	50	<10	101	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	105	36-166
Bromomethane	ug/L (ppb)	50	<1	110	47-169
Chloroethane	ug/L (ppb)	50	<1	109	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	117	44-165
Acetone	ug/L (ppb)	250	<10	111	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	110	60-136
Hexane	ug/L (ppb)	50	<1	97	52-150
Methylene chloride	ug/L (ppb)	50	<5	112	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	107	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	111	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	108	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	113	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	111	71-127
Chloroform	ug/L (ppb)	50	<1	113	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	121	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	113	69-133
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	113	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	111	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	115	56-152
Benzene	ug/L (ppb)	50	<0.35	108	76-125
Trichloroethene	ug/L (ppb)	50	<1	110	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	110	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	119	61-150
Dibromomethane	ug/L (ppb)	50	<1	115	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	112	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	118	72-132
Toluene	ug/L (ppb)	50	<1	94	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	110	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	100	68-131
2-Hexanone	ug/L (ppb)	250	<10	103	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	101	71-128
Tetrachloroethene	ug/L (ppb)	50	9.4	98	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	113	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	104	69-134
Chlorobenzene	ug/L (ppb)	50	<1	99	77-122
Ethylbenzene	ug/L (ppb)	50	<1	98	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	104	73-137
m,p-Xylene	ug/L (ppb)	100	<2	99	69-135
o-Xylene	ug/L (ppb)	50	<1	96	60-140
Styrene	ug/L (ppb)	50	<1	99	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	95	65-142
Bromoform	ug/L (ppb)	50	<1	118	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	91	58-144
Bromobenzene	ug/L (ppb)	50	<1	97	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	91	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	96	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	94	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	93	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	93	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	91	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	93	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	90	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	92	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	96	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	93	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	96	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	105	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	96	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<1	88	60-143
Naphthalene	ug/L (ppb)	50	<1	97	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	97	69-148

Date of Report: 07/07/17
Date Received: 06/30/17
Project: 104 12th PO WES 1591, F&BI 706523

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	87	96	25-158	10
Chloromethane	ug/L (ppb)	50	95	113	45-156	17
Vinyl chloride	ug/L (ppb)	50	99	113	50-154	13
Bromomethane	ug/L (ppb)	50	101	122	55-143	19
Chloroethane	ug/L (ppb)	50	102	119	58-146	15
Trichlorofluoromethane	ug/L (ppb)	250	111	120	50-150	8
Acetone	ug/L (ppb)	250	113	114	53-131	1
1,1-Dichloroethene	ug/L (ppb)	50	110	112	67-136	2
Hexane	ug/L (ppb)	50	93	93	57-137	0
Methylene chloride	ug/L (ppb)	50	110	113	39-148	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	107	113	64-147	5
trans-1,2-Dichloroethene	ug/L (ppb)	50	113	115	68-128	2
1,1-Dichloroethane	ug/L (ppb)	50	107	109	79-121	2
2,2-Dichloropropane	ug/L (ppb)	50	110	119	55-143	8
cis-1,2-Dichloroethene	ug/L (ppb)	50	112	115	80-123	3
Chloroform	ug/L (ppb)	50	114	116	80-121	2
2-Butanone (MEK)	ug/L (ppb)	250	125	126	57-149	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	114	117	73-132	3
1,1,1-Trichloroethane	ug/L (ppb)	50	112	119	83-130	6
1,1-Dichloropropene	ug/L (ppb)	50	109	113	77-129	4
Carbon tetrachloride	ug/L (ppb)	50	115	121	75-158	5
Benzene	ug/L (ppb)	50	110	112	69-134	2
Trichloroethene	ug/L (ppb)	50	111	115	80-120	4
1,2-Dichloropropane	ug/L (ppb)	50	113	116	77-123	3
Bromodichloromethane	ug/L (ppb)	50	119	123	81-133	3
Dibromomethane	ug/L (ppb)	50	117	119	82-125	2
4-Methyl-2-pentanone	ug/L (ppb)	250	115	119	65-138	3
cis-1,3-Dichloropropene	ug/L (ppb)	50	119	124	82-132	4
Toluene	ug/L (ppb)	50	97	98	72-122	1
trans-1,3-Dichloropropene	ug/L (ppb)	50	111	114	80-136	3
1,1,2-Trichloroethane	ug/L (ppb)	50	103	104	75-124	1
2-Hexanone	ug/L (ppb)	250	105	107	60-136	2
1,3-Dichloropropane	ug/L (ppb)	50	103	105	76-126	2
Tetrachloroethene	ug/L (ppb)	50	100	102	76-121	2
Dibromochloromethane	ug/L (ppb)	50	115	117	84-133	2
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	105	108	82-125	3
Chlorobenzene	ug/L (ppb)	50	100	103	83-114	3
Ethylbenzene	ug/L (ppb)	50	99	103	77-124	4
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	105	111	84-127	6
m,p-Xylene	ug/L (ppb)	100	99	104	83-125	5
o-Xylene	ug/L (ppb)	50	97	102	81-121	5
Styrene	ug/L (ppb)	50	99	106	84-119	7
Isopropylbenzene	ug/L (ppb)	50	95	101	85-117	6
Bromoform	ug/L (ppb)	50	118	125	74-136	6
n-Propylbenzene	ug/L (ppb)	50	92	94	74-126	2
Bromobenzene	ug/L (ppb)	50	97	99	80-121	2
1,3,5-Trimethylbenzene	ug/L (ppb)	50	91	96	78-123	5
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	98	98	66-126	0
1,2,3-Trichloropropane	ug/L (ppb)	50	95	96	67-124	1
2-Chlorotoluene	ug/L (ppb)	50	93	96	77-127	3
4-Chlorotoluene	ug/L (ppb)	50	93	95	78-128	2
tert-Butylbenzene	ug/L (ppb)	50	91	96	80-123	5
1,2,4-Trimethylbenzene	ug/L (ppb)	50	94	97	79-122	3
sec-Butylbenzene	ug/L (ppb)	50	89	94	80-125	5
p-Isopropyltoluene	ug/L (ppb)	50	92	97	81-123	5
1,3-Dichlorobenzene	ug/L (ppb)	50	96	100	85-116	4
1,4-Dichlorobenzene	ug/L (ppb)	50	92	97	84-121	5
1,2-Dichlorobenzene	ug/L (ppb)	50	96	100	85-116	4
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	107	110	57-141	3
1,2,4-Trichlorobenzene	ug/L (ppb)	50	96	100	72-130	4
Hexachlorobutadiene	ug/L (ppb)	50	85	89	53-141	5
Naphthalene	ug/L (ppb)	50	98	101	64-133	3
1,2,3-Trichlorobenzene	ug/L (ppb)	50	97	101	65-136	4

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.

706523

SAMPLE CHAIN OF CUSTODY

ME 06-30-17 VS2/B05

Report To [illegible]

Company [illegible] ENV. SCIENCES

Address [illegible]

City, State, ZIP [illegible]

Phone [illegible] Email

SAMPLERS (*signature*)

PROJECT NAME: 104 / 124

PO #: [illegible] / 1591

REMARKS

INVOICE TO

Page # _____ of B05

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
MW-1-GW	01 A-D	6-30	11:00	WATER	4		X	X		X							
MW-7-GW	02	"	11:15	"	"		X	X		X							

Samples received at 6 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:				
Received by:	Jon Timmons	FBI	6/30/17	6:05
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
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fbi@isomedia.com
www.friedmanandbruya.com

August 11, 2017

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on August 3, 2017 from the 124 12th PO WES 1591A, F&BI 708087 project. There are 12 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0811R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 3, 2017 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 124 12th PO WES 1591A, F&BI 708087 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
708087 -01	BN-7-GW
708087 -02	BN-10-GW

2,2-Dichloropropane in the 8260C water laboratory control sample and laboratory control sample duplicate failed the acceptance criteria. The data were flagged accordingly.

All other quality control requirements were acceptable.

Date of Report: 08/11/17
Date Received: 08/03/17
Project: 124 12th PO WES 1591A, F&BI 708087
Date Extracted: 08/08/17
Date Analyzed: 08/08/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
BN-7-GW 708087-01	3,200	100
BN-10-GW 708087-02	500	95
Method Blank 07-1624 MB	<100	92

Date of Report: 08/11/17
Date Received: 08/03/17
Project: 124 12th PO WES 1591A, F&BI 708087
Date Extracted: 08/07/17
Date Analyzed: 08/07/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
BN-7-GW 708087-01	790 x	<250	96
BN-10-GW 708087-02	270 x	<250	101
Method Blank 07-1673 MB	<50	<250	101

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-7-GW	Client:	Whitman Environmental Sciences
Date Received:	08/03/17	Project:	124 12th PO WES 1591A
Date Extracted:	08/07/16	Lab ID:	708087-01
Date Analyzed:	08/08/17	Data File:	080805.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	71
Acetone	<20	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	360 ve
Hexane	<1	o-Xylene	62
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	12
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	23
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	55
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	170 ve
Benzene	11	sec-Butylbenzene	1.8
Trichloroethene	<1	p-Isopropyltoluene	1.1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	8.9
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-7-GW	Client:	Whitman Environmental Sciences
Date Received:	08/03/17	Project:	124 12th PO WES 1591A
Date Extracted:	08/07/17	Lab ID:	708087-01 1/10
Date Analyzed:	08/09/17	Data File:	080929.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<10	1,3-Dichloropropane	<10
Chloromethane	<100	Tetrachloroethene	<10
Vinyl chloride	<2	Dibromochloromethane	<10
Bromomethane	<10	1,2-Dibromoethane (EDB)	<10
Chloroethane	<10	Chlorobenzene	<10
Trichlorofluoromethane	<10	Ethylbenzene	72
Acetone	<200	1,1,1,2-Tetrachloroethane	<10
1,1-Dichloroethene	<10	m,p-Xylene	360
Hexane	<10	o-Xylene	59
Methylene chloride	<50	Styrene	<10
Methyl t-butyl ether (MTBE)	<10	Isopropylbenzene	12
trans-1,2-Dichloroethene	<10	Bromoform	<10
1,1-Dichloroethane	<10	n-Propylbenzene	24
2,2-Dichloropropane	<10	Bromobenzene	<10
cis-1,2-Dichloroethene	<10	1,3,5-Trimethylbenzene	59
Chloroform	<10	1,1,2,2-Tetrachloroethane	<10
2-Butanone (MEK)	<100	1,2,3-Trichloropropane	<10
1,2-Dichloroethane (EDC)	<10	2-Chlorotoluene	<10
1,1,1-Trichloroethane	<10	4-Chlorotoluene	<10
1,1-Dichloropropene	<10	tert-Butylbenzene	<10
Carbon tetrachloride	<10	1,2,4-Trimethylbenzene	180
Benzene	11	sec-Butylbenzene	<10
Trichloroethene	<10	p-Isopropyltoluene	<10
1,2-Dichloropropane	<10	1,3-Dichlorobenzene	<10
Bromodichloromethane	<10	1,4-Dichlorobenzene	<10
Dibromomethane	<10	1,2-Dichlorobenzene	<10
4-Methyl-2-pentanone	<100	1,2-Dibromo-3-chloropropane	<100
cis-1,3-Dichloropropene	<10	1,2,4-Trichlorobenzene	<10
Toluene	<10	Hexachlorobutadiene	<10
trans-1,3-Dichloropropene	<10	Naphthalene	10
1,1,2-Trichloroethane	<10	1,2,3-Trichlorobenzene	<10
2-Hexanone	<100		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-10-GW	Client:	Whitman Environmental Sciences
Date Received:	08/03/17	Project:	124 12th PO WES 1591A
Date Extracted:	08/07/17	Lab ID:	708087-02
Date Analyzed:	08/09/17	Data File:	080927.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	6.3
Acetone	<20	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	4.3
Hexane	4.3	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	7.2
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	17
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	1.4
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	1.3
Benzene	6.8	sec-Butylbenzene	1.5
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	124 12th PO WES 1591A
Date Extracted:	08/07/17	Lab ID:	07-1659 mb
Date Analyzed:	08/07/17	Data File:	080712.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<20	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 08/11/17
Date Received: 08/03/17
Project: 124 12th PO WES 1591A, F&BI 708087

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

Laboratory Code: 708099-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	540	540	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	89	69-134

Date of Report: 08/11/17
Date Received: 08/03/17
Project: 124 12th PO WES 1591A, F&BI 708087

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

Laboratory Code: Laboratory Control Sample

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

Date of Report: 08/11/17
Date Received: 08/03/17
Project: 124 12th PO WES 1591A, F&BI 708087

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

Laboratory Code: 708082-09 (Matrix Spike)

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

Date of Report: 08/11/17
Date Received: 08/03/17
Project: 124 12th PO WES 1591A, F&BI 708087

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

Laboratory Code: Laboratory Control Sample

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

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

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

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

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

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

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

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

708087

SAMPLE CHAIN OF CUSTODY

ME 8/3/17 EDD/DW2

Page # 1 of 1

Report To Jim Whitman

Company Whitman Env. Services

Address 6816 16th Ave NE

City, State, ZIP Seattle, WA 98115

Phone 206-523-3[illegible] Email

SAMPLERS (*signature*)	
PROJECT NAME: 124 12th	PO #: 005 15918
REMARKS	INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
BW-7-60	01 A-D	8-3	AM	Water	4		X	X		X							
BW-10-60	02 A-D	"	"	"	4		X	X		X							

Samples received at 2 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		WES	8-3-17	5:16
Received by:	TOM LADD	FRI	08-03-17	5:16
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 14, 2017

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on August 7, 2017 from the 104 12th PO WES 1591, F&BI 708125 project. There are 17 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0814R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 7, 2017 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 104 12th PO WES 1591, F&BI 708125 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
708125 -01	HA-3-GW
708125 -02	HA-3-4'

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

All other quality control requirements were acceptable.

Date of Report: 08/14/17
Date Received: 08/07/17
Project: 104 12th PO WES 1591, F&BI 708125
Date Extracted: 08/09/17
Date Analyzed: 08/09/17

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

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

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 58-139)
HA-3-4' 708125-02	<2	94
Method Blank 07-1687 MB	<2	98

Date of Report: 08/14/17
Date Received: 08/07/17
Project: 104 12th PO WES 1591, F&BI 708125
Date Extracted: 08/09/17
Date Analyzed: 08/09/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
HA-3-GW 708125-01	<100	96
Method Blank 07-1685 MB	<100	102

Date of Report: 08/14/17
Date Received: 08/07/17
Project: 104 12th PO WES 1591, F&BI 708125
Date Extracted: 08/08/17
Date Analyzed: 08/08/17

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

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

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
HA-3-4' 708125-02	<50	<250	94
Method Blank 07-1681 MB	<50	<250	100

Date of Report: 08/14/17
Date Received: 08/07/17
Project: 104 12th PO WES 1591, F&BI 708125
Date Extracted: 08/08/17
Date Analyzed: 08/08/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
HA-3-GW 708125-01	100 x	<250	102
Method Blank 07-1697 MB	<50	<250	90

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HA-3-4'	Client:	Whitman Environmental Sciences
Date Received:	08/07/17	Project:	104 12th PO WES 1591, F&BI 708125
Date Extracted:	08/08/17	Lab ID:	708125-02
Date Analyzed:	08/08/17	Data File:	080832.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.05
Chloroethane	<0.5
1,1-Dichloroethene	<0.05
Methylene chloride	<0.5
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
cis-1,2-Dichloroethene	<0.05
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
Trichloroethene	<0.02
Tetrachloroethene	<0.025

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	104 12th PO WES 1591, F&BI 708125
Date Extracted:	08/08/17	Lab ID:	07-1679 mb2
Date Analyzed:	08/08/17	Data File:	080805.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

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

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.05
Chloroethane	<0.5
1,1-Dichloroethene	<0.05
Methylene chloride	<0.5
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
cis-1,2-Dichloroethene	<0.05
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
Trichloroethene	<0.02
Tetrachloroethene	<0.025

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	HA-3-GW	Client:	Whitman Environmental Sciences
Date Received:	08/07/17	Project:	104 12th PO WES 1591, F&BI 708125
Date Extracted:	08/09/17	Lab ID:	708125-01
Date Analyzed:	08/09/17	Data File:	080937.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

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

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	104 12th PO WES 1591, F&BI 708125
Date Extracted:	08/09/17	Lab ID:	07-1665 mb
Date Analyzed:	08/09/17	Data File:	080908.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

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

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

Date of Report: 08/14/17
Date Received: 08/07/17
Project: 104 12th PO WES 1591, F&BI 708125

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

Laboratory Code: 708065-06 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

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

Date of Report: 08/14/17
Date Received: 08/07/17
Project: 104 12th PO WES 1591, F&BI 708125

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

Laboratory Code: 708126-16 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

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

Date of Report: 08/14/17
Date Received: 08/07/17
Project: 104 12th PO WES 1591, F&BI 708125

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

Laboratory Code: 708119-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	102	96	63-146	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	96	79-144

Date of Report: 08/14/17
Date Received: 08/07/17
Project: 104 12th PO WES 1591, F&BI 708125

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

Laboratory Code: Laboratory Control Sample

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

Date of Report: 08/14/17
Date Received: 08/07/17
Project: 104 12th PO WES 1591, F&BI 708125

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

Laboratory Code: 708124-13 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	39	41	10-91	5
Chloroethane	mg/kg (ppm)	2.5	<0.5	48	50	10-101	4
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	48	51	22-107	6
Methylene chloride	mg/kg (ppm)	2.5	<0.5	77	78	14-128	1
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	62	64	13-112	3
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	65	67	23-115	3
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	71	72	25-120	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	70	73	22-124	4
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	60	61	27-112	2
Trichloroethene	mg/kg (ppm)	2.5	<0.02	71	73	30-112	3
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	75	75	25-114	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	mg/kg (ppm)	2.5	75	42-107
Chloroethane	mg/kg (ppm)	2.5	78	47-115
1,1-Dichloroethene	mg/kg (ppm)	2.5	81	65-110
Methylene chloride	mg/kg (ppm)	2.5	103	50-127
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	91	71-113
1,1-Dichloroethane	mg/kg (ppm)	2.5	92	74-109
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	96	73-110
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	93	73-111
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	85	72-116
Trichloroethene	mg/kg (ppm)	2.5	98	72-107
Tetrachloroethene	mg/kg (ppm)	2.5	103	73-111

Date of Report: 08/14/17
Date Received: 08/07/17
Project: 104 12th PO WES 1591, F&BI 708125

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

Laboratory Code: 708139-01 (Matrix Spike)

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

Date of Report: 08/14/17
Date Received: 08/07/17
Project: 104 12th PO WES 1591, F&BI 708125

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

Laboratory Code: Laboratory Control Sample

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

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.

708125

SAMPLE CHAIN OF CUSTODY

ME 08-07-17 VS1/VW2/EDY

Page # 1 of 1

Report To Ryan LaHaman

Company Landau Env. Services

Address 818 16th Ave NE

City, State, ZIP Seattle, OR 98115

Phone 206-523-3505 Email

SAMPLERS (*signature*)

PROJECT NAME: 104 12th

PO #: 1591

REMARKS

INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
HN-3-60	01A-D	8-7		WATER	4		X	X		X							
HN-3-4'	02	8-7		SOIL	4		X	X		X							

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		CB	8-7-17	4:54
Received by:	Matt Langston	FBInc	8/7/17	1654
Relinquished by:				
Received by:		Samples received at 2 °C		

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
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

June 22, 2018

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on June 14, 2018 from the 12th and Yesler WES 1591, F&BI 806263 project. There are 16 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0622R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 14, 2018 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 806263 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
806263 -01	MW-1
806263 -02	MW-2
806263 -03	MW-3
806263 -04	MW-4
806263 -05	MW-5
806263 -06	MW-6
806263 -07	MW-7
806263 -08	MW-10

All quality control requirements were acceptable.

Date of Report: 06/22/18
Date Received: 06/14/18
Project: 12th and Yesler WES 1591, F&BI 806263
Date Extracted: 06/15/18
Date Analyzed: 06/15/18

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW-1 806263-01	<100	89
MW-2 806263-02	<100	85
MW-3 806263-03	<100	85
MW-4 806263-04	<100	87
MW-5 806263-05	<100	87
MW-6 806263-06	<100	89
MW-7 806263-07	<100	87
MW-10 806263-08	<100	87
Method Blank 08-1301 MB	<100	91

Date of Report: 06/22/18
Date Received: 06/14/18
Project: 12th and Yesler WES 1591, F&BI 806263
Date Extracted: 06/18/18
Date Analyzed: 06/18/18

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)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW-1 806263-01	<50	<250	87
MW-2 806263-02	<50	<250	85
MW-3 806263-03	210 x	<250	88
MW-4 806263-04	<50	<250	84
MW-5 806263-05	<50	<250	89
MW-6 806263-06	<50	<250	85
MW-7 806263-07	<50	<250	85
MW-10 806263-08	66 x	<250	92
Method Blank 08-1304 MB	<50	<250	87

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-1	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-01
Date Analyzed:	06/15/18	Data File:	061543.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	104	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.27	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-2	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-02
Date Analyzed:	06/15/18	Data File:	061544.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-3	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-03
Date Analyzed:	06/15/18	Data File:	061545.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-4	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-04
Date Analyzed:	06/16/18	Data File:	061546.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	103	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-5	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-05
Date Analyzed:	06/16/18	Data File:	061547.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	105	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	1.3
Vinyl chloride	0.25	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	8.3	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	5.0	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-6	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-06
Date Analyzed:	06/16/18	Data File:	061548.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	1.2
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	9.6	1,3,5-Trimethylbenzene	<1
Chloroform	1.1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-7	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-07
Date Analyzed:	06/16/18	Data File:	061549.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-10	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-08
Date Analyzed:	06/16/18	Data File:	061550.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	103	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	1.2	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	08-1306 mb
Date Analyzed:	06/15/18	Data File:	061529.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	105	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 06/22/18
Date Received: 06/14/18
Project: 12th and Yesler WES 1591, F&BI 806263

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

Laboratory Code: 806257-01 (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	93	70-119

Date of Report: 06/22/18
Date Received: 06/14/18
Project: 12th and Yesler WES 1591, F&BI 806263

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

Laboratory Code: 806286-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	290	120	110	50-150	9

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	84	81	63-142	4

Date of Report: 06/22/18
Date Received: 06/14/18
Project: 12th and Yesler WES 1591, F&BI 806263

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	109	110	25-158	1
Chloromethane	ug/L (ppb)	50	97	98	45-156	1
Vinyl chloride	ug/L (ppb)	50	101	102	50-154	1
Bromomethane	ug/L (ppb)	50	115	117	55-143	2
Chloroethane	ug/L (ppb)	50	82	83	58-146	1
Trichlorofluoromethane	ug/L (ppb)	250	95	99	50-150	4
Acetone	ug/L (ppb)	250	88	91	53-131	3
1,1-Dichloroethene	ug/L (ppb)	50	103	105	67-136	2
Hexane	ug/L (ppb)	50	97	101	57-137	4
Methylene chloride	ug/L (ppb)	50	102	105	39-148	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	102	104	64-147	2
trans-1,2-Dichloroethene	ug/L (ppb)	50	103	105	68-128	2
1,1-Dichloroethane	ug/L (ppb)	50	100	102	79-121	2
2,2-Dichloropropane	ug/L (ppb)	50	102	102	55-143	0
cis-1,2-Dichloroethene	ug/L (ppb)	50	100	102	80-123	2
Chloroform	ug/L (ppb)	50	98	100	80-121	2
2-Butanone (MEK)	ug/L (ppb)	250	89	93	57-149	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	93	97	73-132	4
1,1,1-Trichloroethane	ug/L (ppb)	50	99	101	83-130	2
1,1-Dichloropropene	ug/L (ppb)	50	99	101	77-129	2
Carbon tetrachloride	ug/L (ppb)	50	102	105	75-158	3
Benzene	ug/L (ppb)	50	97	100	69-134	3
Trichloroethene	ug/L (ppb)	50	95	98	80-120	3
1,2-Dichloropropane	ug/L (ppb)	50	101	105	77-123	4
Bromodichloromethane	ug/L (ppb)	50	102	107	81-133	5
Dibromomethane	ug/L (ppb)	50	98	100	82-125	2
4-Methyl-2-pentanone	ug/L (ppb)	250	100	106	65-138	6
cis-1,3-Dichloropropene	ug/L (ppb)	50	109	114	82-132	4
Toluene	ug/L (ppb)	50	99	103	72-122	4
trans-1,3-Dichloropropene	ug/L (ppb)	50	116	120	80-136	3
1,1,2-Trichloroethane	ug/L (ppb)	50	106	110	75-124	4
2-Hexanone	ug/L (ppb)	250	103	108	60-136	5
1,3-Dichloropropane	ug/L (ppb)	50	102	107	76-126	5
Tetrachloroethene	ug/L (ppb)	50	103	106	76-121	3
Dibromochloromethane	ug/L (ppb)	50	111	116	84-133	4
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	103	109	82-125	6
Chlorobenzene	ug/L (ppb)	50	100	104	83-114	4
Ethylbenzene	ug/L (ppb)	50	101	105	77-124	4
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	108	111	84-127	3
m,p-Xylene	ug/L (ppb)	100	101	104	83-125	3
o-Xylene	ug/L (ppb)	50	101	105	81-121	4
Styrene	ug/L (ppb)	50	103	107	84-119	4
Isopropylbenzene	ug/L (ppb)	50	102	105	85-117	3
Bromoform	ug/L (ppb)	50	117	123	74-136	5
n-Propylbenzene	ug/L (ppb)	50	105	109	74-126	4
Bromobenzene	ug/L (ppb)	50	103	108	80-121	5
1,3,5-Trimethylbenzene	ug/L (ppb)	50	105	109	78-123	4
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	105	109	66-126	4
1,2,3-Trichloropropane	ug/L (ppb)	50	101	105	67-124	4
2-Chlorotoluene	ug/L (ppb)	50	104	107	77-127	3
4-Chlorotoluene	ug/L (ppb)	50	103	107	78-128	4
tert-Butylbenzene	ug/L (ppb)	50	107	110	80-123	3
1,2,4-Trimethylbenzene	ug/L (ppb)	50	105	108	79-122	3
sec-Butylbenzene	ug/L (ppb)	50	104	108	80-125	4
p-Isopropyltoluene	ug/L (ppb)	50	104	108	81-123	4
1,3-Dichlorobenzene	ug/L (ppb)	50	100	104	85-116	4
1,4-Dichlorobenzene	ug/L (ppb)	50	97	101	84-121	4
1,2-Dichlorobenzene	ug/L (ppb)	50	100	103	85-116	3
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	109	111	57-141	2
1,2,4-Trichlorobenzene	ug/L (ppb)	50	101	104	72-130	3
Hexachlorobutadiene	ug/L (ppb)	50	99	101	53-141	2
Naphthalene	ug/L (ppb)	50	106	107	64-133	1
1,2,3-Trichlorobenzene	ug/L (ppb)	50	104	105	65-136	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

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

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

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

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

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
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July 10, 2018

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on June 29, 2018 from the 12th and Yesler WES-159, F&BI 806581 project. There are 11 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0710R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 29, 2018 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-159, F&BI 806581 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
806581 -01	MW-8-GW

All quality control requirements were acceptable.

Date of Report: 07/10/18
Date Received: 06/29/18
Project: 12th and Yesler WES-159, F&BI 806581
Date Extracted: 07/03/18
Date Analyzed: 07/03/18

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW-8-GW 806581-01 1/10	2,400	80
Method Blank 08-1390 MB	<100	84

Date of Report: 07/10/18
Date Received: 06/29/18
Project: 12th and Yesler WES-159, F&BI 806581
Date Extracted: 07/02/18
Date Analyzed: 07/02/18

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)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW-8-GW 806581-01	160 x	<250	89
Method Blank 08-1444 MB	<50	<250	82

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-8-GW	Client:	Whitman Environmental Sciences
Date Received:	06/29/18	Project:	12th and Yesler WES-159, F&BI 806581
Date Extracted:	06/29/18	Lab ID:	806581-01
Date Analyzed:	06/30/18	Data File:	062944.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	106	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	85
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	360 ve
Hexane	<1	o-Xylene	72
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	14
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	33
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	54
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	150
Benzene	2.9	sec-Butylbenzene	1.9
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	1.6
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-8-GW	Client:	Whitman Environmental Sciences
Date Received:	06/29/18	Project:	12th and Yesler WES-159, F&BI 806581
Date Extracted:	07/03/18	Lab ID:	806581-01 1/10
Date Analyzed:	07/03/18	Data File:	070328.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	108	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<10	1,3-Dichloropropane	<10
Chloromethane	<100	Tetrachloroethene	<10
Vinyl chloride	<2	Dibromochloromethane	<10
Bromomethane	<10	1,2-Dibromoethane (EDB)	<10
Chloroethane	<10	Chlorobenzene	<10
Trichlorofluoromethane	<10	Ethylbenzene	78
Acetone	<500	1,1,1,2-Tetrachloroethane	<10
1,1-Dichloroethene	<10	m,p-Xylene	320
Hexane	<10	o-Xylene	64
Methylene chloride	<50	Styrene	<10
Methyl t-butyl ether (MTBE)	<10	Isopropylbenzene	13
trans-1,2-Dichloroethene	<10	Bromoform	<10
1,1-Dichloroethane	<10	n-Propylbenzene	32
2,2-Dichloropropane	<10	Bromobenzene	<10
cis-1,2-Dichloroethene	<10	1,3,5-Trimethylbenzene	53
Chloroform	<10	1,1,2,2-Tetrachloroethane	<10
2-Butanone (MEK)	<100	1,2,3-Trichloropropane	<10
1,2-Dichloroethane (EDC)	<10	2-Chlorotoluene	<10
1,1,1-Trichloroethane	<10	4-Chlorotoluene	<10
1,1-Dichloropropene	<10	tert-Butylbenzene	<10
Carbon tetrachloride	<10	1,2,4-Trimethylbenzene	150
Benzene	<3.5	sec-Butylbenzene	<10
Trichloroethene	<10	p-Isopropyltoluene	<10
1,2-Dichloropropane	<10	1,3-Dichlorobenzene	<10
Bromodichloromethane	<10	1,4-Dichlorobenzene	<10
Dibromomethane	<10	1,2-Dichlorobenzene	<10
4-Methyl-2-pentanone	<100	1,2-Dibromo-3-chloropropane	<100
cis-1,3-Dichloropropene	<10	1,2,4-Trichlorobenzene	<10
Toluene	<10	Hexachlorobutadiene	<10
trans-1,3-Dichloropropene	<10	Naphthalene	<10
1,1,2-Trichloroethane	<10	1,2,3-Trichlorobenzene	<10
2-Hexanone	<100		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES-159, F&BI 806581
Date Extracted:	06/29/18	Lab ID:	08-1411 mb
Date Analyzed:	06/29/18	Data File:	062917.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	107	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 07/10/18
Date Received: 06/29/18
Project: 12th and Yesler WES-159, F&BI 806581

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

Laboratory Code: 806582-01 (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	96	69-134

Date of Report: 07/10/18
Date Received: 06/29/18
Project: 12th and Yesler WES-159, F&BI 806581

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	84	88	61-133	5

Date of Report: 07/10/18
Date Received: 06/29/18
Project: 12th and Yesler WES-159, F&BI 806581

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

Laboratory Code: 806557-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	122	10-172
Chloromethane	ug/L (ppb)	50	<10	103	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	112	36-166
Bromomethane	ug/L (ppb)	50	<1	132	47-169
Chloroethane	ug/L (ppb)	50	<1	90	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	83	44-165
Acetone	ug/L (ppb)	250	<50	84	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	98	60-136
Hexane	ug/L (ppb)	50	<1	111	52-150
Methylene chloride	ug/L (ppb)	50	<5	103	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	109	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	104	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	104	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	102	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	103	71-127
Chloroform	ug/L (ppb)	50	<1	100	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	95	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	101	69-133
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	97	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	105	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	105	56-152
Benzene	ug/L (ppb)	50	<0.35	103	76-125
Trichloroethene	ug/L (ppb)	50	<1	101	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	109	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	111	61-150
Dibromomethane	ug/L (ppb)	50	<1	105	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	108	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	118	72-132
Toluene	ug/L (ppb)	50	<1	102	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	120	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	109	68-131
2-Hexanone	ug/L (ppb)	250	<10	108	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	108	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	104	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	115	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	105	69-134
Chlorobenzene	ug/L (ppb)	50	<1	104	77-122
Ethylbenzene	ug/L (ppb)	50	<1	104	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	109	73-137
m,p-Xylene	ug/L (ppb)	100	<2	103	69-135
o-Xylene	ug/L (ppb)	50	<1	103	60-140
Styrene	ug/L (ppb)	50	<1	106	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	103	65-142
Bromoform	ug/L (ppb)	50	<1	117	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	108	58-144
Bromobenzene	ug/L (ppb)	50	<1	103	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	106	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	106	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	103	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	107	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	105	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	107	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	105	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	106	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	105	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	101	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	98	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	99	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	105	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	98	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<1	93	60-143
Naphthalene	ug/L (ppb)	50	<1	101	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	98	69-148

Date of Report: 07/10/18
Date Received: 06/29/18
Project: 12th and Yesler WES-159, F&BI 806581

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	121	119	25-158	2
Chloromethane	ug/L (ppb)	50	103	104	45-156	1
Vinyl chloride	ug/L (ppb)	50	110	109	50-154	1
Bromomethane	ug/L (ppb)	50	125	126	55-143	1
Chloroethane	ug/L (ppb)	50	88	87	58-146	1
Trichlorofluoromethane	ug/L (ppb)	250	97	81	50-150	18
Acetone	ug/L (ppb)	250	81	85	53-131	5
1,1-Dichloroethene	ug/L (ppb)	50	93	94	67-136	1
Hexane	ug/L (ppb)	50	112	113	57-137	1
Methylene chloride	ug/L (ppb)	50	101	104	39-148	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	110	107	64-147	3
trans-1,2-Dichloroethene	ug/L (ppb)	50	104	103	68-128	1
1,1-Dichloroethane	ug/L (ppb)	50	101	103	79-121	2
2,2-Dichloropropane	ug/L (ppb)	50	100	101	55-143	1
cis-1,2-Dichloroethene	ug/L (ppb)	50	103	102	80-123	1
Chloroform	ug/L (ppb)	50	100	100	80-121	0
2-Butanone (MEK)	ug/L (ppb)	250	98	97	57-149	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	100	100	73-132	0
1,1,1-Trichloroethane	ug/L (ppb)	50	95	96	83-130	1
1,1-Dichloropropene	ug/L (ppb)	50	105	105	77-129	0
Carbon tetrachloride	ug/L (ppb)	50	104	106	75-158	2
Benzene	ug/L (ppb)	50	104	104	69-134	0
Trichloroethene	ug/L (ppb)	50	100	101	80-120	1
1,2-Dichloropropane	ug/L (ppb)	50	108	109	77-123	1
Bromodichloromethane	ug/L (ppb)	50	111	110	81-133	1
Dibromomethane	ug/L (ppb)	50	104	103	82-125	1
4-Methyl-2-pentanone	ug/L (ppb)	250	109	111	65-138	2
cis-1,3-Dichloropropene	ug/L (ppb)	50	121	119	82-132	2
Toluene	ug/L (ppb)	50	103	103	72-122	0
trans-1,3-Dichloropropene	ug/L (ppb)	50	123	122	80-136	1
1,1,2-Trichloroethane	ug/L (ppb)	50	109	109	75-124	0
2-Hexanone	ug/L (ppb)	250	112	113	60-136	1
1,3-Dichloropropane	ug/L (ppb)	50	108	109	76-126	1
Tetrachloroethene	ug/L (ppb)	50	103	104	76-121	1
Dibromochloromethane	ug/L (ppb)	50	115	116	84-133	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	108	107	82-125	1
Chlorobenzene	ug/L (ppb)	50	103	103	83-114	0
Ethylbenzene	ug/L (ppb)	50	104	105	77-124	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	109	109	84-127	0
m,p-Xylene	ug/L (ppb)	100	103	104	83-125	1
o-Xylene	ug/L (ppb)	50	103	103	81-121	0
Styrene	ug/L (ppb)	50	105	106	84-119	1
Isopropylbenzene	ug/L (ppb)	50	102	103	85-117	1
Bromoform	ug/L (ppb)	50	122	119	74-136	2
n-Propylbenzene	ug/L (ppb)	50	108	108	74-126	0
Bromobenzene	ug/L (ppb)	50	103	104	80-121	1
1,3,5-Trimethylbenzene	ug/L (ppb)	50	106	107	78-123	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	107	108	66-126	1
1,2,3-Trichloropropane	ug/L (ppb)	50	105	104	67-124	1
2-Chlorotoluene	ug/L (ppb)	50	106	107	77-127	1
4-Chlorotoluene	ug/L (ppb)	50	106	106	78-128	0
tert-Butylbenzene	ug/L (ppb)	50	107	108	80-123	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	105	106	79-122	1
sec-Butylbenzene	ug/L (ppb)	50	105	106	80-125	1
p-Isopropyltoluene	ug/L (ppb)	50	104	105	81-123	1
1,3-Dichlorobenzene	ug/L (ppb)	50	100	101	85-116	1
1,4-Dichlorobenzene	ug/L (ppb)	50	98	98	84-121	0
1,2-Dichlorobenzene	ug/L (ppb)	50	99	99	85-116	0
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	108	107	57-141	1
1,2,4-Trichlorobenzene	ug/L (ppb)	50	96	97	72-130	1
Hexachlorobutadiene	ug/L (ppb)	50	92	93	53-141	1
Naphthalene	ug/L (ppb)	50	101	101	64-133	0
1,2,3-Trichlorobenzene	ug/L (ppb)	50	97	98	65-136	1

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.

806581

SAMPLE CHAIN OF CUSTODY ME 06-29-18

A03 / V1

Page # ____ of ____

Report To Tim Kellogg

Company Kellogg E.W. Surveys

Address 6812 16th Ave NE

City, State, ZIP Seattle, WA 98115

Phone ____ Email kellogg@mac.com

SAMPLERS (*signature*)

PROJECT NAME WES-1591

PO #

RH + YESLER

REMARKS

INVOICE TO

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH ____
- Rush charges authorized by: ____

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other ____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
MW-5-6.0	01A-D	6-28	2:50	WATER	4		X	X		X							
																	Samples received at 15 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		WES	6-29-18	2:00
Received by:	DAVID	F&BI	6-29-18	14:10
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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July 25, 2018

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on July 16, 2018 from the 12th and Yesler WES-1591, F&BI 807282 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0725R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 16, 2018 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 807282 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
807282 -01	MW-9-GW

Several compounds in the 8260C laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria. The affected analytes were flagged accordingly.

All other quality control requirements were acceptable.

Date of Report: 07/25/18
Date Received: 07/16/18
Project: 12th and Yesler WES-1591, F&BI 807282
Date Extracted: 07/19/18
Date Analyzed: 07/19/18

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW-9-GW 807282-01	470	83
Method Blank 08-1530 MB	<100	85

Date of Report: 07/25/18
Date Received: 07/16/18
Project: 12th and Yesler WES-1591, F&BI 807282
Date Extracted: 07/17/18
Date Analyzed: 07/17/18

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)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW-9-GW 807282-01	180 x	<250	78
Method Blank 08-1565 MB	<50	<250	80

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-9-GW	Client:	Whitman Environmental Sciences
Date Received:	07/16/18	Project:	12th and Yesler WES-1591, F&BI 807282
Date Extracted:	07/20/18	Lab ID:	807282-01
Date Analyzed:	07/20/18	Data File:	072032.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	62	142
Toluene-d8	104	55	145
4-Bromofluorobenzene	88	65	139

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	8.5
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	3.2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	12
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	23 jl
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	1.1
Benzene	5.0	sec-Butylbenzene	1.9
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES-1591, F&BI 807282
Date Extracted:	07/20/18	Lab ID:	08-1583 mb
Date Analyzed:	07/20/18	Data File:	072017.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	92	91	108
4-Bromofluorobenzene	97	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 07/25/18
Date Received: 07/16/18
Project: 12th and Yesler WES-1591, F&BI 807282

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

Laboratory Code: 807310-01 (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	81	70-119

Date of Report: 07/25/18
Date Received: 07/16/18
Project: 12th and Yesler WES-1591, F&BI 807282

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	72	63-142	5

Date of Report: 07/25/18
Date Received: 07/16/18
Project: 12th and Yesler WES-1591, F&BI 807282

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

Laboratory Code: 807371-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	126	55-137
Chloromethane	ug/L (ppb)	50	<10	114	61-120
Vinyl chloride	ug/L (ppb)	50	<0.2	113	61-139
Bromomethane	ug/L (ppb)	50	<1	115	20-265
Chloroethane	ug/L (ppb)	50	<1	108	55-149
Trichlorofluoromethane	ug/L (ppb)	50	<1	113	71-128
Acetone	ug/L (ppb)	250	<50	92	48-149
1,1-Dichloroethene	ug/L (ppb)	50	<1	112	71-123
Hexane	ug/L (ppb)	50	<1	101	44-139
Methylene chloride	ug/L (ppb)	50	<5	107	61-126
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	104	68-125
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	106	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<1	103	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<1	119	48-157
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	102	63-126
Chloroform	ug/L (ppb)	50	<1	97	77-117
2-Butanone (MEK)	ug/L (ppb)	250	<10	104	70-135
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	98	70-119
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	111	75-121
1,1-Dichloropropene	ug/L (ppb)	50	<1	107	67-121
Carbon tetrachloride	ug/L (ppb)	50	<1	118	70-132
Benzene	ug/L (ppb)	50	<0.35	102	75-114
Trichloroethene	ug/L (ppb)	50	<1	102	73-122
1,2-Dichloropropane	ug/L (ppb)	50	<1	103	80-111
Bromodichloromethane	ug/L (ppb)	50	<1	116	78-117
Dibromomethane	ug/L (ppb)	50	<1	99	73-125
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	108	79-140
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	112	76-120
Toluene	ug/L (ppb)	50	<1	101	73-117
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	120	75-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	101	81-116
2-Hexanone	ug/L (ppb)	250	<10	99	74-127
1,3-Dichloropropane	ug/L (ppb)	50	<1	106	80-113
Tetrachloroethene	ug/L (ppb)	50	<1	99	72-113
Dibromochloromethane	ug/L (ppb)	50	<1	120	69-129
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	103	79-120
Chlorobenzene	ug/L (ppb)	50	<1	99	75-115
Ethylbenzene	ug/L (ppb)	50	<1	100	66-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	117	76-130
m,p-Xylene	ug/L (ppb)	100	<2	99	63-128
o-Xylene	ug/L (ppb)	50	<1	99	64-129
Styrene	ug/L (ppb)	50	<1	97	56-142
Isopropylbenzene	ug/L (ppb)	50	<1	103	74-122
Bromoform	ug/L (ppb)	50	<1	120	49-138
n-Propylbenzene	ug/L (ppb)	50	<1	116	65-129
Bromobenzene	ug/L (ppb)	50	<1	111	70-121
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	111	60-138
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	116	79-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	113	62-125
2-Chlorotoluene	ug/L (ppb)	50	<1	111	40-159
4-Chlorotoluene	ug/L (ppb)	50	<1	106	76-122
tert-Butylbenzene	ug/L (ppb)	50	<1	114	74-125
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	111	59-136
sec-Butylbenzene	ug/L (ppb)	50	<1	113	69-127
p-Isopropyltoluene	ug/L (ppb)	50	<1	112	64-132
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	99	77-113
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	97	75-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	108	70-120
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	121	69-129
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	105	66-123
Hexachlorobutadiene	ug/L (ppb)	50	<1	114	53-136
Naphthalene	ug/L (ppb)	50	<1	102	60-145
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	102	59-130

Date of Report: 07/25/18
Date Received: 07/16/18
Project: 12th and Yesler WES-1591, F&BI 807282

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	148	126	50-157	16
Chloromethane	ug/L (ppb)	50	129	112	62-130	14
Vinyl chloride	ug/L (ppb)	50	131 vo	112	70-128	16
Bromomethane	ug/L (ppb)	50	130	112	62-188	15
Chloroethane	ug/L (ppb)	50	124	107	66-149	15
Trichlorofluoromethane	ug/L (ppb)	50	124	112	70-132	10
Acetone	ug/L (ppb)	250	110	88	44-145	22 vo
1,1-Dichloroethene	ug/L (ppb)	50	114	109	75-119	4
Hexane	ug/L (ppb)	50	98	101	51-153	3
Methylene chloride	ug/L (ppb)	50	114	107	63-132	6
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	106	103	70-122	3
trans-1,2-Dichloroethene	ug/L (ppb)	50	103	105	76-118	2
1,1-Dichloroethane	ug/L (ppb)	50	103	102	77-119	1
2,2-Dichloropropane	ug/L (ppb)	50	120	111	62-141	8
cis-1,2-Dichloroethene	ug/L (ppb)	50	102	100	76-119	2
Chloroform	ug/L (ppb)	50	98	96	78-117	2
2-Butanone (MEK)	ug/L (ppb)	250	110	100	49-147	10
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	96	97	78-114	1
1,1,1-Trichloroethane	ug/L (ppb)	50	117 vo	109	80-116	7
1,1-Dichloropropene	ug/L (ppb)	50	104	106	78-119	2
Carbon tetrachloride	ug/L (ppb)	50	127	118	72-128	7
Benzene	ug/L (ppb)	50	101	101	75-116	0
Trichloroethene	ug/L (ppb)	50	97	101	72-119	4
1,2-Dichloropropane	ug/L (ppb)	50	101	102	79-121	1
Bromodichloromethane	ug/L (ppb)	50	112	114	76-120	2
Dibromomethane	ug/L (ppb)	50	95	96	79-121	1
4-Methyl-2-pentanone	ug/L (ppb)	250	108	105	54-153	3
cis-1,3-Dichloropropene	ug/L (ppb)	50	102	108	76-128	6
Toluene	ug/L (ppb)	50	102	100	79-115	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	113	115	76-128	2
1,1,2-Trichloroethane	ug/L (ppb)	50	103	102	78-120	1
2-Hexanone	ug/L (ppb)	250	99	95	49-147	4
1,3-Dichloropropane	ug/L (ppb)	50	106	105	81-115	1
Tetrachloroethene	ug/L (ppb)	50	100	99	78-109	1
Dibromochloromethane	ug/L (ppb)	50	121	119	63-140	2
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	104	102	82-118	2
Chlorobenzene	ug/L (ppb)	50	98	97	80-113	1
Ethylbenzene	ug/L (ppb)	50	99	99	83-111	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	127 vo	115	76-125	10
m,p-Xylene	ug/L (ppb)	100	99	98	84-112	1
o-Xylene	ug/L (ppb)	50	106	100	81-117	6
Styrene	ug/L (ppb)	50	95	96	83-121	1
Isopropylbenzene	ug/L (ppb)	50	111	104	81-122	7
Bromoform	ug/L (ppb)	50	120	117	40-161	3
n-Propylbenzene	ug/L (ppb)	50	117 vo	116 vo	81-115	1
Bromobenzene	ug/L (ppb)	50	110	111	80-113	1
1,3,5-Trimethylbenzene	ug/L (ppb)	50	118 vo	112	83-117	5
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	116	114	79-118	2
1,2,3-Trichloropropane	ug/L (ppb)	50	113	113	74-116	0
2-Chlorotoluene	ug/L (ppb)	50	114 vo	111	79-112	3
4-Chlorotoluene	ug/L (ppb)	50	105	107	80-116	2
tert-Butylbenzene	ug/L (ppb)	50	122 vo	115	81-119	6
1,2,4-Trimethylbenzene	ug/L (ppb)	50	116	112	81-121	4
sec-Butylbenzene	ug/L (ppb)	50	121	114	83-123	6
p-Isopropyltoluene	ug/L (ppb)	50	117	112	81-122	4
1,3-Dichlorobenzene	ug/L (ppb)	50	98	101	80-115	3
1,4-Dichlorobenzene	ug/L (ppb)	50	98	96	77-112	2
1,2-Dichlorobenzene	ug/L (ppb)	50	108	107	79-115	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	125	118	62-133	6
1,2,4-Trichlorobenzene	ug/L (ppb)	50	110	104	75-119	6
Hexachlorobutadiene	ug/L (ppb)	50	119 vo	114	70-116	4
Naphthalene	ug/L (ppb)	50	110	102	72-131	8
1,2,3-Trichlorobenzene	ug/L (ppb)	50	111	103	74-122	7

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

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

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

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

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

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

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

807282

SAMPLE CHAIN OF CUSTODY ME 7/16/18

VW1/C02

Page # _____ of _____

Report To [illegible]

Company [illegible] ENV. SERVICES

Address [illegible]

City, State, ZIP [illegible]

Phone [illegible] Email _____

SAMPLERS (*signature*)

PROJECT NAME: [illegible] 7TH + YESLER

PO #: [illegible] 1596

REMARKS

INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
[illegible]	01A-D	7-13-18	[illegible]	[illegible]	4		X	X	X	X							
									NO								
																	Samples received at 6 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [illegible]		[illegible]	7-16-18	1:30
Received by: [illegible]	Liza Radford	FBI	7/16/18	1:30
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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www.friedmanandbruya.com

November 7, 2017

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on November 1, 2017 from the 12th & Yesler PO WES 1591, F&BI 711027 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES1107R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 1, 2017 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th & Yesler PO WES 1591, F&BI 711027 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
711027 -01	MW-1-GW
711027 -02	MW-2-GW
711027 -03	MW-3-GW
711027 -04	MW-4-GW
711027 -05	MW-5-GW

Several compounds in the 8260C matrix spike, laboratory control sample, and laboratory control sample duplicate exceeded the acceptance criteria. The analytes were not detected in the sample, therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-1-GW	Client:	Whitman Environmental Sciences
Date Received:	11/01/17	Project:	12th & Yesler PO WES 1591
Date Extracted:	11/03/17	Lab ID:	711027-01
Date Analyzed:	11/03/17	Data File:	110338.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	103	60	133

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-2-GW	Client:	Whitman Environmental Sciences
Date Received:	11/01/17	Project:	12th & Yesler PO WES 1591
Date Extracted:	11/03/17	Lab ID:	711027-02
Date Analyzed:	11/03/17	Data File:	110339.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	100	60	133

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-3-GW	Client:	Whitman Environmental Sciences
Date Received:	11/01/17	Project:	12th & Yesler PO WES 1591
Date Extracted:	11/03/17	Lab ID:	711027-03
Date Analyzed:	11/03/17	Data File:	110340.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

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

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-4-GW	Client:	Whitman Environmental Sciences
Date Received:	11/01/17	Project:	12th & Yesler PO WES 1591
Date Extracted:	11/03/17	Lab ID:	711027-04
Date Analyzed:	11/03/17	Data File:	110341.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	98	60	133

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-5-GW	Client:	Whitman Environmental Sciences
Date Received:	11/01/17	Project:	12th & Yesler PO WES 1591
Date Extracted:	11/03/17	Lab ID:	711027-05
Date Analyzed:	11/03/17	Data File:	110342.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	1.4
Vinyl chloride	0.29	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	13 lc	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	10	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	9.1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th & Yesler PO WES 1591
Date Extracted:	11/02/17	Lab ID:	07-2433 mb2
Date Analyzed:	11/03/17	Data File:	110308.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

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

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

Date of Report: 11/07/17
Date Received: 11/01/17
Project: 12th & Yesler PO WES 1591, F&BI 711027

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

Laboratory Code: 711002-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	115	10-172
Chloromethane	ug/L (ppb)	50	<10	104	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	104	36-166
Bromomethane	ug/L (ppb)	50	<1	132	47-169
Chloroethane	ug/L (ppb)	50	<1	93	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	93	44-165
Acetone	ug/L (ppb)	250	37	102	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	93	60-136
Hexane	ug/L (ppb)	50	13	96 b	52-150
Methylene chloride	ug/L (ppb)	50	<5	112	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	148 vo	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	101	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	111	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	164 vo	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	105	71-127
Chloroform	ug/L (ppb)	50	2.5	104	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	114	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	106	69-133
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	141	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	101	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	126	56-152
Benzene	ug/L (ppb)	50	1.1	100	76-125
Trichloroethene	ug/L (ppb)	50	<1	100	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	112	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	110	61-150
Dibromomethane	ug/L (ppb)	50	<1	109	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	119	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	124	72-132
Toluene	ug/L (ppb)	50	18	102 b	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	126	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	104	68-131
2-Hexanone	ug/L (ppb)	250	<10	123	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	102	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	95	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	113	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	109	69-134
Chlorobenzene	ug/L (ppb)	50	<1	99	77-122
Ethylbenzene	ug/L (ppb)	50	12	102 b	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	123	73-137
m,p-Xylene	ug/L (ppb)	100	79	102 b	69-135
o-Xylene	ug/L (ppb)	50	100	100 b	60-140
Styrene	ug/L (ppb)	50	<1	105	71-133
Isopropylbenzene	ug/L (ppb)	50	2.9	104	65-142
Bromoform	ug/L (ppb)	50	<1	107	65-142
n-Propylbenzene	ug/L (ppb)	50	3.4	98	58-144
Bromobenzene	ug/L (ppb)	50	<1	94	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	7.8	96	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	107	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	101	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	109	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	100	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	97	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	50	92 b	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	96	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	96	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	94	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	93	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	96	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	127	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	101	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<1	99	60-143
Naphthalene	ug/L (ppb)	50	7.9	96	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	87	69-148

Date of Report: 11/07/17
Date Received: 11/01/17
Project: 12th & Yesler PO WES 1591, F&BI 711027

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	110	116	25-158	5
Chloromethane	ug/L (ppb)	50	103	106	45-156	3
Vinyl chloride	ug/L (ppb)	50	106	104	50-154	2
Bromomethane	ug/L (ppb)	50	130	127	55-143	2
Chloroethane	ug/L (ppb)	50	96	91	58-146	5
Trichlorofluoromethane	ug/L (ppb)	250	96	95	50-150	1
Acetone	ug/L (ppb)	250	106	105	53-131	1
1,1-Dichloroethene	ug/L (ppb)	50	98	97	67-136	1
Hexane	ug/L (ppb)	50	78	83	57-137	6
Methylene chloride	ug/L (ppb)	50	111	109	39-148	2
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	156 vo	155 vo	64-147	1
trans-1,2-Dichloroethene	ug/L (ppb)	50	102	101	68-128	1
1,1-Dichloroethane	ug/L (ppb)	50	113	111	79-121	2
2,2-Dichloropropane	ug/L (ppb)	50	118	114	55-143	3
cis-1,2-Dichloroethene	ug/L (ppb)	50	107	104	80-123	3
Chloroform	ug/L (ppb)	50	106	105	80-121	1
2-Butanone (MEK)	ug/L (ppb)	250	117	119	57-149	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	106	106	73-132	0
1,1,1-Trichloroethane	ug/L (ppb)	50	146 vo	145 vo	83-130	1
1,1-Dichloropropene	ug/L (ppb)	50	100	99	77-129	1
Carbon tetrachloride	ug/L (ppb)	50	132	132	75-158	0
Benzene	ug/L (ppb)	50	102	101	69-134	1
Trichloroethene	ug/L (ppb)	50	120	118	80-120	2
1,2-Dichloropropane	ug/L (ppb)	50	115	114	77-123	1
Bromodichloromethane	ug/L (ppb)	50	112	112	81-133	0
Dibromomethane	ug/L (ppb)	50	109	110	82-125	1
4-Methyl-2-pentanone	ug/L (ppb)	250	120	120	65-138	0
cis-1,3-Dichloropropene	ug/L (ppb)	50	121	121	82-132	0
Toluene	ug/L (ppb)	50	102	101	72-122	1
trans-1,3-Dichloropropene	ug/L (ppb)	50	126	126	80-136	0
1,1,2-Trichloroethane	ug/L (ppb)	50	105	105	75-124	0
2-Hexanone	ug/L (ppb)	250	127	128	60-136	1
1,3-Dichloropropane	ug/L (ppb)	50	104	105	76-126	1
Tetrachloroethene	ug/L (ppb)	50	95	95	76-121	0
Dibromochloromethane	ug/L (ppb)	50	118	118	84-133	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	113	114	82-125	1
Chlorobenzene	ug/L (ppb)	50	101	101	83-114	0
Ethylbenzene	ug/L (ppb)	50	102	101	77-124	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	128 vo	127	84-127	1
m,p-Xylene	ug/L (ppb)	100	102	101	83-125	1
o-Xylene	ug/L (ppb)	50	103	102	81-121	1
Styrene	ug/L (ppb)	50	103	102	84-119	1
Isopropylbenzene	ug/L (ppb)	50	104	102	85-117	2
Bromoform	ug/L (ppb)	50	114	115	74-136	1
n-Propylbenzene	ug/L (ppb)	50	100	99	74-126	1
Bromobenzene	ug/L (ppb)	50	98	97	80-121	1
1,3,5-Trimethylbenzene	ug/L (ppb)	50	102	100	78-123	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	84	84	66-126	0
1,2,3-Trichloropropane	ug/L (ppb)	50	105	105	67-124	0
2-Chlorotoluene	ug/L (ppb)	50	100	99	77-127	1
4-Chlorotoluene	ug/L (ppb)	50	101	100	78-128	1
tert-Butylbenzene	ug/L (ppb)	50	99	98	80-123	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	99	98	79-122	1
sec-Butylbenzene	ug/L (ppb)	50	98	97	80-125	1
p-Isopropyltoluene	ug/L (ppb)	50	97	96	81-123	1
1,3-Dichlorobenzene	ug/L (ppb)	50	97	96	85-116	1
1,4-Dichlorobenzene	ug/L (ppb)	50	94	94	84-121	0
1,2-Dichlorobenzene	ug/L (ppb)	50	99	98	85-116	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	131	131	57-141	0
1,2,4-Trichlorobenzene	ug/L (ppb)	50	102	102	72-130	0
Hexachlorobutadiene	ug/L (ppb)	50	99	98	53-141	1
Naphthalene	ug/L (ppb)	50	99	98	64-133	1
1,2,3-Trichlorobenzene	ug/L (ppb)	50	89	88	65-136	1

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.

711027

SAMPLE CHAIN OF CUSTODY

NE 11-01-17

VW2

Report To [illegible]

Company [illegible] ENV. SERVICES

Address 8812 16TH AVE SE

City, State, ZIP EVERETT, WA 98208

Phone 206-583-0505 Email

SAMPLERS (*signature*)

PROJECT NAME: 16TH / HOLLY

PO #: 1065 1591

REMARKS

INVOICE TO

Page # _____ of _____

TURNAROUND TIME
- ☐ Standard Turnaround
- ☐ RUSH BY MONDAY AM

Rush charges authorized by:

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
MW-1-GW	01A-C	10-30	PM	WATER	3					X							EXPECT LOW LEVEL VINYL CHLORIDE
MW-2-GW	02	〃	〃	〃	〃					X							
MW-3-GW	03	〃	〃	〃	〃					X							
MW-4-GW	04	〃	〃	〃	〃					X							
MW-5-GW	05	〃	〃	〃	〃					X							
TB																	
																	Samples received at 12 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		[illegible]	11/1/17	8:55
Received by:	DOUG	FBE	11-1-17	2:55 PM
Relinquished by:				
Received by:				

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

DRAFT

Groundwater Sample from SoundEarth Monitoring Well MW-10

Date of Report: 11/06/17
Date Received: 11/03/17
Project: SOU_1332-001_ 20171103, F&BI 711086
Date Extracted: 11/06/17
Date Analyzed: 11/06/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
SMW01-20171103 711086-01	<100	84
Method Blank 07-2452 MB	<100	91

DRAFT

Groundwater Sample from SoundEarth Monitoring Well MW-10

Date of Report: 11/06/17
Date Received: 11/03/17
Project: SOU_1332-001_ 20171103, F&BI 711086
Date Extracted: 11/06/17
Date Analyzed: 11/06/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 51-134)
SMW01-20171103 711086-01	69 x	<250	77
Method Blank 07-2483 MB	<50	<250	76

DRAFT Groundwater Sample from SoundEarth Monitoring Well MW-10

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SMW01-20171103	Client:	SoundEarth Strategies
Date Received:	11/03/17	Project:	SOU_1332-001_ 20171103
Date Extracted:	11/03/17	Lab ID:	711086-01
Date Analyzed:	11/03/17	Data File:	110344.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	97	60	133

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

(ND) ~~711086~~ 711086

SAMPLE CHAIN OF CUSTODY

MB 11/03/17

VW2/A02

Page # 1 of 1

Send Report to John F., Suzy S., Logan S.

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO. 1332-001

PO #

REMARKS 1-Day turnaround. results by EOB (spn) on 11/6/17

TURNAROUND TIME
Standard (2 Weeks)
(RUSH) 1-Day
Rush charges authorized by:

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

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270				Notes
								ANALYSES REQUESTED								
SMW01-20171103	SMW-01	12.5	01 A-I	11/3/17	1015	H_2O	9	X	X	X	X					
					LDS 11/3/17											

Samples received at 4 °C

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Logan Schumacher	SES	11/3/17	1455
Received by:		Nhan Phan	FEBI	11/3/17	1455
Relinquished by:					
Received by:					

Friedman & Bruya, Inc.
3012 16th Avenue West
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Fax (206) 283-5044

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

June 22, 2018

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on June 14, 2018 from the 12th and Yesler WES 1591, F&BI 806263 project. There are 16 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0622R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 14, 2018 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 806263 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
806263 -01	MW-1
806263 -02	MW-2
806263 -03	MW-3
806263 -04	MW-4
806263 -05	MW-5
806263 -06	MW-6
806263 -07	MW-7
806263 -08	MW-10

All quality control requirements were acceptable.

Date of Report: 06/22/18
Date Received: 06/14/18
Project: 12th and Yesler WES 1591, F&BI 806263
Date Extracted: 06/15/18
Date Analyzed: 06/15/18

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW-1 806263-01	<100	89
MW-2 806263-02	<100	85
MW-3 806263-03	<100	85
MW-4 806263-04	<100	87
MW-5 806263-05	<100	87
MW-6 806263-06	<100	89
MW-7 806263-07	<100	87
MW-10 806263-08	<100	87
Method Blank 08-1301 MB	<100	91

Date of Report: 06/22/18
Date Received: 06/14/18
Project: 12th and Yesler WES 1591, F&BI 806263
Date Extracted: 06/18/18
Date Analyzed: 06/18/18

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)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW-1 806263-01	<50	<250	87
MW-2 806263-02	<50	<250	85
MW-3 806263-03	210 x	<250	88
MW-4 806263-04	<50	<250	84
MW-5 806263-05	<50	<250	89
MW-6 806263-06	<50	<250	85
MW-7 806263-07	<50	<250	85
MW-10 806263-08	66 x	<250	92
Method Blank 08-1304 MB	<50	<250	87

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-1	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-01
Date Analyzed:	06/15/18	Data File:	061543.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	104	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.27	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-2	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-02
Date Analyzed:	06/15/18	Data File:	061544.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-3	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-03
Date Analyzed:	06/15/18	Data File:	061545.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-4	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-04
Date Analyzed:	06/16/18	Data File:	061546.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	103	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-5	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-05
Date Analyzed:	06/16/18	Data File:	061547.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	105	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	1.3
Vinyl chloride	0.25	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	8.3	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	5.0	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-6	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-06
Date Analyzed:	06/16/18	Data File:	061548.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	1.2
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	9.6	1,3,5-Trimethylbenzene	<1
Chloroform	1.1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-7	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-07
Date Analyzed:	06/16/18	Data File:	061549.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-10	Client:	Whitman Environmental Sciences
Date Received:	06/14/18	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	806263-08
Date Analyzed:	06/16/18	Data File:	061550.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	103	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	1.2	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591
Date Extracted:	06/15/18	Lab ID:	08-1306 mb
Date Analyzed:	06/15/18	Data File:	061529.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	105	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 06/22/18
Date Received: 06/14/18
Project: 12th and Yesler WES 1591, F&BI 806263

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

Laboratory Code: 806257-01 (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	93	70-119

Date of Report: 06/22/18
Date Received: 06/14/18
Project: 12th and Yesler WES 1591, F&BI 806263

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

Laboratory Code: 806286-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	290	120	110	50-150	9

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	84	81	63-142	4

Date of Report: 06/22/18
Date Received: 06/14/18
Project: 12th and Yesler WES 1591, F&BI 806263

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	109	110	25-158	1
Chloromethane	ug/L (ppb)	50	97	98	45-156	1
Vinyl chloride	ug/L (ppb)	50	101	102	50-154	1
Bromomethane	ug/L (ppb)	50	115	117	55-143	2
Chloroethane	ug/L (ppb)	50	82	83	58-146	1
Trichlorofluoromethane	ug/L (ppb)	250	95	99	50-150	4
Acetone	ug/L (ppb)	250	88	91	53-131	3
1,1-Dichloroethene	ug/L (ppb)	50	103	105	67-136	2
Hexane	ug/L (ppb)	50	97	101	57-137	4
Methylene chloride	ug/L (ppb)	50	102	105	39-148	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	102	104	64-147	2
trans-1,2-Dichloroethene	ug/L (ppb)	50	103	105	68-128	2
1,1-Dichloroethane	ug/L (ppb)	50	100	102	79-121	2
2,2-Dichloropropane	ug/L (ppb)	50	102	102	55-143	0
cis-1,2-Dichloroethene	ug/L (ppb)	50	100	102	80-123	2
Chloroform	ug/L (ppb)	50	98	100	80-121	2
2-Butanone (MEK)	ug/L (ppb)	250	89	93	57-149	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	93	97	73-132	4
1,1,1-Trichloroethane	ug/L (ppb)	50	99	101	83-130	2
1,1-Dichloropropene	ug/L (ppb)	50	99	101	77-129	2
Carbon tetrachloride	ug/L (ppb)	50	102	105	75-158	3
Benzene	ug/L (ppb)	50	97	100	69-134	3
Trichloroethene	ug/L (ppb)	50	95	98	80-120	3
1,2-Dichloropropane	ug/L (ppb)	50	101	105	77-123	4
Bromodichloromethane	ug/L (ppb)	50	102	107	81-133	5
Dibromomethane	ug/L (ppb)	50	98	100	82-125	2
4-Methyl-2-pentanone	ug/L (ppb)	250	100	106	65-138	6
cis-1,3-Dichloropropene	ug/L (ppb)	50	109	114	82-132	4
Toluene	ug/L (ppb)	50	99	103	72-122	4
trans-1,3-Dichloropropene	ug/L (ppb)	50	116	120	80-136	3
1,1,2-Trichloroethane	ug/L (ppb)	50	106	110	75-124	4
2-Hexanone	ug/L (ppb)	250	103	108	60-136	5
1,3-Dichloropropane	ug/L (ppb)	50	102	107	76-126	5
Tetrachloroethene	ug/L (ppb)	50	103	106	76-121	3
Dibromochloromethane	ug/L (ppb)	50	111	116	84-133	4
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	103	109	82-125	6
Chlorobenzene	ug/L (ppb)	50	100	104	83-114	4
Ethylbenzene	ug/L (ppb)	50	101	105	77-124	4
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	108	111	84-127	3
m,p-Xylene	ug/L (ppb)	100	101	104	83-125	3
o-Xylene	ug/L (ppb)	50	101	105	81-121	4
Styrene	ug/L (ppb)	50	103	107	84-119	4
Isopropylbenzene	ug/L (ppb)	50	102	105	85-117	3
Bromoform	ug/L (ppb)	50	117	123	74-136	5
n-Propylbenzene	ug/L (ppb)	50	105	109	74-126	4
Bromobenzene	ug/L (ppb)	50	103	108	80-121	5
1,3,5-Trimethylbenzene	ug/L (ppb)	50	105	109	78-123	4
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	105	109	66-126	4
1,2,3-Trichloropropane	ug/L (ppb)	50	101	105	67-124	4
2-Chlorotoluene	ug/L (ppb)	50	104	107	77-127	3
4-Chlorotoluene	ug/L (ppb)	50	103	107	78-128	4
tert-Butylbenzene	ug/L (ppb)	50	107	110	80-123	3
1,2,4-Trimethylbenzene	ug/L (ppb)	50	105	108	79-122	3
sec-Butylbenzene	ug/L (ppb)	50	104	108	80-125	4
p-Isopropyltoluene	ug/L (ppb)	50	104	108	81-123	4
1,3-Dichlorobenzene	ug/L (ppb)	50	100	104	85-116	4
1,4-Dichlorobenzene	ug/L (ppb)	50	97	101	84-121	4
1,2-Dichlorobenzene	ug/L (ppb)	50	100	103	85-116	3
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	109	111	57-141	2
1,2,4-Trichlorobenzene	ug/L (ppb)	50	101	104	72-130	3
Hexachlorobutadiene	ug/L (ppb)	50	99	101	53-141	2
Naphthalene	ug/L (ppb)	50	106	107	64-133	1
1,2,3-Trichlorobenzene	ug/L (ppb)	50	104	105	65-136	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

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

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

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

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

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
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July 10, 2018

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on June 29, 2018 from the 12th and Yesler WES-159, F&BI 806581 project. There are 11 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0710R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 29, 2018 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-159, F&BI 806581 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
806581 -01	MW-8-GW

All quality control requirements were acceptable.

Date of Report: 07/10/18
Date Received: 06/29/18
Project: 12th and Yesler WES-159, F&BI 806581
Date Extracted: 07/03/18
Date Analyzed: 07/03/18

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW-8-GW 806581-01 1/10	2,400	80
Method Blank 08-1390 MB	<100	84

Date of Report: 07/10/18
Date Received: 06/29/18
Project: 12th and Yesler WES-159, F&BI 806581
Date Extracted: 07/02/18
Date Analyzed: 07/02/18

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)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW-8-GW 806581-01	160 x	<250	89
Method Blank 08-1444 MB	<50	<250	82

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-8-GW	Client:	Whitman Environmental Sciences
Date Received:	06/29/18	Project:	12th and Yesler WES-159, F&BI 806581
Date Extracted:	06/29/18	Lab ID:	806581-01
Date Analyzed:	06/30/18	Data File:	062944.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	106	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	85
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	360 ve
Hexane	<1	o-Xylene	72
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	14
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	33
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	54
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	150
Benzene	2.9	sec-Butylbenzene	1.9
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	1.6
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-8-GW	Client:	Whitman Environmental Sciences
Date Received:	06/29/18	Project:	12th and Yesler WES-159, F&BI 806581
Date Extracted:	07/03/18	Lab ID:	806581-01 1/10
Date Analyzed:	07/03/18	Data File:	070328.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	108	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<10	1,3-Dichloropropane	<10
Chloromethane	<100	Tetrachloroethene	<10
Vinyl chloride	<2	Dibromochloromethane	<10
Bromomethane	<10	1,2-Dibromoethane (EDB)	<10
Chloroethane	<10	Chlorobenzene	<10
Trichlorofluoromethane	<10	Ethylbenzene	78
Acetone	<500	1,1,1,2-Tetrachloroethane	<10
1,1-Dichloroethene	<10	m,p-Xylene	320
Hexane	<10	o-Xylene	64
Methylene chloride	<50	Styrene	<10
Methyl t-butyl ether (MTBE)	<10	Isopropylbenzene	13
trans-1,2-Dichloroethene	<10	Bromoform	<10
1,1-Dichloroethane	<10	n-Propylbenzene	32
2,2-Dichloropropane	<10	Bromobenzene	<10
cis-1,2-Dichloroethene	<10	1,3,5-Trimethylbenzene	53
Chloroform	<10	1,1,2,2-Tetrachloroethane	<10
2-Butanone (MEK)	<100	1,2,3-Trichloropropane	<10
1,2-Dichloroethane (EDC)	<10	2-Chlorotoluene	<10
1,1,1-Trichloroethane	<10	4-Chlorotoluene	<10
1,1-Dichloropropene	<10	tert-Butylbenzene	<10
Carbon tetrachloride	<10	1,2,4-Trimethylbenzene	150
Benzene	<3.5	sec-Butylbenzene	<10
Trichloroethene	<10	p-Isopropyltoluene	<10
1,2-Dichloropropane	<10	1,3-Dichlorobenzene	<10
Bromodichloromethane	<10	1,4-Dichlorobenzene	<10
Dibromomethane	<10	1,2-Dichlorobenzene	<10
4-Methyl-2-pentanone	<100	1,2-Dibromo-3-chloropropane	<100
cis-1,3-Dichloropropene	<10	1,2,4-Trichlorobenzene	<10
Toluene	<10	Hexachlorobutadiene	<10
trans-1,3-Dichloropropene	<10	Naphthalene	<10
1,1,2-Trichloroethane	<10	1,2,3-Trichlorobenzene	<10
2-Hexanone	<100		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES-159, F&BI 806581
Date Extracted:	06/29/18	Lab ID:	08-1411 mb
Date Analyzed:	06/29/18	Data File:	062917.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	107	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 07/10/18
Date Received: 06/29/18
Project: 12th and Yesler WES-159, F&BI 806581

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

Laboratory Code: 806582-01 (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	96	69-134

Date of Report: 07/10/18
Date Received: 06/29/18
Project: 12th and Yesler WES-159, F&BI 806581

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	84	88	61-133	5

Date of Report: 07/10/18
Date Received: 06/29/18
Project: 12th and Yesler WES-159, F&BI 806581

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

Laboratory Code: 806557-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	122	10-172
Chloromethane	ug/L (ppb)	50	<10	103	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	112	36-166
Bromomethane	ug/L (ppb)	50	<1	132	47-169
Chloroethane	ug/L (ppb)	50	<1	90	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	83	44-165
Acetone	ug/L (ppb)	250	<50	84	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	98	60-136
Hexane	ug/L (ppb)	50	<1	111	52-150
Methylene chloride	ug/L (ppb)	50	<5	103	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	109	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	104	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	104	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	102	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	103	71-127
Chloroform	ug/L (ppb)	50	<1	100	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	95	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	101	69-133
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	97	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	105	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	105	56-152
Benzene	ug/L (ppb)	50	<0.35	103	76-125
Trichloroethene	ug/L (ppb)	50	<1	101	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	109	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	111	61-150
Dibromomethane	ug/L (ppb)	50	<1	105	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	108	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	118	72-132
Toluene	ug/L (ppb)	50	<1	102	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	120	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	109	68-131
2-Hexanone	ug/L (ppb)	250	<10	108	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	108	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	104	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	115	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	105	69-134
Chlorobenzene	ug/L (ppb)	50	<1	104	77-122
Ethylbenzene	ug/L (ppb)	50	<1	104	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	109	73-137
m,p-Xylene	ug/L (ppb)	100	<2	103	69-135
o-Xylene	ug/L (ppb)	50	<1	103	60-140
Styrene	ug/L (ppb)	50	<1	106	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	103	65-142
Bromoform	ug/L (ppb)	50	<1	117	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	108	58-144
Bromobenzene	ug/L (ppb)	50	<1	103	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	106	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	106	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	103	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	107	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	105	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	107	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	105	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	106	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	105	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	101	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	98	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	99	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	105	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	98	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<1	93	60-143
Naphthalene	ug/L (ppb)	50	<1	101	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	98	69-148

Date of Report: 07/10/18
Date Received: 06/29/18
Project: 12th and Yesler WES-159, F&BI 806581

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	121	119	25-158	2
Chloromethane	ug/L (ppb)	50	103	104	45-156	1
Vinyl chloride	ug/L (ppb)	50	110	109	50-154	1
Bromomethane	ug/L (ppb)	50	125	126	55-143	1
Chloroethane	ug/L (ppb)	50	88	87	58-146	1
Trichlorofluoromethane	ug/L (ppb)	250	97	81	50-150	18
Acetone	ug/L (ppb)	250	81	85	53-131	5
1,1-Dichloroethene	ug/L (ppb)	50	93	94	67-136	1
Hexane	ug/L (ppb)	50	112	113	57-137	1
Methylene chloride	ug/L (ppb)	50	101	104	39-148	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	110	107	64-147	3
trans-1,2-Dichloroethene	ug/L (ppb)	50	104	103	68-128	1
1,1-Dichloroethane	ug/L (ppb)	50	101	103	79-121	2
2,2-Dichloropropane	ug/L (ppb)	50	100	101	55-143	1
cis-1,2-Dichloroethene	ug/L (ppb)	50	103	102	80-123	1
Chloroform	ug/L (ppb)	50	100	100	80-121	0
2-Butanone (MEK)	ug/L (ppb)	250	98	97	57-149	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	100	100	73-132	0
1,1,1-Trichloroethane	ug/L (ppb)	50	95	96	83-130	1
1,1-Dichloropropene	ug/L (ppb)	50	105	105	77-129	0
Carbon tetrachloride	ug/L (ppb)	50	104	106	75-158	2
Benzene	ug/L (ppb)	50	104	104	69-134	0
Trichloroethene	ug/L (ppb)	50	100	101	80-120	1
1,2-Dichloropropane	ug/L (ppb)	50	108	109	77-123	1
Bromodichloromethane	ug/L (ppb)	50	111	110	81-133	1
Dibromomethane	ug/L (ppb)	50	104	103	82-125	1
4-Methyl-2-pentanone	ug/L (ppb)	250	109	111	65-138	2
cis-1,3-Dichloropropene	ug/L (ppb)	50	121	119	82-132	2
Toluene	ug/L (ppb)	50	103	103	72-122	0
trans-1,3-Dichloropropene	ug/L (ppb)	50	123	122	80-136	1
1,1,2-Trichloroethane	ug/L (ppb)	50	109	109	75-124	0
2-Hexanone	ug/L (ppb)	250	112	113	60-136	1
1,3-Dichloropropane	ug/L (ppb)	50	108	109	76-126	1
Tetrachloroethene	ug/L (ppb)	50	103	104	76-121	1
Dibromochloromethane	ug/L (ppb)	50	115	116	84-133	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	108	107	82-125	1
Chlorobenzene	ug/L (ppb)	50	103	103	83-114	0
Ethylbenzene	ug/L (ppb)	50	104	105	77-124	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	109	109	84-127	0
m,p-Xylene	ug/L (ppb)	100	103	104	83-125	1
o-Xylene	ug/L (ppb)	50	103	103	81-121	0
Styrene	ug/L (ppb)	50	105	106	84-119	1
Isopropylbenzene	ug/L (ppb)	50	102	103	85-117	1
Bromoform	ug/L (ppb)	50	122	119	74-136	2
n-Propylbenzene	ug/L (ppb)	50	108	108	74-126	0
Bromobenzene	ug/L (ppb)	50	103	104	80-121	1
1,3,5-Trimethylbenzene	ug/L (ppb)	50	106	107	78-123	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	107	108	66-126	1
1,2,3-Trichloropropane	ug/L (ppb)	50	105	104	67-124	1
2-Chlorotoluene	ug/L (ppb)	50	106	107	77-127	1
4-Chlorotoluene	ug/L (ppb)	50	106	106	78-128	0
tert-Butylbenzene	ug/L (ppb)	50	107	108	80-123	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	105	106	79-122	1
sec-Butylbenzene	ug/L (ppb)	50	105	106	80-125	1
p-Isopropyltoluene	ug/L (ppb)	50	104	105	81-123	1
1,3-Dichlorobenzene	ug/L (ppb)	50	100	101	85-116	1
1,4-Dichlorobenzene	ug/L (ppb)	50	98	98	84-121	0
1,2-Dichlorobenzene	ug/L (ppb)	50	99	99	85-116	0
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	108	107	57-141	1
1,2,4-Trichlorobenzene	ug/L (ppb)	50	96	97	72-130	1
Hexachlorobutadiene	ug/L (ppb)	50	92	93	53-141	1
Naphthalene	ug/L (ppb)	50	101	101	64-133	0
1,2,3-Trichlorobenzene	ug/L (ppb)	50	97	98	65-136	1

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.

806581

SAMPLE CHAIN OF CUSTODY ME 06-29-18

A03 / V1

Page # ____ of ____

Report To Tim Kellogg

Company Kellogg E.W. Surveys

Address 6812 16th Ave NE

City, State, ZIP Seattle, WA 98115

Phone ____ Email kellogg@mac.com

SAMPLERS (*signature*)

PROJECT NAME WES-1591

PO #

RH + YESLER

REMARKS

INVOICE TO

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH ____
- Rush charges authorized by: ____

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other ____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
MW-5-6.0	01A-D	6-28	2:50	WATER	4		X	X		X							
																	Samples received at 15 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		WES	6-29-18	2:00
Received by:	DAVID	F&BI	6-29-18	14:10
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

July 25, 2018

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on July 16, 2018 from the 12th and Yesler WES-1591, F&BI 807282 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0725R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 16, 2018 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 807282 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
807282 -01	MW-9-GW

Several compounds in the 8260C laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria. The affected analytes were flagged accordingly.

All other quality control requirements were acceptable.

Date of Report: 07/25/18
Date Received: 07/16/18
Project: 12th and Yesler WES-1591, F&BI 807282
Date Extracted: 07/19/18
Date Analyzed: 07/19/18

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW-9-GW 807282-01	470	83
Method Blank 08-1530 MB	<100	85

Date of Report: 07/25/18
Date Received: 07/16/18
Project: 12th and Yesler WES-1591, F&BI 807282
Date Extracted: 07/17/18
Date Analyzed: 07/17/18

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)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW-9-GW 807282-01	180 x	<250	78
Method Blank 08-1565 MB	<50	<250	80

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-9-GW	Client:	Whitman Environmental Sciences
Date Received:	07/16/18	Project:	12th and Yesler WES-1591, F&BI 807282
Date Extracted:	07/20/18	Lab ID:	807282-01
Date Analyzed:	07/20/18	Data File:	072032.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	62	142
Toluene-d8	104	55	145
4-Bromofluorobenzene	88	65	139

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	8.5
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	3.2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	12
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	23 jl
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	1.1
Benzene	5.0	sec-Butylbenzene	1.9
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES-1591, F&BI 807282
Date Extracted:	07/20/18	Lab ID:	08-1583 mb
Date Analyzed:	07/20/18	Data File:	072017.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	92	91	108
4-Bromofluorobenzene	97	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 07/25/18
Date Received: 07/16/18
Project: 12th and Yesler WES-1591, F&BI 807282

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

Laboratory Code: 807310-01 (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	81	70-119

Date of Report: 07/25/18
Date Received: 07/16/18
Project: 12th and Yesler WES-1591, F&BI 807282

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	72	63-142	5

Date of Report: 07/25/18
Date Received: 07/16/18
Project: 12th and Yesler WES-1591, F&BI 807282

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

Laboratory Code: 807371-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	126	55-137
Chloromethane	ug/L (ppb)	50	<10	114	61-120
Vinyl chloride	ug/L (ppb)	50	<0.2	113	61-139
Bromomethane	ug/L (ppb)	50	<1	115	20-265
Chloroethane	ug/L (ppb)	50	<1	108	55-149
Trichlorofluoromethane	ug/L (ppb)	50	<1	113	71-128
Acetone	ug/L (ppb)	250	<50	92	48-149
1,1-Dichloroethene	ug/L (ppb)	50	<1	112	71-123
Hexane	ug/L (ppb)	50	<1	101	44-139
Methylene chloride	ug/L (ppb)	50	<5	107	61-126
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	104	68-125
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	106	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<1	103	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<1	119	48-157
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	102	63-126
Chloroform	ug/L (ppb)	50	<1	97	77-117
2-Butanone (MEK)	ug/L (ppb)	250	<10	104	70-135
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	98	70-119
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	111	75-121
1,1-Dichloropropene	ug/L (ppb)	50	<1	107	67-121
Carbon tetrachloride	ug/L (ppb)	50	<1	118	70-132
Benzene	ug/L (ppb)	50	<0.35	102	75-114
Trichloroethene	ug/L (ppb)	50	<1	102	73-122
1,2-Dichloropropane	ug/L (ppb)	50	<1	103	80-111
Bromodichloromethane	ug/L (ppb)	50	<1	116	78-117
Dibromomethane	ug/L (ppb)	50	<1	99	73-125
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	108	79-140
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	112	76-120
Toluene	ug/L (ppb)	50	<1	101	73-117
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	120	75-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	101	81-116
2-Hexanone	ug/L (ppb)	250	<10	99	74-127
1,3-Dichloropropane	ug/L (ppb)	50	<1	106	80-113
Tetrachloroethene	ug/L (ppb)	50	<1	99	72-113
Dibromochloromethane	ug/L (ppb)	50	<1	120	69-129
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	103	79-120
Chlorobenzene	ug/L (ppb)	50	<1	99	75-115
Ethylbenzene	ug/L (ppb)	50	<1	100	66-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	117	76-130
m,p-Xylene	ug/L (ppb)	100	<2	99	63-128
o-Xylene	ug/L (ppb)	50	<1	99	64-129
Styrene	ug/L (ppb)	50	<1	97	56-142
Isopropylbenzene	ug/L (ppb)	50	<1	103	74-122
Bromoform	ug/L (ppb)	50	<1	120	49-138
n-Propylbenzene	ug/L (ppb)	50	<1	116	65-129
Bromobenzene	ug/L (ppb)	50	<1	111	70-121
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	111	60-138
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	116	79-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	113	62-125
2-Chlorotoluene	ug/L (ppb)	50	<1	111	40-159
4-Chlorotoluene	ug/L (ppb)	50	<1	106	76-122
tert-Butylbenzene	ug/L (ppb)	50	<1	114	74-125
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	111	59-136
sec-Butylbenzene	ug/L (ppb)	50	<1	113	69-127
p-Isopropyltoluene	ug/L (ppb)	50	<1	112	64-132
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	99	77-113
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	97	75-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	108	70-120
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	121	69-129
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	105	66-123
Hexachlorobutadiene	ug/L (ppb)	50	<1	114	53-136
Naphthalene	ug/L (ppb)	50	<1	102	60-145
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	102	59-130

Date of Report: 07/25/18
Date Received: 07/16/18
Project: 12th and Yesler WES-1591, F&BI 807282

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	148	126	50-157	16
Chloromethane	ug/L (ppb)	50	129	112	62-130	14
Vinyl chloride	ug/L (ppb)	50	131 vo	112	70-128	16
Bromomethane	ug/L (ppb)	50	130	112	62-188	15
Chloroethane	ug/L (ppb)	50	124	107	66-149	15
Trichlorofluoromethane	ug/L (ppb)	50	124	112	70-132	10
Acetone	ug/L (ppb)	250	110	88	44-145	22 vo
1,1-Dichloroethene	ug/L (ppb)	50	114	109	75-119	4
Hexane	ug/L (ppb)	50	98	101	51-153	3
Methylene chloride	ug/L (ppb)	50	114	107	63-132	6
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	106	103	70-122	3
trans-1,2-Dichloroethene	ug/L (ppb)	50	103	105	76-118	2
1,1-Dichloroethane	ug/L (ppb)	50	103	102	77-119	1
2,2-Dichloropropane	ug/L (ppb)	50	120	111	62-141	8
cis-1,2-Dichloroethene	ug/L (ppb)	50	102	100	76-119	2
Chloroform	ug/L (ppb)	50	98	96	78-117	2
2-Butanone (MEK)	ug/L (ppb)	250	110	100	49-147	10
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	96	97	78-114	1
1,1,1-Trichloroethane	ug/L (ppb)	50	117 vo	109	80-116	7
1,1-Dichloropropene	ug/L (ppb)	50	104	106	78-119	2
Carbon tetrachloride	ug/L (ppb)	50	127	118	72-128	7
Benzene	ug/L (ppb)	50	101	101	75-116	0
Trichloroethene	ug/L (ppb)	50	97	101	72-119	4
1,2-Dichloropropane	ug/L (ppb)	50	101	102	79-121	1
Bromodichloromethane	ug/L (ppb)	50	112	114	76-120	2
Dibromomethane	ug/L (ppb)	50	95	96	79-121	1
4-Methyl-2-pentanone	ug/L (ppb)	250	108	105	54-153	3
cis-1,3-Dichloropropene	ug/L (ppb)	50	102	108	76-128	6
Toluene	ug/L (ppb)	50	102	100	79-115	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	113	115	76-128	2
1,1,2-Trichloroethane	ug/L (ppb)	50	103	102	78-120	1
2-Hexanone	ug/L (ppb)	250	99	95	49-147	4
1,3-Dichloropropane	ug/L (ppb)	50	106	105	81-115	1
Tetrachloroethene	ug/L (ppb)	50	100	99	78-109	1
Dibromochloromethane	ug/L (ppb)	50	121	119	63-140	2
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	104	102	82-118	2
Chlorobenzene	ug/L (ppb)	50	98	97	80-113	1
Ethylbenzene	ug/L (ppb)	50	99	99	83-111	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	127 vo	115	76-125	10
m,p-Xylene	ug/L (ppb)	100	99	98	84-112	1
o-Xylene	ug/L (ppb)	50	106	100	81-117	6
Styrene	ug/L (ppb)	50	95	96	83-121	1
Isopropylbenzene	ug/L (ppb)	50	111	104	81-122	7
Bromoform	ug/L (ppb)	50	120	117	40-161	3
n-Propylbenzene	ug/L (ppb)	50	117 vo	116 vo	81-115	1
Bromobenzene	ug/L (ppb)	50	110	111	80-113	1
1,3,5-Trimethylbenzene	ug/L (ppb)	50	118 vo	112	83-117	5
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	116	114	79-118	2
1,2,3-Trichloropropane	ug/L (ppb)	50	113	113	74-116	0
2-Chlorotoluene	ug/L (ppb)	50	114 vo	111	79-112	3
4-Chlorotoluene	ug/L (ppb)	50	105	107	80-116	2
tert-Butylbenzene	ug/L (ppb)	50	122 vo	115	81-119	6
1,2,4-Trimethylbenzene	ug/L (ppb)	50	116	112	81-121	4
sec-Butylbenzene	ug/L (ppb)	50	121	114	83-123	6
p-Isopropyltoluene	ug/L (ppb)	50	117	112	81-122	4
1,3-Dichlorobenzene	ug/L (ppb)	50	98	101	80-115	3
1,4-Dichlorobenzene	ug/L (ppb)	50	98	96	77-112	2
1,2-Dichlorobenzene	ug/L (ppb)	50	108	107	79-115	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	125	118	62-133	6
1,2,4-Trichlorobenzene	ug/L (ppb)	50	110	104	75-119	6
Hexachlorobutadiene	ug/L (ppb)	50	119 vo	114	70-116	4
Naphthalene	ug/L (ppb)	50	110	102	72-131	8
1,2,3-Trichlorobenzene	ug/L (ppb)	50	111	103	74-122	7

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

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

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

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

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

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

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

807282

SAMPLE CHAIN OF CUSTODY ME 7/16/18

VW1/C02

Page # _____ of _____

Report To [illegible]

Company [illegible] ENV. SERVICES

Address [illegible]

City, State, ZIP [illegible]

Phone [illegible] Email _____

SAMPLERS (*signature*)

PROJECT NAME: [illegible] 7TH + YESLER

PO #: [illegible] 1596

REMARKS

INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
[illegible]	01A-D	7-13-18	[illegible]	[illegible]	4		X	X	X	X							
									NO								
																	Samples received at 6 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [illegible]		[illegible]	7-16-18	1:30
Received by: [illegible]	Liza Radford	FBI	7/16/18	1:30
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West
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fbi@isomedia.com
www.friedmanandbruya.com

September 17, 2018

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on September 7, 2018 from the 12th and Yesler WES 1591, F&BI 809118 project. There are 14 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0917R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 7, 2018 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 809118 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
809118 -01	B-7-14'
809118 -02	B-8-11.5'
809118 -03	B-8-15'
809118 -04	B-8-17.5'
809118 -05	B-9-7.5'
809118 -06	B-9-12.5'

Several 8260C compounds failed the acceptance criteria in the matrix spike, matrix spike duplicate, and the relative percent difference. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

All other quality control requirements were acceptable.

Date of Report: 09/17/18
Date Received: 09/07/18
Project: 12th and Yesler WES 1591, F&BI 809118
Date Extracted: 09/10/18
Date Analyzed: 09/10/18

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

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

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

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 48-168)
B-8-11.5' 809118-02	ND	ND	ND	103
B-8-15' 809118-03	ND	ND	ND	106
B-8-17.5' 809118-04	ND	ND	ND	100
B-9-12.5' 809118-06	ND	ND	ND	102
Method Blank 08-2032 MB	ND	ND	ND	106

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

Date of Report: 09/17/18
Date Received: 09/07/18
Project: 12th and Yesler WES 1591, F&BI 809118
Date Extracted: 09/10/18
Date Analyzed: 09/10/18

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)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
B-7-14' 809118-01	<5	84
B-9-7.5' 809118-05	<5	83
Method Blank 08-1954 MB	<5	75

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-7-14'	Client:	Whitman Environmental Sciences
Date Received:	09/07/18	Project:	12th and Yesler WES 1591
Date Extracted:	09/10/18	Lab ID:	809118-01
Date Analyzed:	09/10/18	Data File:	091039.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	85	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	99	50	150

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-8-11.5'	Client:	Whitman Environmental Sciences
Date Received:	09/07/18	Project:	12th and Yesler WES 1591
Date Extracted:	09/10/18	Lab ID:	809118-02
Date Analyzed:	09/10/18	Data File:	091040.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	85	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	99	50	150

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-8-15'	Client:	Whitman Environmental Sciences
Date Received:	09/07/18	Project:	12th and Yesler WES 1591
Date Extracted:	09/10/18	Lab ID:	809118-03
Date Analyzed:	09/10/18	Data File:	091041.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	85	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	0.10
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	0.43
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-8-17.5'	Client:	Whitman Environmental Sciences
Date Received:	09/07/18	Project:	12th and Yesler WES 1591
Date Extracted:	09/10/18	Lab ID:	809118-04
Date Analyzed:	09/10/18	Data File:	091019.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	99	50	150

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-9-7.5'	Client:	Whitman Environmental Sciences
Date Received:	09/07/18	Project:	12th and Yesler WES 1591
Date Extracted:	09/10/18	Lab ID:	809118-05
Date Analyzed:	09/10/18	Data File:	091042.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	84	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	99	50	150

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-9-12.5'	Client:	Whitman Environmental Sciences
Date Received:	09/07/18	Project:	12th and Yesler WES 1591
Date Extracted:	09/10/18	Lab ID:	809118-06
Date Analyzed:	09/10/18	Data File:	091043.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	88	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	99	50	150

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591
Date Extracted:	09/10/18	Lab ID:	08-1995 mb
Date Analyzed:	09/10/18	Data File:	091017.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	100	50	150

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

Date of Report: 09/17/18
Date Received: 09/07/18
Project: 12th and Yesler WES 1591, F&BI 809118

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

Laboratory Code: 809102-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	95	71-131

Date of Report: 09/17/18
Date Received: 09/07/18
Project: 12th and Yesler WES 1591, F&BI 809118

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

Laboratory Code: 809118-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	11	8 vo	10-56	32 vo
Chloromethane	mg/kg (ppm)	2.5	<0.5	28	22	10-90	24 vo
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	31	25	10-91	21 vo
Bromomethane	mg/kg (ppm)	2.5	<0.5	42	35	10-110	18
Chloroethane	mg/kg (ppm)	2.5	<0.5	42	35	10-101	18
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	42	34	10-95	21 vo
Acetone	mg/kg (ppm)	12.5	<0.5	68	63	11-141	8
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	52	44	22-107	17
Hexane	mg/kg (ppm)	2.5	<0.25	42	34	10-95	21 vo
Methylene chloride	mg/kg (ppm)	2.5	<0.5	66	56	14-128	16
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	66	59	17-134	11
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	62	54	13-112	14
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	69	60	23-115	14
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	84	74	18-117	13
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	72	63	25-120	13
Chloroform	mg/kg (ppm)	2.5	<0.05	72	63	29-117	13
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	68	62	20-133	9
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	72	65	22-124	10
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	70	61	27-112	14
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	68	59	26-107	14
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	72	61	28-126	17
Benzene	mg/kg (ppm)	2.5	<0.03	69	61	26-114	12
Trichloroethene	mg/kg (ppm)	2.5	<0.02	69	62	30-112	11
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	77	69	31-119	11
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	76	68	31-131	11
Dibromomethane	mg/kg (ppm)	2.5	<0.05	69	61	27-124	12
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	70	63	16-147	11
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	77	67	28-137	14
Toluene	mg/kg (ppm)	2.5	<0.05	78	69	34-112	12
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	76	67	30-136	13
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	75	66	32-126	13
2-Hexanone	mg/kg (ppm)	12.5	<0.5	67	60	17-147	11
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	74	67	29-125	10
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	76	66	25-114	14
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	77	67	32-143	14
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	69	62	32-126	11
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	77	68	37-113	12
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	78	69	34-115	12
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	84	74	35-126	13
m,p-Xylene	mg/kg (ppm)	5	<0.1	77	68	25-125	12
o-Xylene	mg/kg (ppm)	2.5	<0.05	79	70	27-126	12
Styrene	mg/kg (ppm)	2.5	<0.05	79	70	39-121	12
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	78	68	34-123	14
Bromoform	mg/kg (ppm)	2.5	<0.05	72	64	18-155	12
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	81	72	31-120	12
Bromobenzene	mg/kg (ppm)	2.5	<0.05	80	71	40-115	12
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	80	71	24-130	12
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	70	61	27-148	14
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	70	61	33-123	14
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	80	71	39-110	12
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	79	70	39-111	12
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	80	71	36-116	12
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	78	68	35-116	14
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	82	72	33-118	13
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	81	71	32-119	13
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	80	71	38-111	12
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	78	68	39-109	14
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	80	70	40-111	13
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	64	57	47-127	12
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	79	69	31-121	14
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	81	71	24-128	13
Naphthalene	mg/kg (ppm)	2.5	<0.05	65	57	24-139	13
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	77	67	35-117	14

Date of Report: 09/17/18
Date Received: 09/07/18
Project: 12th and Yesler WES 1591, F&BI 809118

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	29	10-76
Chloromethane	mg/kg (ppm)	2.5	45	34-98
Vinyl chloride	mg/kg (ppm)	2.5	53	42-107
Bromomethane	mg/kg (ppm)	2.5	63	46-113
Chloroethane	mg/kg (ppm)	2.5	64	47-115
Trichlorofluoromethane	mg/kg (ppm)	2.5	71	53-112
Acetone	mg/kg (ppm)	12.5	90	39-147
1,1-Dichloroethene	mg/kg (ppm)	2.5	80	65-110
Hexane	mg/kg (ppm)	2.5	76	55-107
Methylene chloride	mg/kg (ppm)	2.5	92	50-127
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	89	72-122
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	89	71-113
1,1-Dichloroethane	mg/kg (ppm)	2.5	94	74-109
2,2-Dichloropropane	mg/kg (ppm)	2.5	115	64-151
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	96	73-110
Chloroform	mg/kg (ppm)	2.5	95	76-110
2-Butanone (MEK)	mg/kg (ppm)	12.5	91	60-121
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	97	73-111
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	95	72-116
1,1-Dichloropropene	mg/kg (ppm)	2.5	93	72-112
Carbon tetrachloride	mg/kg (ppm)	2.5	98	67-123
Benzene	mg/kg (ppm)	2.5	93	72-106
Trichloroethene	mg/kg (ppm)	2.5	93	72-107
1,2-Dichloropropane	mg/kg (ppm)	2.5	101	74-115
Bromodichloromethane	mg/kg (ppm)	2.5	100	75-126
Dibromomethane	mg/kg (ppm)	2.5	91	76-116
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	93	80-128
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	101	71-138
Toluene	mg/kg (ppm)	2.5	102	74-111
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	98	77-135
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	96	77-116
2-Hexanone	mg/kg (ppm)	12.5	88	70-129
1,3-Dichloropropane	mg/kg (ppm)	2.5	98	75-115
Tetrachloroethene	mg/kg (ppm)	2.5	98	73-111
Dibromochloromethane	mg/kg (ppm)	2.5	100	64-152
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	92	77-117
Chlorobenzene	mg/kg (ppm)	2.5	99	76-109
Ethylbenzene	mg/kg (ppm)	2.5	100	75-112
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	107	76-125
m,p-Xylene	mg/kg (ppm)	5	99	77-115
o-Xylene	mg/kg (ppm)	2.5	101	76-115
Styrene	mg/kg (ppm)	2.5	101	76-119
Isopropylbenzene	mg/kg (ppm)	2.5	99	76-120
Bromoform	mg/kg (ppm)	2.5	96	50-174
n-Propylbenzene	mg/kg (ppm)	2.5	102	77-115
Bromobenzene	mg/kg (ppm)	2.5	102	76-112
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	101	77-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	90	74-121
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	87	74-116
2-Chlorotoluene	mg/kg (ppm)	2.5	101	75-113
4-Chlorotoluene	mg/kg (ppm)	2.5	99	77-115
tert-Butylbenzene	mg/kg (ppm)	2.5	100	77-123
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	99	77-119
sec-Butylbenzene	mg/kg (ppm)	2.5	102	78-120
p-Isopropyltoluene	mg/kg (ppm)	2.5	100	77-120
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	100	76-112
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	96	74-109
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	100	75-114
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	83	68-122
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	99	75-122
Hexachlorobutadiene	mg/kg (ppm)	2.5	101	74-130
Naphthalene	mg/kg (ppm)	2.5	86	73-122
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	97	75-117

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

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

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

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

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

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

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

809118

SAMPLE CHAIN OF CUSTODY

ME 09-07-18 B01 / VS2

Page # ____ of ____

Report To Phil Williams

Company GeoTech Env. Services

Address 6812 16th Avenue

City, State, ZIP Seattle, WA 98115

Phone 206.523.5001 Email ____

SAMPLERS (*signature*)

PROJECT NAME: 16th + Yeller

PO # WES 1591

REMARKS

INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
B-7-14'	01 A-D	9-7-18	AM	Soil	4			X		X							Follow up on HCID any elevations
B-8-11.5'	02 A-E	"	"	"	5	X											
B-8-15'	03				5	X											
B-8-17.5'	04				5	X											
B-9-7.5	05 A-D				4			X									
B-9-12.5	06 A-E				5	X											
																	Samples ~~received at~~ 17 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		WES	9-7-	3:53
Received by:	Nhan Phan	FEBT	9/7/18	3:53
Relinquished by:				
Received by:				

Samples received at ____ °C

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FRIEDMAN & BRUYA, INC.

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December 21, 2018

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on December 6, 2018 from the 12th and Yesler WES-1591, F&BI 812091 project. There are 22 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES1221R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on December 6, 2018 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 812091 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
812091 -01	MW-1
812091 -02	MW-5
812091 -03	B-7
812091 -04	B-8
812091 -05	B-9

Samples MW-1 and MW-5 were sent to Fremont Analytical for nitrate, sulfate, BOD, and COD analyses. The report is enclosed.

All quality control requirements were acceptable.

Date of Report: 12/21/18
Date Received: 12/06/18
Project: 12th and Yesler WES-1591, F&BI 812091
Date Extracted: 12/07/18
Date Analyzed: 12/07/18

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
B-7 812091-03	<100	77
B-8 812091-04	<100	82
B-9 812091-05	<100	78
Method Blank 08-2550 MB	<100	81

Date of Report: 12/21/18
Date Received: 12/06/18
Project: 12th and Yesler WES-1591, F&BI 812091
Date Extracted: 12/07/18
Date Analyzed: 12/07/18

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)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
B-7 812091-03	<50	<250	104
B-8 812091-04	210 x	<250	123
B-9 812091-05	76 x	<250	121
Method Blank 08-2740 MB2	<50	<250	109

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ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-1	Client:	Whitman Environmental Sciences
Date Received:	12/06/18	Project:	12th and Yesler WES-1591
Date Extracted:	12/12/18	Lab ID:	812091-01
Date Analyzed:	12/12/18	Data File:	812091-01.100
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	247
Manganese	539

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-5	Client:	Whitman Environmental Sciences
Date Received:	12/06/18	Project:	12th and Yesler WES-1591
Date Extracted:	12/12/18	Lab ID:	812091-02
Date Analyzed:	12/12/18	Data File:	812091-02.101
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	195
Manganese	478

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	NA	Project:	12th and Yesler WES-1591
Date Extracted:	12/12/18	Lab ID:	I8-854 mb
Date Analyzed:	12/12/18	Data File:	I8-854 mb.098
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	<50
Manganese	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-1	Client:	Whitman Environmental Sciences
Date Received:	12/06/18	Project:	12th and Yesler WES-1591
Date Extracted:	12/07/18	Lab ID:	812091-01
Date Analyzed:	12/10/18	Data File:	812091-01.073
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	562
Manganese	577

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-5	Client:	Whitman Environmental Sciences
Date Received:	12/06/18	Project:	12th and Yesler WES-1591
Date Extracted:	12/07/18	Lab ID:	812091-02
Date Analyzed:	12/11/18	Data File:	812091-02.169
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	283
Manganese	472

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	NA	Project:	12th and Yesler WES-1591
Date Extracted:	12/07/18	Lab ID:	I8-843 mb
Date Analyzed:	12/10/18	Data File:	I8-843 mb.075
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	<50
Manganese	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-1	Client:	Whitman Environmental Sciences
Date Received:	12/06/18	Project:	12th and Yesler WES-1591
Date Extracted:	12/07/18	Lab ID:	812091-01
Date Analyzed:	12/07/18	Data File:	120718.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-5	Client:	Whitman Environmental Sciences
Date Received:	12/06/18	Project:	12th and Yesler WES-1591
Date Extracted:	12/07/18	Lab ID:	812091-02
Date Analyzed:	12/07/18	Data File:	120726.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	2.1
Vinyl chloride	0.37	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	8.4	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	11	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-7	Client:	Whitman Environmental Sciences
Date Received:	12/06/18	Project:	12th and Yesler WES-1591
Date Extracted:	12/07/18	Lab ID:	812091-03
Date Analyzed:	12/07/18	Data File:	120727.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	1.1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-8	Client:	Whitman Environmental Sciences
Date Received:	12/06/18	Project:	12th and Yesler WES-1591
Date Extracted:	12/07/18	Lab ID:	812091-04
Date Analyzed:	12/07/18	Data File:	120728.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	1.1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	1.8
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-9	Client:	Whitman Environmental Sciences
Date Received:	12/06/18	Project:	12th and Yesler WES-1591
Date Extracted:	12/07/18	Lab ID:	812091-05
Date Analyzed:	12/07/18	Data File:	120729.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.36	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	2.4	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES-1591
Date Extracted:	12/07/18	Lab ID:	08-2713 mb
Date Analyzed:	12/07/18	Data File:	120710.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 12/21/18
Date Received: 12/06/18
Project: 12th and Yesler WES-1591, F&BI 812091

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

Laboratory Code: 812088-03 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	37,000	34,000	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	97	69-134

Date of Report: 12/21/18
Date Received: 12/06/18
Project: 12th and Yesler WES-1591, F&BI 812091

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	100	96	63-142	4

Date of Report: 12/21/18
Date Received: 12/06/18
Project: 12th and Yesler WES-1591, F&BI 812091

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 6020B

Laboratory Code: 812091-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Iron	ug/L (ppb)	100	195	114	102	75-125	11
Manganese	ug/L (ppb)	20	478	184 b	145 b	75-125	24 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Iron	ug/L (ppb)	100	104	80-120
Manganese	ug/L (ppb)	20	101	80-120

Date of Report: 12/21/18
Date Received: 12/06/18
Project: 12th and Yesler WES-1591, F&BI 812091

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 812093-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Iron	ug/L (ppb)	100	4,980	741 b	350 b	75-125	72 b
Manganese	ug/L (ppb)	20	4,690 ve	3200 b	1090 b	75-125	98 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Iron	ug/L (ppb)	100	100	80-120
Manganese	ug/L (ppb)	20	104	80-120

Date of Report: 12/21/18
Date Received: 12/06/18
Project: 12th and Yesler WES-1591, F&BI 812091

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

Laboratory Code: 812065-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	92	55-137
Chloromethane	ug/L (ppb)	50	<10	82	61-120
Vinyl chloride	ug/L (ppb)	50	<0.2	85	61-139
Bromomethane	ug/L (ppb)	50	<1	88	20-265
Chloroethane	ug/L (ppb)	50	<1	94	55-149
Trichlorofluoromethane	ug/L (ppb)	50	<1	90	71-128
Acetone	ug/L (ppb)	250	<50	83	48-149
1,1-Dichloroethene	ug/L (ppb)	50	<1	95	71-123
Hexane	ug/L (ppb)	50	<1	93	44-139
Methylene chloride	ug/L (ppb)	50	<5	84	61-126
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	95	68-125
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	93	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<1	89	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<1	92	48-157
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	89	63-126
Chloroform	ug/L (ppb)	50	<1	88	77-117
2-Butanone (MEK)	ug/L (ppb)	250	<10	88	70-135
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	87	70-119
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	85	75-121
1,1-Dichloropropene	ug/L (ppb)	50	<1	94	67-121
Carbon tetrachloride	ug/L (ppb)	50	<1	84	70-132
Benzene	ug/L (ppb)	50	3.4	89	75-114
Trichloroethene	ug/L (ppb)	50	<1	91	73-122
1,2-Dichloropropane	ug/L (ppb)	50	<1	96	80-111
Bromodichloromethane	ug/L (ppb)	50	<1	89	78-117
Dibromomethane	ug/L (ppb)	50	<1	87	73-125
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	107	79-140
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	94	76-120
Toluene	ug/L (ppb)	50	1.3	87	73-117
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	90	75-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	87	81-116
2-Hexanone	ug/L (ppb)	250	<10	92	74-127
1,3-Dichloropropane	ug/L (ppb)	50	<1	90	80-113
Tetrachloroethene	ug/L (ppb)	50	<1	90	72-113
Dibromochloromethane	ug/L (ppb)	50	<1	89	69-129
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	92	79-120
Chlorobenzene	ug/L (ppb)	50	<1	88	75-115
Ethylbenzene	ug/L (ppb)	50	30	90 b	66-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	85	76-130
m,p-Xylene	ug/L (ppb)	100	<2	92	63-128
o-Xylene	ug/L (ppb)	50	3.9	99	64-129
Styrene	ug/L (ppb)	50	<1	98	56-142
Isopropylbenzene	ug/L (ppb)	50	3.9	97	74-122
Bromoform	ug/L (ppb)	50	<1	88	49-138
n-Propylbenzene	ug/L (ppb)	50	<1	93	65-129
Bromobenzene	ug/L (ppb)	50	<1	92	70-121
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	97	60-138
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	91	79-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	87	62-125
2-Chlorotoluene	ug/L (ppb)	50	<1	92	40-159
4-Chlorotoluene	ug/L (ppb)	50	<1	90	76-122
tert-Butylbenzene	ug/L (ppb)	50	<1	99	74-125
1,2,4-Trimethylbenzene	ug/L (ppb)	50	1.4	95	59-136
sec-Butylbenzene	ug/L (ppb)	50	<1	96	69-127
p-Isopropyltoluene	ug/L (ppb)	50	<1	98	64-132
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	92	77-113
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	85	75-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	87	70-120
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	90	69-129
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	99	66-123
Hexachlorobutadiene	ug/L (ppb)	50	<1	93	53-136
Naphthalene	ug/L (ppb)	50	2.8	98	60-145
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	91	59-130

Date of Report: 12/21/18
Date Received: 12/06/18
Project: 12th and Yesler WES-1591, F&BI 812091

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	109	99	50-157	10
Chloromethane	ug/L (ppb)	50	95	84	62-130	12
Vinyl chloride	ug/L (ppb)	50	98	89	70-128	10
Bromomethane	ug/L (ppb)	50	103	92	62-188	11
Chloroethane	ug/L (ppb)	50	111	97	66-149	13
Trichlorofluoromethane	ug/L (ppb)	50	102	92	70-132	10
Acetone	ug/L (ppb)	250	86	86	44-145	0
1,1-Dichloroethene	ug/L (ppb)	50	104	95	75-119	9
Hexane	ug/L (ppb)	50	98	96	51-153	2
Methylene chloride	ug/L (ppb)	50	96	86	63-132	11
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	107	97	70-122	10
trans-1,2-Dichloroethene	ug/L (ppb)	50	105	95	76-118	10
1,1-Dichloroethane	ug/L (ppb)	50	99	90	77-119	10
2,2-Dichloropropane	ug/L (ppb)	50	113	97	62-141	15
cis-1,2-Dichloroethene	ug/L (ppb)	50	100	91	76-119	9
Chloroform	ug/L (ppb)	50	96	88	78-117	9
2-Butanone (MEK)	ug/L (ppb)	250	84	90	49-147	7
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	91	88	78-114	3
1,1,1-Trichloroethane	ug/L (ppb)	50	95	87	80-116	9
1,1-Dichloropropene	ug/L (ppb)	50	99	96	78-119	3
Carbon tetrachloride	ug/L (ppb)	50	93	87	72-128	7
Benzene	ug/L (ppb)	50	94	91	75-116	3
Trichloroethene	ug/L (ppb)	50	96	93	72-119	3
1,2-Dichloropropane	ug/L (ppb)	50	98	98	79-121	0
Bromodichloromethane	ug/L (ppb)	50	92	90	76-120	2
Dibromomethane	ug/L (ppb)	50	90	88	79-121	2
4-Methyl-2-pentanone	ug/L (ppb)	250	103	108	54-153	5
cis-1,3-Dichloropropene	ug/L (ppb)	50	95	98	76-128	3
Toluene	ug/L (ppb)	50	92	90	79-115	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	89	93	76-128	4
1,1,2-Trichloroethane	ug/L (ppb)	50	87	89	78-120	2
2-Hexanone	ug/L (ppb)	250	80	92	49-147	14
1,3-Dichloropropane	ug/L (ppb)	50	88	93	81-115	6
Tetrachloroethene	ug/L (ppb)	50	95	92	78-109	3
Dibromochloromethane	ug/L (ppb)	50	93	92	63-140	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	90	94	82-118	4
Chlorobenzene	ug/L (ppb)	50	92	90	80-113	2
Ethylbenzene	ug/L (ppb)	50	95	93	83-111	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	96	89	76-125	8
m,p-Xylene	ug/L (ppb)	100	97	95	84-112	2
o-Xylene	ug/L (ppb)	50	109	102	81-117	7
Styrene	ug/L (ppb)	50	100	99	83-121	1
Isopropylbenzene	ug/L (ppb)	50	106	99	81-122	7
Bromoform	ug/L (ppb)	50	91	91	40-161	0
n-Propylbenzene	ug/L (ppb)	50	98	96	81-115	2
Bromobenzene	ug/L (ppb)	50	94	94	80-113	0
1,3,5-Trimethylbenzene	ug/L (ppb)	50	106	100	83-117	6
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	91	91	79-118	0
1,2,3-Trichloropropane	ug/L (ppb)	50	86	87	74-116	1
2-Chlorotoluene	ug/L (ppb)	50	99	94	79-112	5
4-Chlorotoluene	ug/L (ppb)	50	93	92	80-116	1
tert-Butylbenzene	ug/L (ppb)	50	110	102	81-119	8
1,2,4-Trimethylbenzene	ug/L (ppb)	50	104	97	81-121	7
sec-Butylbenzene	ug/L (ppb)	50	106	99	83-123	7
p-Isopropyltoluene	ug/L (ppb)	50	108	101	81-122	7
1,3-Dichlorobenzene	ug/L (ppb)	50	97	94	80-115	3
1,4-Dichlorobenzene	ug/L (ppb)	50	90	87	77-112	3
1,2-Dichlorobenzene	ug/L (ppb)	50	96	90	79-115	6
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	95	89	62-133	7
1,2,4-Trichlorobenzene	ug/L (ppb)	50	111	99	75-119	11
Hexachlorobutadiene	ug/L (ppb)	50	104	94	70-116	10
Naphthalene	ug/L (ppb)	50	105	95	72-131	10
1,2,3-Trichlorobenzene	ug/L (ppb)	50	99	90	74-122	10

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: 812091
Work Order Number: 1812082

December 19, 2018

Attention Michael Erdahl:

Fremont Analytical, Inc. received 2 sample(s) on 12/7/2018 for the analyses presented in the following report.

Biochemical Oxygen Demand by SM 5210B
Chemical Oxygen Demand by SM 5220D
Ion Chromatography by EPA Method 300.0

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

Date: *12/20/2018*

CLIENT: Friedman & Bruya
Project: 812091
Work Order: 1812082

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1812082-001	MW-1	12/06/2018 11:15 AM	12/07/2018 9:45 AM
1812082-002	MW-5	12/06/2018 12:00 AM	12/07/2018 9:45 AM

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

Case Narrative

WO#: **1812082**
Date: **12/19/2018**

CLIENT: Friedman & Bruya
Project: 812091

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: **1812082**
Date Reported: **12/19/2018**

Client: Friedman & Bruya
Collection Date: 12/6/2018 11:15:00 AM
Project: 812091
Lab ID: 1812082-001
Matrix: Water
Client Sample ID: **MW-1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Biochemical Oxygen Demand by SM 5210B				Batch ID: R48262		Analyst: ME
Biochemical Oxygen Demand	ND	2.00	*	mg/L	1	12/7/2018 3:12:00 PM
NOTES:						
* - Flagged value is not within established control limits.						
Ion Chromatography by EPA Method 300.0				Batch ID: R48246		Analyst: TN
Nitrate (as N)	ND	0.100		mg/L	1	12/8/2018 2:05:00 AM
Sulfate	42.4	1.50	D	mg/L	5	12/18/2018 11:49:00 PM
Chemical Oxygen Demand by SM 5220D				Batch ID: R48359		Analyst: WF
Chemical Oxygen Demand	ND	10.0		mg/L	1	12/17/2018 5:10:12 PM

Analytical Report

Work Order: **1812082**
Date Reported: **12/19/2018**

Client: Friedman & Bruya
Collection Date: 12/6/2018
Project: 812091
Lab ID: 1812082-002
Matrix: Water
Client Sample ID: **MW-5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Biochemical Oxygen Demand by SM 5210B				Batch ID: R48262		Analyst: ME
Biochemical Oxygen Demand	ND	2.00	*	mg/L	1	12/7/2018 3:12:00 PM

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

Ion Chromatography by EPA Method 300.0				Batch ID: 22992		Analyst: TN
Nitrate (as N)	3.42	0.500	DH	mg/L	5	12/19/2018 12:12:00 AM
Nitrate (as N)	3.65	0.100	E	mg/L	1	12/8/2018 2:28:00 AM
Sulfate	63.7	1.50	D	mg/L	5	12/19/2018 12:12:00 AM

NOTES:
E - Estimated value. The amount exceeds the linear working range of the instrument.

Chemical Oxygen Demand by SM 5220D				Batch ID: R48359		Analyst: WF
Chemical Oxygen Demand	ND	10.0		mg/L	1	12/17/2018 5:10:12 PM

Work Order: 1812082
CLIENT: Friedman & Bruya
Project: 812091

QC SUMMARY REPORT

Biochemical Oxygen Demand by SM 5210B

Sample ID	**MB-48262**	SampType:	**MBLK**	Units:	**mg/L**	Prep Date:	**12/7/2018**	RunNo:	**48262**
Client ID:	**MBLKW**	Batch ID:	**R48262**			Analysis Date:	**12/7/2018**	SeqNo:	**943677**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	ND	2.00									

Sample ID	**LCS-48262**	SampType:	**LCS**	Units:	**mg/L**	Prep Date:	**12/7/2018**	RunNo:	**48262**
Client ID:	**LCSW**	Batch ID:	**R48262**			Analysis Date:	**12/7/2018**	SeqNo:	**943678**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	164	2.00	198.0	0	82.9	84.6	115.4				S

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

Sample ID	**1812082-001ADUP**	SampType:	**DUP**	Units:	**mg/L**	Prep Date:	**12/7/2018**	RunNo:	**48262**
Client ID:	**MW-1**	Batch ID:	**R48262**			Analysis Date:	**12/7/2018**	SeqNo:	**943680**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	ND	2.00						0		20	*

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

Work Order: 1812082
CLIENT: Friedman & Bruya
Project: 812091

QC SUMMARY REPORT

Chemical Oxygen Demand by SM 5220D

Sample ID **MB-R48359**	SampType: **MBLK**	Units: **mg/L**	Prep Date: **12/17/2018**	RunNo: **48359**
Client ID: **MBLKW**	Batch ID: **R48359**		Analysis Date: **12/17/2018**	SeqNo: **946449**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	10.0									

Sample ID **LCS-R48359**	SampType: **LCS**	Units: **mg/L**	Prep Date: **12/17/2018**	RunNo: **48359**
Client ID: **LCSW**	Batch ID: **R48359**		Analysis Date: **12/17/2018**	SeqNo: **946450**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	67.5	10.0	75.00	0	90.0	80	120				

Sample ID **1812082-001BDUP**	SampType: **DUP**	Units: **mg/L**	Prep Date: **12/17/2018**	RunNo: **48359**
Client ID: **MW-1**	Batch ID: **R48359**		Analysis Date: **12/17/2018**	SeqNo: **946452**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	10.0						0		30	

Sample ID **1812082-001BMS**	SampType: **MS**	Units: **mg/L**	Prep Date: **12/17/2018**	RunNo: **48359**
Client ID: **MW-1**	Batch ID: **R48359**		Analysis Date: **12/17/2018**	SeqNo: **946453**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	68.1	10.0	75.00	8.165	79.9	80	120				S

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

Sample ID **1812082-001BMSD**	SampType: **MSD**	Units: **mg/L**	Prep Date: **12/17/2018**	RunNo: **48359**
Client ID: **MW-1**	Batch ID: **R48359**		Analysis Date: **12/17/2018**	SeqNo: **946454**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	67.5	10.0	75.00	8.165	79.1	80	120	68.13	0.921	30	S

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

Work Order: 1812082
CLIENT: Friedman & Bruya
Project: 812091

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID	**MB-R48246**	SampType:	**MBLK**			Units:	**mg/L**	Prep Date:	**12/7/2018**	RunNo:	**48246**	
Client ID:	**MBLKW**	Batch ID:	**R48246**					Analysis Date:	**12/7/2018**	SeqNo:	**942942**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		ND	0.100									

Sample ID	**LCS-R48246**	SampType:	**LCS**			Units:	**mg/L**	Prep Date:	**12/7/2018**	RunNo:	**48246**	
Client ID:	**LCSW**	Batch ID:	**R48246**					Analysis Date:	**12/7/2018**	SeqNo:	**942943**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		0.724	0.100	0.7500	0	96.5	90	110				

Sample ID	**1812077-001ADUP**	SampType:	**DUP**			Units:	**mg/L**	Prep Date:	**12/8/2018**	RunNo:	**48246**	
Client ID:	**BATCH**	Batch ID:	**R48246**					Analysis Date:	**12/8/2018**	SeqNo:	**942958**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		0.111	0.100						0.1110	0	20	

Sample ID	**1812077-001AMS**	SampType:	**MS**			Units:	**mg/L**	Prep Date:	**12/8/2018**	RunNo:	**48246**	
Client ID:	**BATCH**	Batch ID:	**R48246**					Analysis Date:	**12/8/2018**	SeqNo:	**942959**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		0.802	0.100	0.7500	0.1110	92.1	80	120				

Sample ID	**1812077-001AMSD**	SampType:	**MSD**			Units:	**mg/L**	Prep Date:	**12/8/2018**	RunNo:	**48246**	
Client ID:	**BATCH**	Batch ID:	**R48246**					Analysis Date:	**12/8/2018**	SeqNo:	**942960**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		0.798	0.100	0.7500	0.1110	91.6	80	120	0.8020	0.500	20	

Work Order: 1812082
CLIENT: Friedman & Bruya
Project: 812091

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID	**MB-22992**	SampType:	**MBLK**			Units:	**mg/L**	Prep Date:	**12/18/2018**	RunNo:	**48398**	
Client ID:	**MBLKW**	Batch ID:	**22992**					Analysis Date:	**12/18/2018**	SeqNo:	**947599**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		ND	0.100									
Sulfate		ND	0.300									

Sample ID	**LCS-22992**	SampType:	**LCS**			Units:	**mg/L**	Prep Date:	**12/18/2018**	RunNo:	**48398**	
Client ID:	**LCSW**	Batch ID:	**22992**					Analysis Date:	**12/18/2018**	SeqNo:	**947600**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		0.727	0.100	0.7500	0	96.9	90	110				
Sulfate		3.45	0.300	3.750	0	92.1	90	110				

Sample ID	**1812065-003DDUP**	SampType:	**DUP**			Units:	**mg/L**	Prep Date:	**12/18/2018**	RunNo:	**48398**	
Client ID:	**BATCH**	Batch ID:	**22992**					Analysis Date:	**12/18/2018**	SeqNo:	**947605**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		0.324	0.100						0.3250	0.308	20	H
Sulfate		10.9	0.300						10.88	0.275	20	

Sample ID	**1812065-003DMS**	SampType:	**MS**			Units:	**mg/L**	Prep Date:	**12/18/2018**	RunNo:	**48398**	
Client ID:	**BATCH**	Batch ID:	**22992**					Analysis Date:	**12/18/2018**	SeqNo:	**947606**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		1.06	0.100	0.7500	0.3250	98.3	80	120				H
Sulfate		15.0	0.300	3.750	10.88	109	80	120				

Sample ID	**1812065-003DMSD**	SampType:	**MSD**			Units:	**mg/L**	Prep Date:	**12/18/2018**	RunNo:	**48398**	
Client ID:	**BATCH**	Batch ID:	**22992**					Analysis Date:	**12/18/2018**	SeqNo:	**947607**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		1.06	0.100	0.7500	0.3250	97.6	80	120	1.062	0.472	20	H

Work Order: 1812082
CLIENT: Friedman & Bruya
Project: 812091

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID	**1812065-003DMSD**	SampType: **MSD**			Units: **mg/L**		Prep Date: **12/18/2018**		RunNo: **48398**		
Client ID:	**BATCH**	Batch ID: **22992**					Analysis Date: **12/18/2018**		SeqNo: **947607**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	15.0	0.300	3.750	10.88	109	80	120	14.98	0	20	

Sample ID	**1812144-003DDUP**	SampType: **DUP**			Units: **mg/L**		Prep Date: **12/18/2018**		RunNo: **48398**		
Client ID:	**BATCH**	Batch ID: **22992**					Analysis Date: **12/19/2018**		SeqNo: **947623**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	ND	1.00						0		20	DH
Sulfate	47.8	3.00						49.16	2.85	20	D

Sample ID	**1812144-003DMS**	SampType: **MS**			Units: **mg/L**		Prep Date: **12/18/2018**		RunNo: **48398**		
Client ID:	**BATCH**	Batch ID: **22992**					Analysis Date: **12/19/2018**		SeqNo: **947624**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	7.72	1.00	7.500	0	103	80	120				DH
Sulfate	86.4	3.00	37.50	49.16	99.2	80	120				D

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**1812082**
Logged by:	**Brianna Barnes**	Date Received:	**12/7/2018 9:45:00 AM**

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 ☐
			H2SO4 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: _____ Date _____

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

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Sample time for 001 taken from bottles. No sample time on 002 bottles.

Item Information

Item #	Temp °C
Cooler 1	2.8
Cooler 2	2.6
Sample 1	6.0
Sample 2	4.1

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

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

1812092

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

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

SUBCONTRACTER Fremont

PROJECT NAME/NO. 912091

PO # A-639

REMARKS

Please Email Results

TURNAROUND TIME

☒ Standard (2 Weeks)

☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Total Organic Carbon	COD	BOD	Chloride	Sulfate	Nitrate Sulfide	BOD	COD			Notes
MW-1		12/6/16		water						X	X	X	X			
MW-5		↓		↓						X	X	X	X			

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

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	12/7/16	7:45
Received by:		Casey O'Keefe	FAI	12/7/16	945
Relinquished by:					
Received by:					

812091

SAMPLE CHAIN OF CUSTODY

ME 12/6/18

VW2/DOY/AT6

Report To [illegible]

Company [illegible]

Address [illegible]

City, State, ZIP [illegible]

Phone _____ Email _____

SAMPLERS (*signature*)

PROJECT NAME [illegible] 1591

PO #

REMARKS

INVOICE TO

Page # _____ of _____

TURNAROUND TIME

- ☐ Standard Turnaround
- ☐ RUSH _____

Rush charges authorized by: _____

SAMPLE DISPOSAL

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	Ultrafast	Mutagenicity	Acute Toxicity	BOD, COD	Notes
MW-1	01A-C	K-6	AM	Water						X			X	X	X	X	
MW-5	02	"	"	"						X			X	X	X	X	
B-7	03A-D				4		X	X		X						X	
B-8	04				4		X	X		X							
B-9	05				4		X	X		X							

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]		[illegible]	K-6-	3:51
Received by:	[signature]	HONG NGUYEN	FBA	"	"
Relinquished by:					
Received by:			Samples received at 5 °C		

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

March 6, 2019

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on February 26, 2019 from the 12th and Yesler WES 1591, F&BI 902389 project. There are 20 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0306R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 26, 2019 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 902389 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
902389 -01	MW-3-GW

All quality control requirements were acceptable.

Date of Report: 03/06/19
Date Received: 02/26/19
Project: 12th and Yesler WES 1591, F&BI 902389
Date Extracted: 02/27/19
Date Analyzed: 02/27/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW-3-GW 902389-01	<100	98
Method Blank 09-342 MB	<100	89

Date of Report: 03/06/19
Date Received: 02/26/19
Project: 12th and Yesler WES 1591, F&BI 902389
Date Extracted: 02/27/19
Date Analyzed: 02/27/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 51-134)
MW-3-GW 902389-01	400 x	<300	114
Method Blank 09-426 MB	<60	<300	109

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-3-GW	Client:	Whitman Environmental Sciences
Date Received:	02/26/19	Project:	12th and Yesler WES 1591
Date Extracted:	03/01/19	Lab ID:	902389-01
Date Analyzed:	03/01/19	Data File:	902389-01.079
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	5.35
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	NA	Project:	12th and Yesler WES 1591
Date Extracted:	03/01/19	Lab ID:	I9-136 mb
Date Analyzed:	03/04/19	Data File:	I9-136 mb.061
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-3-GW	Client:	Whitman Environmental Sciences
Date Received:	02/26/19	Project:	12th and Yesler WES 1591
Date Extracted:	02/28/19	Lab ID:	902389-01
Date Analyzed:	02/28/19	Data File:	022820.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591
Date Extracted:	02/28/19	Lab ID:	09-0307 mb
Date Analyzed:	02/28/19	Data File:	022807.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 03/06/19
Date Received: 02/26/19
Project: 12th and Yesler WES 1591, F&BI 902389

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

Laboratory Code: 902373-03 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	35,000 ve	35,000 ve	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	100	69-134

Date of Report: 03/06/19
Date Received: 02/26/19
Project: 12th and Yesler WES 1591, F&BI 902389

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)	3,000	88	97	58-134	10

Date of Report: 03/06/19
Date Received: 02/26/19
Project: 12th and Yesler WES 1591, F&BI 902389

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

Laboratory Code: 902394-01 (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	4.29	115	100	75-125	14
Lead	mg/kg (ppm)	50	3.49	100	96	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	97	80-120
Lead	mg/kg (ppm)	50	101	80-120

Date of Report: 03/06/19
Date Received: 02/26/19
Project: 12th and Yesler WES 1591, F&BI 902389

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 902435-01 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	47.3	101	90	75-125	12
Lead	ug/L (ppb)	10	<10	99	98	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	94	80-120
Lead	ug/L (ppb)	10	95	80-120

Date of Report: 03/06/19
Date Received: 02/26/19
Project: 12th and Yesler WES 1591, F&BI 902389

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	79	80	50-157	1
Chloromethane	ug/L (ppb)	50	77	79	62-130	3
Vinyl chloride	ug/L (ppb)	50	78	82	70-128	5
Bromomethane	ug/L (ppb)	50	76	78	62-188	3
Chloroethane	ug/L (ppb)	50	75	77	66-149	3
Trichlorofluoromethane	ug/L (ppb)	50	81	84	70-132	4
Acetone	ug/L (ppb)	250	91	91	44-145	0
1,1-Dichloroethene	ug/L (ppb)	50	82	85	75-119	4
Hexane	ug/L (ppb)	50	92	95	51-153	3
Methylene chloride	ug/L (ppb)	50	84	87	63-132	4
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	86	88	70-122	2
trans-1,2-Dichloroethene	ug/L (ppb)	50	83	86	76-118	4
1,1-Dichloroethane	ug/L (ppb)	50	87	89	77-119	2
2,2-Dichloropropane	ug/L (ppb)	50	77	81	62-141	5
cis-1,2-Dichloroethene	ug/L (ppb)	50	87	89	76-119	2
Chloroform	ug/L (ppb)	50	88	91	78-117	3
2-Butanone (MEK)	ug/L (ppb)	250	120	119	49-147	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	101	104	78-114	3
1,1,1-Trichloroethane	ug/L (ppb)	50	89	91	80-116	2
1,1-Dichloropropene	ug/L (ppb)	50	99	100	78-119	1
Carbon tetrachloride	ug/L (ppb)	50	88	92	72-128	4
Benzene	ug/L (ppb)	50	93	95	75-116	2
Trichloroethene	ug/L (ppb)	50	98	100	72-119	2
1,2-Dichloropropane	ug/L (ppb)	50	108	109	79-121	1
Bromodichloromethane	ug/L (ppb)	50	106	108	76-120	2
Dibromomethane	ug/L (ppb)	50	99	100	79-121	1
4-Methyl-2-pentanone	ug/L (ppb)	250	117	117	54-153	0
cis-1,3-Dichloropropene	ug/L (ppb)	50	116	118	76-128	2
Toluene	ug/L (ppb)	50	96	98	79-115	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	116	119	76-128	3
1,1,2-Trichloroethane	ug/L (ppb)	50	113	113	78-120	0
2-Hexanone	ug/L (ppb)	250	123	124	49-147	1
1,3-Dichloropropane	ug/L (ppb)	50	112	112	81-115	0
Tetrachloroethene	ug/L (ppb)	50	99	100	78-109	1
Dibromochloromethane	ug/L (ppb)	50	113	114	63-140	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	116	118	82-118	2
Chlorobenzene	ug/L (ppb)	50	101	102	80-113	1
Ethylbenzene	ug/L (ppb)	50	97	99	83-111	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	98	101	76-125	3
m,p-Xylene	ug/L (ppb)	100	98	100	84-112	2
o-Xylene	ug/L (ppb)	50	93	94	81-117	1
Styrene	ug/L (ppb)	50	104	107	83-121	3
Isopropylbenzene	ug/L (ppb)	50	95	97	81-122	2
Bromoform	ug/L (ppb)	50	113	116	40-161	3
n-Propylbenzene	ug/L (ppb)	50	99	102	81-115	3
Bromobenzene	ug/L (ppb)	50	105	111	80-113	6
1,3,5-Trimethylbenzene	ug/L (ppb)	50	98	102	83-117	4
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	112	115	79-118	3
1,2,3-Trichloropropane	ug/L (ppb)	50	107	111	74-116	4
2-Chlorotoluene	ug/L (ppb)	50	99	103	79-112	4
4-Chlorotoluene	ug/L (ppb)	50	104	107	80-116	3
tert-Butylbenzene	ug/L (ppb)	50	104	107	81-119	3
1,2,4-Trimethylbenzene	ug/L (ppb)	50	99	103	81-121	4
sec-Butylbenzene	ug/L (ppb)	50	101	105	83-123	4
p-Isopropyltoluene	ug/L (ppb)	50	100	104	81-122	4
1,3-Dichlorobenzene	ug/L (ppb)	50	101	104	80-115	3
1,4-Dichlorobenzene	ug/L (ppb)	50	98	102	77-112	4
1,2-Dichlorobenzene	ug/L (ppb)	50	97	100	79-115	3
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	99	103	62-133	4
1,2,4-Trichlorobenzene	ug/L (ppb)	50	87	91	75-119	4
Hexachlorobutadiene	ug/L (ppb)	50	85	89	70-116	5
Naphthalene	ug/L (ppb)	50	95	98	72-131	3
1,2,3-Trichlorobenzene	ug/L (ppb)	50	87	91	74-122	4

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 analyte 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 due to sample matrix effects.

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.

902389

SAMPLE CHAIN OF CUSTODY

ME 2/26/19

AI2 VOI

Page # _____ of _____

Report To [redacted]

Company [redacted]

Address [redacted]

City, State, ZIP [redacted]

Phone [redacted] Email _____

SAMPLERS (*signature*)

PROJECT NAME: RTH + FOSTER

PO # 1591

REMARKS

INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	TOTAL Metals				Notes
MW-3-6'	01 A-E	2-25	AM	WATER	5		X	X	X	X			X				
SP04-6'	02 A-E	"	"	"	5		X	X		X			X				
SP04-8.5'	03	"	"	SOIL	1							X	X				
																	Ice received at 21 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		[redacted]	2-26-19	3:18
Received by:	Nhan Phan	FCBI	2/20/19	3:18
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
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Arina Podnozova, B.S.
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April 9, 2019

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on April 4, 2019 from the 12th Yesler WES 1591, F&BI 904100 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0409R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 4, 2019 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th Yesler WES 1591, F&BI 904100 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
904100 -01	MW-3-GW

1,1-Dichloroethane in the 8260C matrix spike exceeded the acceptance criteria. The analyte was not detected in the sample, therefore the data were acceptable.

All other quality control requirements were acceptable.

Date of Report: 04/09/19
Date Received: 04/04/19
Project: 12th Yesler WES 1591, F&BI 904100
Date Extracted: 04/04/19
Date Analyzed: 04/04/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 51-134)
MW-3-GW 904100-01	420 x	<250	113
Method Blank 09-715 MB2	<50	<250	105

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-3-GW	Client:	Whitman Environmental Sciences
Date Received:	04/04/19	Project:	12th Yesler WES 1591, F&BI 904100
Date Extracted:	04/05/19	Lab ID:	904100-01
Date Analyzed:	04/06/19	Data File:	040553.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th Yesler WES 1591, F&BI 904100
Date Extracted:	04/05/19	Lab ID:	09-679 mb
Date Analyzed:	04/06/19	Data File:	040551.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 04/09/19
Date Received: 04/04/19
Project: 12th Yesler WES 1591, F&BI 904100

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	100	116	61-133	15

Date of Report: 04/09/19
Date Received: 04/04/19
Project: 12th Yesler WES 1591, F&BI 904100

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

Laboratory Code: 904054-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	71	55-137
Chloromethane	ug/L (ppb)	50	<10	89	61-120
Vinyl chloride	ug/L (ppb)	50	1.8	89	61-139
Bromomethane	ug/L (ppb)	50	<1	82	20-265
Chloroethane	ug/L (ppb)	50	<1	91	55-149
Trichlorofluoromethane	ug/L (ppb)	50	<1	95	71-128
Acetone	ug/L (ppb)	250	<50	96	48-149
1,1-Dichloroethene	ug/L (ppb)	50	<1	116	71-123
Hexane	ug/L (ppb)	50	<1	93	44-139
Methylene chloride	ug/L (ppb)	50	<5	104	61-126
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	98	68-125
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	111	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<1	114 vo	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<1	99	48-157
cis-1,2-Dichloroethene	ug/L (ppb)	50	33	107 b	63-126
Chloroform	ug/L (ppb)	50	<1	100	77-117
2-Butanone (MEK)	ug/L (ppb)	250	<10	102	70-135
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	98	70-119
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	111	75-121
1,1-Dichloropropene	ug/L (ppb)	50	<1	106	67-121
Carbon tetrachloride	ug/L (ppb)	50	<1	108	70-132
Benzene	ug/L (ppb)	50	<0.35	100	75-114
Trichloroethene	ug/L (ppb)	50	5.4	96	73-122
1,2-Dichloropropane	ug/L (ppb)	50	<1	102	80-111
Bromodichloromethane	ug/L (ppb)	50	<1	97	78-117
Dibromomethane	ug/L (ppb)	50	<1	97	73-125
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	106	79-140
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	101	76-120
Toluene	ug/L (ppb)	50	<1	97	73-117
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	104	75-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	103	81-116
2-Hexanone	ug/L (ppb)	250	<10	106	74-127
1,3-Dichloropropane	ug/L (ppb)	50	<1	101	80-113
Tetrachloroethene	ug/L (ppb)	50	7.9	89	72-113
Dibromochloromethane	ug/L (ppb)	50	<1	103	69-129
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	102	79-120
Chlorobenzene	ug/L (ppb)	50	<1	96	75-115
Ethylbenzene	ug/L (ppb)	50	<1	98	66-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	104	76-130
m,p-Xylene	ug/L (ppb)	100	<2	100	63-128
o-Xylene	ug/L (ppb)	50	<1	95	64-129
Styrene	ug/L (ppb)	50	<1	104	56-142
Isopropylbenzene	ug/L (ppb)	50	<1	103	74-122
Bromoform	ug/L (ppb)	50	<1	95	49-138
n-Propylbenzene	ug/L (ppb)	50	<1	98	65-129
Bromobenzene	ug/L (ppb)	50	<1	100	70-121
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	104	60-138
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	101	79-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	97	62-125
2-Chlorotoluene	ug/L (ppb)	50	<1	97	40-159
4-Chlorotoluene	ug/L (ppb)	50	<1	99	76-122
tert-Butylbenzene	ug/L (ppb)	50	<1	104	74-125
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	99	59-136
sec-Butylbenzene	ug/L (ppb)	50	<1	101	69-127
p-Isopropyltoluene	ug/L (ppb)	50	<1	101	64-132
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	98	77-113
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	96	75-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	99	70-120
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	106	69-129
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	95	66-123
Hexachlorobutadiene	ug/L (ppb)	50	<1	97	53-136
Naphthalene	ug/L (ppb)	50	<1	106	60-145
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	97	59-130

Date of Report: 04/09/19
Date Received: 04/04/19
Project: 12th Yesler WES 1591, F&BI 904100

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	95	96	50-157	1
Chloromethane	ug/L (ppb)	50	98	99	62-130	1
Vinyl chloride	ug/L (ppb)	50	95	96	70-128	1
Bromomethane	ug/L (ppb)	50	84	85	62-188	1
Chloroethane	ug/L (ppb)	50	95	94	66-149	1
Trichlorofluoromethane	ug/L (ppb)	50	100	100	70-132	0
Acetone	ug/L (ppb)	250	98	97	44-145	1
1,1-Dichloroethene	ug/L (ppb)	50	116	117	75-119	1
Hexane	ug/L (ppb)	50	95	96	51-153	1
Methylene chloride	ug/L (ppb)	50	103	103	63-132	0
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	100	100	70-122	0
trans-1,2-Dichloroethene	ug/L (ppb)	50	112	113	76-118	1
1,1-Dichloroethane	ug/L (ppb)	50	113	113	77-119	0
2,2-Dichloropropane	ug/L (ppb)	50	90	90	62-141	0
cis-1,2-Dichloroethene	ug/L (ppb)	50	103	103	76-119	0
Chloroform	ug/L (ppb)	50	100	101	78-117	1
2-Butanone (MEK)	ug/L (ppb)	250	108	110	49-147	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	100	102	78-114	2
1,1,1-Trichloroethane	ug/L (ppb)	50	111	112	80-116	1
1,1-Dichloropropene	ug/L (ppb)	50	107	107	78-119	0
Carbon tetrachloride	ug/L (ppb)	50	110	110	72-128	0
Benzene	ug/L (ppb)	50	102	103	75-116	1
Trichloroethene	ug/L (ppb)	50	100	101	72-119	1
1,2-Dichloropropane	ug/L (ppb)	50	105	107	79-121	2
Bromodichloromethane	ug/L (ppb)	50	100	102	76-120	2
Dibromomethane	ug/L (ppb)	50	102	103	79-121	1
4-Methyl-2-pentanone	ug/L (ppb)	250	111	111	54-153	0
cis-1,3-Dichloropropene	ug/L (ppb)	50	106	108	76-128	2
Toluene	ug/L (ppb)	50	99	101	79-115	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	109	111	76-128	2
1,1,2-Trichloroethane	ug/L (ppb)	50	107	110	78-120	3
2-Hexanone	ug/L (ppb)	250	111	114	49-147	3
1,3-Dichloropropane	ug/L (ppb)	50	107	110	81-115	3
Tetrachloroethene	ug/L (ppb)	50	97	98	78-109	1
Dibromochloromethane	ug/L (ppb)	50	107	109	63-140	2
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	107	110	82-118	3
Chlorobenzene	ug/L (ppb)	50	98	100	80-113	2
Ethylbenzene	ug/L (ppb)	50	98	100	83-111	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	102	105	76-125	3
m,p-Xylene	ug/L (ppb)	100	101	104	84-112	3
o-Xylene	ug/L (ppb)	50	95	96	81-117	1
Styrene	ug/L (ppb)	50	104	107	83-121	3
Isopropylbenzene	ug/L (ppb)	50	102	104	81-122	2
Bromoform	ug/L (ppb)	50	100	100	40-161	0
n-Propylbenzene	ug/L (ppb)	50	99	101	81-115	2
Bromobenzene	ug/L (ppb)	50	101	105	80-113	4
1,3,5-Trimethylbenzene	ug/L (ppb)	50	104	106	83-117	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	102	105	79-118	3
1,2,3-Trichloropropane	ug/L (ppb)	50	99	102	74-116	3
2-Chlorotoluene	ug/L (ppb)	50	98	100	79-112	2
4-Chlorotoluene	ug/L (ppb)	50	101	103	80-116	2
tert-Butylbenzene	ug/L (ppb)	50	106	108	81-119	2
1,2,4-Trimethylbenzene	ug/L (ppb)	50	99	101	81-121	2
sec-Butylbenzene	ug/L (ppb)	50	103	105	83-123	2
p-Isopropyltoluene	ug/L (ppb)	50	102	103	81-122	1
1,3-Dichlorobenzene	ug/L (ppb)	50	99	102	80-115	3
1,4-Dichlorobenzene	ug/L (ppb)	50	97	99	77-112	2
1,2-Dichlorobenzene	ug/L (ppb)	50	99	101	79-115	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	111	109	62-133	2
1,2,4-Trichlorobenzene	ug/L (ppb)	50	96	95	75-119	1
Hexachlorobutadiene	ug/L (ppb)	50	98	97	70-116	1
Naphthalene	ug/L (ppb)	50	104	106	72-131	2
1,2,3-Trichlorobenzene	ug/L (ppb)	50	96	99	74-122	3

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 analyte 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 due to sample matrix effects.

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.

904100

SAMPLE CHAIN OF CUSTODY

ME 04/04/19 UW1/B02

Page # _____ of _____

Report To [illegible]

Company [illegible] ENV. SCIENCES

Address 6840 16TH AVE NE

City, State, ZIP SEATTLE, WA 98115

Phone _____ Email [illegible]@YAHOO.COM

SAMPLERS (*signature*)

PROJECT NAME: 17TH / YESLER

PO # WES 1591

REMARKS

INVOICE TO

TURNAROUND TIME
- ☐ Standard Turnaround
- ☒ RUSH 24 HR PLEASE

Rush charges authorized by: _____

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM				Notes
MW-3-04	01A-C	4-3-19		WATER	4		X			X						
							X									NOT RUSH
																ON 2P(&) /
																FEKE.
												Samples received at 12 °C				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	[signature]	WES	4-4-19	10:55
Received by: [signature]	Nhan Phan	FBT	4/4/19	1055
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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July 29, 2019

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

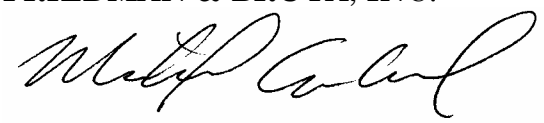
Dear Mr Whitman:

Included are the results from the testing of material submitted on July 22, 2019 from the 12th and Yesler WES 1591, F&BI 907382 project. There are 18 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0729R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 22, 2019 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 907382 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
907382 -01	MW-1-GW
907382 -02	MW-2-GW
907382 -03	MW-5-GW
907382 -04	GEO-B-7-GW
907382 -05	MW-10-GW

Dibromochloromethane in the 8260C 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.

Date of Report: 07/29/19
Date Received: 07/22/19
Project: 12th and Yesler WES 1591, F&BI 907382
Date Extracted: 07/23/19
Date Analyzed: 07/23/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW-1-GW 907382-01	<100	93
MW-2-GW 907382-02	<100	95
MW-5-GW 907382-03	<100	92
GEO-B-7-GW 907382-04	<100	96
MW-10-GW 907382-05	<100	94
Method Blank 09-1760 MB	<100	101

Date of Report: 07/29/19
Date Received: 07/22/19
Project: 12th and Yesler WES 1591, F&BI 907382
Date Extracted: 07/24/19
Date Analyzed: 07/24/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 51-134)
MW-1-GW 907382-01	<50	<250	75
MW-2-GW 907382-02	<50	<250	86
MW-5-GW 907382-03	<50	<250	80
GEO-B-7-GW 907382-04	<50	<250	88
MW-10-GW 907382-05	<50	<250	54
Method Blank 09-1784 MB	<50	<250	75

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-5-GW	Client:	Whitman Environmental Sciences
Date Received:	07/22/19	Project:	12th and Yesler WES 1591
Date Extracted:	07/23/19	Lab ID:	907382-03
Date Analyzed:	07/23/19	Data File:	907382-03.183
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-10-GW	Client:	Whitman Environmental Sciences
Date Received:	07/22/19	Project:	12th and Yesler WES 1591
Date Extracted:	07/23/19	Lab ID:	907382-05
Date Analyzed:	07/23/19	Data File:	907382-05.184
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	NA	Project:	12th and Yesler WES 1591
Date Extracted:	07/23/19	Lab ID:	I9-443 mb
Date Analyzed:	07/23/19	Data File:	I9-443 mb.129
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-1-GW	Client:	Whitman Environmental Sciences
Date Received:	07/22/19	Project:	12th and Yesler WES 1591
Date Extracted:	DateExtracted	Lab ID:	907382-01
Date Analyzed:	07/23/19	Data File:	072324.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.55	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	2.1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-2-GW	Client:	Whitman Environmental Sciences
Date Received:	07/22/19	Project:	12th and Yesler WES 1591
Date Extracted:	07/23/19	Lab ID:	907382-02
Date Analyzed:	07/23/19	Data File:	072325.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-5-GW	Client:	Whitman Environmental Sciences
Date Received:	07/22/19	Project:	12th and Yesler WES 1591
Date Extracted:	07/23/19	Lab ID:	907382-03
Date Analyzed:	07/23/19	Data File:	072326.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	1.1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	10	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	6.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GEO-B-7-GW	Client:	Whitman Environmental Sciences
Date Received:	07/22/19	Project:	12th and Yesler WES 1591
Date Extracted:	07/23/19	Lab ID:	907382-04
Date Analyzed:	07/23/19	Data File:	072327.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	3.0	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	2.3	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-10-GW	Client:	Whitman Environmental Sciences
Date Received:	07/22/19	Project:	12th and Yesler WES 1591
Date Extracted:	07/23/19	Lab ID:	907382-05
Date Analyzed:	07/23/19	Data File:	072328.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591
Date Extracted:	07/23/19	Lab ID:	09-1690 mb
Date Analyzed:	07/23/19	Data File:	072315.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	95	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 07/29/19
Date Received: 07/22/19
Project: 12th and Yesler WES 1591, F&BI 907382

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

Laboratory Code: 907385-01 (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	99	69-134

Date of Report: 07/29/19
Date Received: 07/22/19
Project: 12th and Yesler WES 1591, F&BI 907382

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	72	68	58-134	6

Date of Report: 07/29/19
Date Received: 07/22/19
Project: 12th and Yesler WES 1591, F&BI 907382

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 907372-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	98	99	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	100	80-120

Date of Report: 07/29/19
Date Received: 07/22/19
Project: 12th and Yesler WES 1591, F&BI 907382

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

Laboratory Code: 907380-16 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	117	10-172
Chloromethane	ug/L (ppb)	50	<10	100	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	110	36-166
Bromomethane	ug/L (ppb)	50	<1	104	47-169
Chloroethane	ug/L (ppb)	50	<1	102	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	110	44-165
Acetone	ug/L (ppb)	250	<50	56	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	101	60-136
Hexane	ug/L (ppb)	50	<1	94	52-150
Methylene chloride	ug/L (ppb)	50	<5	101	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	105	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	103	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	102	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	97	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	107	71-127
Chloroform	ug/L (ppb)	50	<1	103	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	79	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	102	48-149
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	105	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	103	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	103	56-152
Benzene	ug/L (ppb)	50	<0.35	102	76-125
Trichloroethene	ug/L (ppb)	50	<1	101	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	103	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	104	61-150
Dibromomethane	ug/L (ppb)	50	<1	108	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	110	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	106	72-132
Toluene	ug/L (ppb)	50	<1	95	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	102	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	105	68-131
2-Hexanone	ug/L (ppb)	250	<10	99	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	104	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	102	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	108	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	105	69-134
Chlorobenzene	ug/L (ppb)	50	<1	103	77-122
Ethylbenzene	ug/L (ppb)	50	<1	100	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	109	73-137
m,p-Xylene	ug/L (ppb)	100	<2	102	69-135
o-Xylene	ug/L (ppb)	50	<1	101	60-140
Styrene	ug/L (ppb)	50	<1	104	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	104	65-142
Bromoform	ug/L (ppb)	50	<1	108	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	102	58-144
Bromobenzene	ug/L (ppb)	50	<1	104	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	102	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	109	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	104	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	102	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	102	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	103	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	102	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	103	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	103	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	103	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	99	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	103	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	105	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	103	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<1	97	60-143
Naphthalene	ug/L (ppb)	50	<1	103	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	102	69-148

Date of Report: 07/29/19
Date Received: 07/22/19
Project: 12th and Yesler WES 1591, F&BI 907382

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	94	90	25-158	4
Chloromethane	ug/L (ppb)	50	104	100	45-156	4
Vinyl chloride	ug/L (ppb)	50	108	103	50-154	5
Bromomethane	ug/L (ppb)	50	124	119	55-143	4
Chloroethane	ug/L (ppb)	50	113	108	58-146	5
Trichlorofluoromethane	ug/L (ppb)	250	115	110	50-150	4
Acetone	ug/L (ppb)	250	64	63	53-131	2
1,1-Dichloroethene	ug/L (ppb)	50	112	106	67-136	6
Hexane	ug/L (ppb)	50	82	82	57-137	0
Methylene chloride	ug/L (ppb)	50	93	88	39-148	6
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	101	96	64-147	5
trans-1,2-Dichloroethene	ug/L (ppb)	50	104	100	68-128	4
1,1-Dichloroethane	ug/L (ppb)	50	102	99	79-121	3
2,2-Dichloropropane	ug/L (ppb)	50	105	98	55-143	7
cis-1,2-Dichloroethene	ug/L (ppb)	50	101	97	80-123	4
Chloroform	ug/L (ppb)	50	107	103	80-121	4
2-Butanone (MEK)	ug/L (ppb)	250	78	81	57-149	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	102	101	73-132	1
1,1,1-Trichloroethane	ug/L (ppb)	50	112	108	81-125	4
1,1-Dichloropropene	ug/L (ppb)	50	103	102	77-129	1
Carbon tetrachloride	ug/L (ppb)	50	120	116	75-158	3
Benzene	ug/L (ppb)	50	99	98	69-134	1
Trichloroethene	ug/L (ppb)	50	101	101	79-113	0
1,2-Dichloropropane	ug/L (ppb)	50	100	103	77-123	3
Bromodichloromethane	ug/L (ppb)	50	117	116	81-133	1
Dibromomethane	ug/L (ppb)	50	106	107	82-125	1
4-Methyl-2-pentanone	ug/L (ppb)	250	107	112	65-138	5
cis-1,3-Dichloropropene	ug/L (ppb)	50	111	115	82-132	4
Toluene	ug/L (ppb)	50	104	104	72-122	0
trans-1,3-Dichloropropene	ug/L (ppb)	50	117	121	80-136	3
1,1,2-Trichloroethane	ug/L (ppb)	50	102	104	75-124	2
2-Hexanone	ug/L (ppb)	250	95	103	60-136	8
1,3-Dichloropropane	ug/L (ppb)	50	103	107	76-126	4
Tetrachloroethene	ug/L (ppb)	50	103	101	76-121	2
Dibromochloromethane	ug/L (ppb)	50	136 vo	136 vo	84-133	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	107	110	82-115	3
Chlorobenzene	ug/L (ppb)	50	103	103	83-114	0
Ethylbenzene	ug/L (ppb)	50	103	104	77-124	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	127	121	84-127	5
m,p-Xylene	ug/L (ppb)	100	106	107	81-112	1
o-Xylene	ug/L (ppb)	50	106	104	81-121	2
Styrene	ug/L (ppb)	50	107	108	84-119	1
Isopropylbenzene	ug/L (ppb)	50	107	104	80-117	3
Bromoform	ug/L (ppb)	50	126	129	74-136	2
n-Propylbenzene	ug/L (ppb)	50	107	104	74-126	3
Bromobenzene	ug/L (ppb)	50	107	105	80-121	2
1,3,5-Trimethylbenzene	ug/L (ppb)	50	111	105	78-123	6
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	112	111	66-126	1
1,2,3-Trichloropropane	ug/L (ppb)	50	105	105	67-124	0
2-Chlorotoluene	ug/L (ppb)	50	106	102	77-127	4
4-Chlorotoluene	ug/L (ppb)	50	105	103	78-128	2
tert-Butylbenzene	ug/L (ppb)	50	110	105	80-123	5
1,2,4-Trimethylbenzene	ug/L (ppb)	50	108	104	79-122	4
sec-Butylbenzene	ug/L (ppb)	50	110	104	80-116	6
p-Isopropyltoluene	ug/L (ppb)	50	109	104	81-123	5
1,3-Dichlorobenzene	ug/L (ppb)	50	107	105	83-113	2
1,4-Dichlorobenzene	ug/L (ppb)	50	101	100	83-107	1
1,2-Dichlorobenzene	ug/L (ppb)	50	108	104	84-112	4
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	127	124	57-141	2
1,2,4-Trichlorobenzene	ug/L (ppb)	50	109	100	72-130	9
Hexachlorobutadiene	ug/L (ppb)	50	103	98	53-141	5
Naphthalene	ug/L (ppb)	50	113	105	64-133	7
1,2,3-Trichlorobenzene	ug/L (ppb)	50	110	101	65-136	9

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 analyte 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 due to sample matrix effects.

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

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

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

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

SAMPLE CHAIN OF CUSTODY

907382 ME 07-22-19 VW1/

Page # _____ of _____

Report To Tim Dittman

Company Whitman Env. Sciences

Address 6512 16th Ave NE

City, State, ZIP Seattle, WA 98115

Phone _____ Email whitmanes@yahoo.com

SAMPLERS (*signature*)

PROJECT NAME: 12th & Jessler

PO # DES 1591

REMARKS

INVOICE TO

TURNAROUND TIME AIZ

☒ Standard Turnaround B04

☐ RUSH _____

Rush charges authorized by: _____

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Archive Samples

☐ Other _____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	TOTAL Lead				Notes
MW-1-GW	01 A-D	7-22		water	4		X	X		X							
MW-2-GW	02	"		"	4		"	"		"							
~~MW-3~~ MW-5-GW	03 A-E	"		"	5		"	"		"			X				
GEO-B-7-GW	04 A-D	"		"	4		"	"		"							
MW-10-GW	05 A-E	"		"	5		"	"		"			X				

Samples received at 5 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		DES	7/22/19	1643
Received by:	Liz Webber-Bruya	FRIO	7/22/19	1643
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 1, 2019

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on July 24, 2019 from the 12th and Yesler, WES 1591, F&BI 907436 project. There are 37 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0801R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 24, 2019 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler, WES 1591, F&BI 907436 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
907436 -01	BN-12-GW
907436 -02	BN-14-GW
907436 -03	BN-15-GW
907436 -04	BN-16-GW
907436 -05	BN-17-GW
907436 -06	WES-15-GW
907436 -07	WES-14-GW
907436 -08	MW-3-GW
907436 -09	MW-4-GW
907436 -10	MW-6-GW
907436 -11	MW-7-GW
907436 -12	MW-8-GW
907436 -13	MW-9-GW
907436 -14	GEO B-8-GW
907436 -15	GEO B-9-GW

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

Dibromochloromethane in the 8260C 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.

Date of Report: 08/01/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907436
Date Extracted: 07/25/19
Date Analyzed: 07/25/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
BN-12-GW 907436-01	<100	94
BN-14-GW 907436-02	<100	94
BN-15-GW 907436-03	<100	95
BN-16-GW 907436-04	<100	93
BN-17-GW 907436-05	<100	92
WES-15-GW 907436-06	<100	93
WES-14-GW 907436-07	<100	88
MW-3-GW 907436-08	<100	90
MW-4-GW 907436-09	<100	88
MW-6-GW 907436-10	<100	88
MW-7-GW 907436-11	<100	88

Date of Report: 08/01/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907436
Date Extracted: 07/25/19
Date Analyzed: 07/25/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW-8-GW 907436-12	740	98
MW-9-GW 907436-13	500	81
GEO B-8-GW 907436-14	<100	86
GEO B-9-GW 907436-15	<100	84
Method Blank 09-1765 MB	<100	106

Date of Report: 08/01/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907436
Date Extracted: 07/25/19
Date Analyzed: 07/25/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
BN-12-GW 907436-01	200 x	<250	107
BN-14-GW 907436-02	230 x	<250	91
BN-15-GW 907436-03	<50	<250	102
BN-16-GW 907436-04	<50	<250	107
BN-17-GW 907436-05	170 x	260 x	100
WES-15-GW 907436-06	50 x	<250	97
WES-14-GW 907436-07	130 x	<250	98
MW-3-GW 907436-08	170 x	<250	96
MW-4-GW 907436-09	<50	<250	94
MW-6-GW 907436-10	<50	<250	88
MW-7-GW 907436-11	<50	<250	86

Date of Report: 08/01/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907436
Date Extracted: 07/25/19
Date Analyzed: 07/25/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW-8-GW 907436-12	64 x	<250	82
MW-9-GW 907436-13	210 x	<250	103
GEO B-8-GW 907436-14	140 x	<250	101
GEO B-9-GW 907436-15	59 x	<250	92
Method Blank 09-1793 MB	<50	<250	95

Analysis For Total Metals By EPA Method 6020B

Client ID:	BN-12-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907436-01
Date Analyzed:	07/25/19	Data File:	907436-01.039
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	BN-14-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907436-02
Date Analyzed:	07/25/19	Data File:	907436-02.040
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	BN-15-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907436-03
Date Analyzed:	07/25/19	Data File:	907436-03.041
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	BN-16-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907436-04
Date Analyzed:	07/25/19	Data File:	907436-04.042
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	BN-17-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907436-05
Date Analyzed:	07/25/19	Data File:	907436-05.045
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	13.8

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-3-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907436-08
Date Analyzed:	07/25/19	Data File:	907436-08.048
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-8-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907436-12
Date Analyzed:	07/25/19	Data File:	907436-12.049
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-9-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907436-13
Date Analyzed:	07/25/19	Data File:	907436-13.050
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	GEO B-8-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907436-14
Date Analyzed:	07/25/19	Data File:	907436-14.051
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	NA	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	I9-449 mb
Date Analyzed:	07/25/19	Data File:	I9-449 mb.037
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-12-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907436-01
Date Analyzed:	07/26/19	Data File:	072636.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-14-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907436-02
Date Analyzed:	07/26/19	Data File:	072637.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-15-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907436-03
Date Analyzed:	07/26/19	Data File:	072638.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-16-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907436-04
Date Analyzed:	07/26/19	Data File:	072639.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	3.9
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	1.5
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	4.8
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-17-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907436-05
Date Analyzed:	07/26/19	Data File:	072640.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-15-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907436-06
Date Analyzed:	07/26/19	Data File:	072641.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-14-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907436-07
Date Analyzed:	07/26/19	Data File:	072642.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-3-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907436-08
Date Analyzed:	07/26/19	Data File:	072643.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-4-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907436-09
Date Analyzed:	07/26/19	Data File:	072644.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-6-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907436-10
Date Analyzed:	07/26/19	Data File:	072645.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	17	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	1.7	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-7-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907436-11
Date Analyzed:	07/26/19	Data File:	072646.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-8-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907436-12
Date Analyzed:	07/26/19	Data File:	072647.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	10
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	81
Hexane	<1	o-Xylene	15
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	3.1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	8.1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	27
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	67
Benzene	<0.35	sec-Butylbenzene	1.0
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-9-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907436-13
Date Analyzed:	07/26/19	Data File:	072648.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	1.4	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	16
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	48
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	2.1	sec-Butylbenzene	3.9
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GEO B-8-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907436-14
Date Analyzed:	07/26/19	Data File:	072649.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GEO B-9-GW	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907436-15
Date Analyzed:	07/26/19	Data File:	072650.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	1.4	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	09-1699 mb
Date Analyzed:	07/26/19	Data File:	072612.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 08/01/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907436

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	100	83	69-134	19

Date of Report: 08/01/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907436

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	72	68	61-133	6

Date of Report: 08/01/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907436

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 907436-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	93	92	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	95	80-120

Date of Report: 08/01/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907436

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

Laboratory Code: 907466-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	78	55-137
Chloromethane	ug/L (ppb)	50	<10	97	57-129
Vinyl chloride	ug/L (ppb)	50	<0.2	95	61-139
Bromomethane	ug/L (ppb)	50	<1	97	20-265
Chloroethane	ug/L (ppb)	50	<1	99	55-149
Trichlorofluoromethane	ug/L (ppb)	50	<1	106	65-137
Acetone	ug/L (ppb)	250	<50	65	48-149
1,1-Dichloroethene	ug/L (ppb)	50	<1	109	71-123
Hexane	ug/L (ppb)	50	<1	76	44-139
Methylene chloride	ug/L (ppb)	50	<5	89	61-126
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	95	68-125
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	99	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<1	96	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<1	57	48-157
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	94	63-126
Chloroform	ug/L (ppb)	50	<1	101	77-117
2-Butanone (MEK)	ug/L (ppb)	250	<10	80	70-135
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	99	70-119
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	100	75-121
1,1-Dichloropropene	ug/L (ppb)	50	<1	99	67-121
Carbon tetrachloride	ug/L (ppb)	50	<1	107	70-132
Benzene	ug/L (ppb)	50	<0.35	96	75-114
Trichloroethene	ug/L (ppb)	50	<1	98	73-122
1,2-Dichloropropane	ug/L (ppb)	50	<1	100	80-111
Bromodichloromethane	ug/L (ppb)	50	<1	109	78-117
Dibromomethane	ug/L (ppb)	50	<1	103	73-125
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	110	79-140
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	101	76-120
Toluene	ug/L (ppb)	50	<1	100	73-117
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	105	75-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	103	81-116
2-Hexanone	ug/L (ppb)	250	<10	101	74-127
1,3-Dichloropropane	ug/L (ppb)	50	<1	105	80-113
Tetrachloroethene	ug/L (ppb)	50	<1	99	40-155
Dibromochloromethane	ug/L (ppb)	50	<1	124	69-129
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	107	79-120
Chlorobenzene	ug/L (ppb)	50	<1	101	75-115
Ethylbenzene	ug/L (ppb)	50	<1	101	66-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	114	76-130
m,p-Xylene	ug/L (ppb)	100	<2	104	63-128
o-Xylene	ug/L (ppb)	50	<1	101	64-129
Styrene	ug/L (ppb)	50	<1	105	56-142
Isopropylbenzene	ug/L (ppb)	50	<1	101	74-122
Bromoform	ug/L (ppb)	50	<1	112	49-138
n-Propylbenzene	ug/L (ppb)	50	<1	101	65-129
Bromobenzene	ug/L (ppb)	50	<1	102	70-121
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	103	60-138
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	108	77-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	102	62-125
2-Chlorotoluene	ug/L (ppb)	50	<1	100	40-159
4-Chlorotoluene	ug/L (ppb)	50	<1	101	76-122
tert-Butylbenzene	ug/L (ppb)	50	<1	102	74-125
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	101	59-136
sec-Butylbenzene	ug/L (ppb)	50	<1	101	69-127
p-Isopropyltoluene	ug/L (ppb)	50	<1	102	64-132
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	101	77-113
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	97	75-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	101	70-120
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	110	69-129
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	96	66-123
Hexachlorobutadiene	ug/L (ppb)	50	<1	92	53-136
Naphthalene	ug/L (ppb)	50	<1	101	60-145
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	99	59-130

Date of Report: 08/01/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907436

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	91	84	50-157	8
Chloromethane	ug/L (ppb)	50	103	96	62-130	7
Vinyl chloride	ug/L (ppb)	50	103	98	70-128	5
Bromomethane	ug/L (ppb)	50	118	112	60-143	5
Chloroethane	ug/L (ppb)	50	112	106	66-149	6
Trichlorofluoromethane	ug/L (ppb)	50	117	109	65-138	7
Acetone	ug/L (ppb)	250	57	58	44-145	2
1,1-Dichloroethene	ug/L (ppb)	50	117	108	72-121	8
Hexane	ug/L (ppb)	50	88	88	51-153	0
Methylene chloride	ug/L (ppb)	50	98	97	63-132	1
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	101	95	70-122	6
trans-1,2-Dichloroethene	ug/L (ppb)	50	106	100	76-118	6
1,1-Dichloroethane	ug/L (ppb)	50	102	97	77-119	5
2,2-Dichloropropane	ug/L (ppb)	50	109	104	62-141	5
cis-1,2-Dichloroethene	ug/L (ppb)	50	101	96	76-119	5
Chloroform	ug/L (ppb)	50	106	101	78-117	5
2-Butanone (MEK)	ug/L (ppb)	250	69	74	48-150	7
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	97	97	75-116	0
1,1,1-Trichloroethane	ug/L (ppb)	50	111	104	80-116	7
1,1-Dichloropropene	ug/L (ppb)	50	102	99	78-119	3
Carbon tetrachloride	ug/L (ppb)	50	117	111	72-128	5
Benzene	ug/L (ppb)	50	97	96	75-116	1
Trichloroethene	ug/L (ppb)	50	99	98	72-119	1
1,2-Dichloropropane	ug/L (ppb)	50	94	97	79-121	3
Bromodichloromethane	ug/L (ppb)	50	107	110	76-120	3
Dibromomethane	ug/L (ppb)	50	100	101	79-121	1
4-Methyl-2-pentanone	ug/L (ppb)	250	98	103	54-153	5
cis-1,3-Dichloropropene	ug/L (ppb)	50	99	108	76-128	9
Toluene	ug/L (ppb)	50	101	100	79-115	1
trans-1,3-Dichloropropene	ug/L (ppb)	50	104	112	76-128	7
1,1,2-Trichloroethane	ug/L (ppb)	50	96	99	78-120	3
2-Hexanone	ug/L (ppb)	250	84	93	49-147	10
1,3-Dichloropropane	ug/L (ppb)	50	96	100	81-111	4
Tetrachloroethene	ug/L (ppb)	50	100	100	78-109	0
Dibromochloromethane	ug/L (ppb)	50	125	127	63-140	2
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	99	103	82-118	4
Chlorobenzene	ug/L (ppb)	50	100	100	80-113	0
Ethylbenzene	ug/L (ppb)	50	102	100	83-111	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	125	118	76-125	6
m,p-Xylene	ug/L (ppb)	100	104	103	81-112	1
o-Xylene	ug/L (ppb)	50	106	102	81-117	4
Styrene	ug/L (ppb)	50	103	103	83-121	0
Isopropylbenzene	ug/L (ppb)	50	108	102	78-118	6
Bromoform	ug/L (ppb)	50	114	117	40-161	3
n-Propylbenzene	ug/L (ppb)	50	100	103	81-115	3
Bromobenzene	ug/L (ppb)	50	99	104	80-113	5
1,3,5-Trimethylbenzene	ug/L (ppb)	50	105	106	83-117	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	106	107	79-118	1
1,2,3-Trichloropropane	ug/L (ppb)	50	97	100	74-116	3
2-Chlorotoluene	ug/L (ppb)	50	100	102	79-112	2
4-Chlorotoluene	ug/L (ppb)	50	98	102	80-116	4
tert-Butylbenzene	ug/L (ppb)	50	104	107	81-119	3
1,2,4-Trimethylbenzene	ug/L (ppb)	50	103	105	81-121	2
sec-Butylbenzene	ug/L (ppb)	50	103	106	83-123	3
p-Isopropyltoluene	ug/L (ppb)	50	104	106	81-117	2
1,3-Dichlorobenzene	ug/L (ppb)	50	102	104	80-115	2
1,4-Dichlorobenzene	ug/L (ppb)	50	96	99	77-112	3
1,2-Dichlorobenzene	ug/L (ppb)	50	105	104	79-115	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	119	117	62-133	2
1,2,4-Trichlorobenzene	ug/L (ppb)	50	104	104	75-119	0
Hexachlorobutadiene	ug/L (ppb)	50	99	101	70-116	2
Naphthalene	ug/L (ppb)	50	107	106	72-131	1
1,2,3-Trichlorobenzene	ug/L (ppb)	50	105	105	74-122	0

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 analyte 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 due to sample matrix effects.

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.

907436

SAMPLE CHAIN OF CUSTODY

ME 07-24-19

BOS / AES / VW3

Page # 1 of 2

Send Report To Paul Whitman

Company Whitman Env. Services

Address 2812 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # 206-528-8585 Fax # Whitmanpe@ATT.net

Email Address

SAMPLERS *(signature)*

PROJECT NAME/NO. 12th + Yesler

PO # DES 1591

PROJECT ADDRESS

• ELECTRONIC DATA REQUESTED

TURNAROUND TIME
- X 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	PAHs					Notes
BW-12-GW	01A-E	7-23		WATER	5	X	X		X			X					
BW-14-GW	02				5	X	X		X			X					
BW-15-GW	03				5	X	X		X			X					
BW-16-GW	04				5	X	X		X			X					
BW-17-GW	05				5	X	X		X			X					
DES-15-MB-GW	06				5	X	X		X								
DES-14-GW	07				5	X	X		X								
MW-3-GW	08				5	X	X		X			X					
MW-4-GW	09				5	X	X		X								
MW-6-GW	10				5	X	X		X								

2nd DW 8/5/19 ME

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		DES	7-24-19	1:25
Received by:	James Broyles	F&B	7/24	1326
Relinquished by:				
Received by:				

Samples received at 6 °C

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

907436

SAMPLE CHAIN OF CUSTODY

ME 07-24-19

305/415/VW3

Page # 2 of 2

Send Report To Jim Whitman

Company Whitman Env. Services

Address 6812 16th Ave NE

City, State, ZIP Seattle, WA 98115

Phone # 206-522-8588 Fax # Whitmanes@Aol.com

Email Address

SAMPLERS *(signature)*

PROJECT NAME/NO. 12th + Yesler

PO # DES 1591

PROJECT ADDRESS

· ELECTRONIC DATA REQUESTED

TURNAROUND TIME
- Standard Turnaround
- RUSH

Rush charges authorized by:

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

Samples Received at ____ °C

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Notes
MW-7-GW	11 A-E	7-23		WATER	5	X	X		X			
MW-8-GW	12				5	X	X		X		X	
MW-9-GW	13				5	X	X		X		X	
GEO B-8-GW	14				5	X	X		X		X	
GEO B-9-GW	15				~~5~~ 4	X	X		X			

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

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:			DES	7/24/19	1:24
Received by:		James Bruya	F&B	9/24	1374
Relinquished by:					
Received by:					

Samples received at 6 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 2, 2019

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

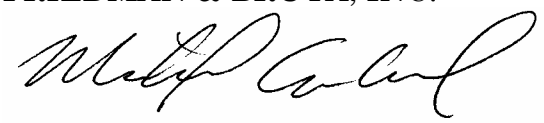
Dear Mr Whitman:

Included are the results from the testing of material submitted on July 24, 2019 from the 12th and Yesler, WES 1591, F&BI 907438 project. There are 34 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0802R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 24, 2019 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler, WES 1591, F&BI 907438 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
907438 -01	MW-1D-8'
907438 -02	MW-11-9'
907438 -03	MW-12-9'
907438 -04	MW-14-10'
907438 -05	MW-14-15'
907438 -06	BN-12-17'
907438 -07	BN-12-24'
907438 -08	BN-13-7'
907438 -09	BN-13-11'
907438 -10	BN-13-16'
907438 -11	BN-14-11'
907438 -12	BN-14-18'
907438 -13	BN-14-21'
907438 -14	BN-14-25'
907438 -15	BN-15-8'
907438 -16	BN-15-16'
907438 -17	BN-15-19'
907438 -18	BN-16-11'
907438 -19	BN-16-14'
907438 -20	BN-16-15'
907438 -21	BN-16-17'
907438 -22	BN-16-19'
907438 -23	BN-17-5'
907438 -24	BN-17-10'
907438 -25	BN-17-13'
907438 -26	WES-13-6'
907438 -27	WES-14-6'
907438 -28	WES-14-9.5'

The 8260C calibration standard failed the acceptance criteria for 2,2-dichloropropane. In addition, methylene chloride was detected in the samples BN-17-13', WES-13-6', and WES-14-9.5'. The data were flagged accordingly.

All other quality control requirements were acceptable.

Date of Report: 08/02/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907438
Date Extracted: 07/26/19
Date Analyzed: 07/26/19

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

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

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

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 56-165)
MW-1D-8' 907438-01	ND	ND	ND	95
MW-12-9' 907438-03	ND	ND	ND	95
BN-13-11' 907438-09	ND	ND	ND	93
Method Blank 09-1794 MB	ND	ND	ND	93

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

Date of Report: 08/02/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907438
Date Extracted: 07/25/19
Date Analyzed: 07/25/19 and 07/26/19

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

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

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 58-139)
MW-14-10' 907438-04	<5	90
BN-12-17' 907438-06	<5	95
BN-12-24' 907438-07	<5	92
BN-14-18' 907438-12	<5	90
BN-14-21' 907438-13	<5	92
WES-13-6' 907438-26	<5	93
WES-14-6' 907438-27	<5	93
WES-14-9.5' 907438-28	<5	91
Method Blank 09-1766 MB	<5	92

Date of Report: 08/02/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907438
Date Extracted: 07/25/19
Date Analyzed: 07/25/19 and 07/26/19

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

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

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
BN-15-8' 907438-15	<0.02	0.028	<0.02	<0.06	<5	89
BN-15-16' 907438-16	<0.02	<0.02	<0.02	<0.06	<5	88
BN-16-11' 907438-18	<0.02	0.078	0.039	1.7	46	93
BN-16-15' 907438-20 1/5	<0.02 j	0.41	<0.1	9.4	1,100	104
BN-16-17' 907438-21	<0.02	<0.02	<0.02	0.078	<5	86
Method Blank 09-1766 MB	<0.02	<0.02	<0.02	<0.06	<5	89

Date of Report: 08/02/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907438
Date Extracted: 07/26/19
Date Analyzed: 07/26/19

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

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

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
BN-14-11' 907438-11	<50	<250	83
BN-14-18' 907438-12	<50	<250	92
BN-14-21' 907438-13	<50	<250	94
BN-15-16' 907438-16	<50	<250	86
BN-16-14' 907438-19	<50	<250	87
BN-17-13' 907438-25	<50	<250	84
WES-13-6' 907438-26	<50	<250	82
WES-14-6' 907438-27	<50	<250	92
WES-14-9.5' 907438-28	<50	<250	95
Method Blank 09-1801 MB	<50	<250	87

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-14-10'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907438-04 and 907438-04 x5
Date Analyzed:	07/26/19	Data File:	907438-04.127 and 907438-04 x5.136
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	7.52
Cadmium	<1
Chromium	23.7
Lead	24.2
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	BN-13-7'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907438-08
Date Analyzed:	07/26/19	Data File:	907438-08.145
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.13
Cadmium	<1
Chromium	17.8
Lead	32.3
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	BN-13-11'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907438-09 and 907438-09 x5
Date Analyzed:	07/26/19	Data File:	907438-09.146 and 907438-09 x5.137
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.53
Cadmium	<1
Chromium	13.5
Lead	42.2
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	BN-13-16'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907438-10 and 907438-10 x5
Date Analyzed:	07/26/19	Data File:	907438-10.147 and 907438-10 x5.138
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	9.42
Cadmium	<1
Chromium	33.0
Lead	8.43
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	BN-14-11'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907438-11
Date Analyzed:	07/26/19	Data File:	907438-11.148
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.06
Cadmium	<1
Chromium	9.13
Lead	10.1
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	BN-16-14'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907438-19
Date Analyzed:	07/26/19	Data File:	907438-19.149
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	2.55

Analysis For Total Metals By EPA Method 6020B

Client ID:	BN-16-17'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907438-21
Date Analyzed:	07/26/19	Data File:	907438-21.150
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	1.42

Analysis For Total Metals By EPA Method 6020B

Client ID:	BN-17-5'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907438-23
Date Analyzed:	07/26/19	Data File:	907438-23.151
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.46
Cadmium	<1
Chromium	14.6
Lead	64.7
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	BN-17-10'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	907438-24 and 907438-24 x5
Date Analyzed:	07/26/19	Data File:	907438-24.161 and 907438-24 x5.146
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	13.0
Cadmium	1.37
Chromium	32.7
Lead	411
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	NA	Project:	12th and Yesler, WES 1591
Date Extracted:	07/26/19	Lab ID:	I9-451 mb
Date Analyzed:	07/26/19	Data File:	I9-451 mb.114
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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-1D-8'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907438-01
Date Analyzed:	07/25/19	Data File:	072536.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	93	107
Toluene-d8	103	87	110
4-Bromofluorobenzene	100	85	112

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-11-9'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907438-02
Date Analyzed:	07/25/19	Data File:	072537.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	93	107
Toluene-d8	102	87	110
4-Bromofluorobenzene	102	85	112

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-12-9'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907438-03
Date Analyzed:	07/25/19	Data File:	072538.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	93	107
Toluene-d8	103	87	110
4-Bromofluorobenzene	100	85	112

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-14-10'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907438-04
Date Analyzed:	07/25/19	Data File:	072539.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	93	107
Toluene-d8	103	87	110
4-Bromofluorobenzene	100	85	112

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-12-17'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907438-06
Date Analyzed:	07/25/19	Data File:	072540.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	93	107
Toluene-d8	102	87	110
4-Bromofluorobenzene	100	85	112

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-12-24'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907438-07
Date Analyzed:	07/25/19	Data File:	072541.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	93	107
Toluene-d8	101	87	110
4-Bromofluorobenzene	99	85	112

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-14-18'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907438-12
Date Analyzed:	07/25/19	Data File:	072542.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	93	107
Toluene-d8	102	87	110
4-Bromofluorobenzene	100	85	112

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-14-21'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907438-13
Date Analyzed:	07/25/19	Data File:	072543.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	93	107
Toluene-d8	98	87	110
4-Bromofluorobenzene	98	85	112

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BN-17-13'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907438-25
Date Analyzed:	07/25/19	Data File:	072544.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	93	107
Toluene-d8	99	87	110
4-Bromofluorobenzene	98	85	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	0.56 lc	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05 ca	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-13-6'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907438-26
Date Analyzed:	07/25/19	Data File:	072545.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	93	107
Toluene-d8	98	87	110
4-Bromofluorobenzene	97	85	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	2.4 lc	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05 ca	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-14-6'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907438-27
Date Analyzed:	07/25/19	Data File:	072546.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	93	107
Toluene-d8	98	87	110
4-Bromofluorobenzene	98	85	112

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-14-9.5'	Client:	Whitman Environmental Sciences
Date Received:	07/24/19	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	907438-28
Date Analyzed:	07/25/19	Data File:	072547.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	93	107
Toluene-d8	97	87	110
4-Bromofluorobenzene	95	85	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	0.64 lc	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05 ca	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler, WES 1591
Date Extracted:	07/25/19	Lab ID:	09-1695 mb
Date Analyzed:	07/25/19	Data File:	072512.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	93	107
Toluene-d8	98	87	110
4-Bromofluorobenzene	95	85	112

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

Date of Report: 08/02/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907438

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

Laboratory Code: 907438-15 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	0.020	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	73	66-121
Toluene	mg/kg (ppm)	0.5	81	72-128
Ethylbenzene	mg/kg (ppm)	0.5	82	69-132
Xylenes	mg/kg (ppm)	1.5	83	69-131
Gasoline	mg/kg (ppm)	20	105	61-153

Date of Report: 08/02/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907438

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

Laboratory Code: 907411-07 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	82	94	73-135	14

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	92	74-139

Date of Report: 08/02/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907438

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

Laboratory Code: 907428-01 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	5.60	97	98	75-125	1
Cadmium	mg/kg (ppm)	10	<5	97	93	75-125	4
Chromium	mg/kg (ppm)	50	16.1	87	84	75-125	4
Lead	mg/kg (ppm)	50	93.4	128 b	88 b	75-125	37 b
Mercury	mg/kg (ppm	5	<5	100	95	75-125	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	104	80-120
Cadmium	mg/kg (ppm)	10	99	80-120
Chromium	mg/kg (ppm)	50	100	80-120
Lead	mg/kg (ppm)	50	105	80-120
Mercury	mg/kg (ppm)	5	104	80-120

Date of Report: 08/02/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907438

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

Laboratory Code: 907438-12 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	14	12	10-56	15
Chloromethane	mg/kg (ppm)	2.5	<0.5	45	46	10-90	2
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	47	47	10-91	0
Bromomethane	mg/kg (ppm)	2.5	<0.5	72	69	10-110	4
Chloroethane	mg/kg (ppm)	2.5	<0.5	64	64	10-101	0
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	56	56	10-95	0
Acetone	mg/kg (ppm)	12.5	<0.5	96	99	11-141	3
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	72	72	22-107	0
Hexane	mg/kg (ppm)	2.5	<0.25	39	39	10-95	0
Methylene chloride	mg/kg (ppm)	2.5	<0.5	80	73	14-128	9
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	79	80	17-134	1
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	77	79	13-112	3
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	78	79	23-115	1
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	77	76	18-117	1
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	79	80	25-120	1
Chloroform	mg/kg (ppm)	2.5	<0.05	84	85	29-117	1
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	82	84	20-133	2
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	80	80	22-124	0
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	81	84	27-112	4
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	79	80	26-107	1
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	86	86	28-126	0
Benzene	mg/kg (ppm)	2.5	<0.03	79	80	26-114	1
Trichloroethene	mg/kg (ppm)	2.5	<0.02	83	83	30-112	0
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	82	82	31-119	0
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	91	91	31-131	0
Dibromomethane	mg/kg (ppm)	2.5	<0.05	85	86	27-124	1
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	89	90	16-147	1
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	91	90	28-137	1
Toluene	mg/kg (ppm)	2.5	<0.05	86	87	34-112	1
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	94	95	30-136	1
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	88	87	32-126	1
2-Hexanone	mg/kg (ppm)	12.5	<0.5	87	88	17-147	1
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	89	88	29-125	1
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	86	88	25-114	2
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	105	106	32-143	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	90	89	32-126	1
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	87	89	37-113	2
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	88	88	34-115	0
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	98	99	35-126	1
m,p-Xylene	mg/kg (ppm)	5	<0.1	90	91	25-125	1
o-Xylene	mg/kg (ppm)	2.5	<0.05	88	90	27-126	2
Styrene	mg/kg (ppm)	2.5	<0.05	90	92	39-121	2
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	90	91	34-123	1
Bromoform	mg/kg (ppm)	2.5	<0.05	100	102	18-155	2
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	90	91	31-120	1
Bromobenzene	mg/kg (ppm)	2.5	<0.05	91	91	40-115	0
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	92	94	24-130	2
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	95	95	27-148	0
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	89	89	33-123	0
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	88	90	39-110	2
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	89	89	39-111	0
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	93	94	36-116	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	91	93	35-116	2
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	94	95	33-118	1
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	93	94	32-119	1
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	92	93	38-111	1
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	87	88	39-109	1
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	91	92	40-111	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	96	95	44-112	1
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	92	95	31-121	3
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	93	94	24-128	1
Naphthalene	mg/kg (ppm)	2.5	<0.05	92	92	24-139	0
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	93	96	35-117	3

Date of Report: 08/02/19
Date Received: 07/24/19
Project: 12th and Yesler, WES 1591, F&BI 907438

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	53	10-76
Chloromethane	mg/kg (ppm)	2.5	77	34-98
Vinyl chloride	mg/kg (ppm)	2.5	87	42-107
Bromomethane	mg/kg (ppm)	2.5	110	46-113
Chloroethane	mg/kg (ppm)	2.5	103	47-115
Trichlorofluoromethane	mg/kg (ppm)	2.5	102	53-112
Acetone	mg/kg (ppm)	12.5	123	39-147
1,1-Dichloroethene	mg/kg (ppm)	2.5	103	65-110
Hexane	mg/kg (ppm)	2.5	77	55-107
Methylene chloride	mg/kg (ppm)	2.5	95	50-127
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	96	72-122
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	99	71-113
1,1-Dichloroethane	mg/kg (ppm)	2.5	97	74-109
2,2-Dichloropropane	mg/kg (ppm)	2.5	108	63-145
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	98	73-110
Chloroform	mg/kg (ppm)	2.5	103	76-110
2-Butanone (MEK)	mg/kg (ppm)	12.5	93	60-121
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	94	73-111
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	108	72-116
1,1-Dichloropropene	mg/kg (ppm)	2.5	97	72-112
Carbon tetrachloride	mg/kg (ppm)	2.5	111	67-123
Benzene	mg/kg (ppm)	2.5	93	72-106
Trichloroethene	mg/kg (ppm)	2.5	96	72-107
1,2-Dichloropropane	mg/kg (ppm)	2.5	92	74-115
Bromodichloromethane	mg/kg (ppm)	2.5	105	75-126
Dibromomethane	mg/kg (ppm)	2.5	98	76-116
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	96	80-128
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	98	71-138
Toluene	mg/kg (ppm)	2.5	100	74-111
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	104	73-124
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	95	76-118
2-Hexanone	mg/kg (ppm)	12.5	91	67-123
1,3-Dichloropropane	mg/kg (ppm)	2.5	96	75-118
Tetrachloroethene	mg/kg (ppm)	2.5	99	73-111
Dibromochloromethane	mg/kg (ppm)	2.5	123	64-152
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	99	77-117
Chlorobenzene	mg/kg (ppm)	2.5	99	76-109
Ethylbenzene	mg/kg (ppm)	2.5	101	75-112
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	121	75-129
m,p-Xylene	mg/kg (ppm)	5	103	77-115
o-Xylene	mg/kg (ppm)	2.5	105	76-115
Styrene	mg/kg (ppm)	2.5	101	76-119
Isopropylbenzene	mg/kg (ppm)	2.5	106	76-120
Bromoform	mg/kg (ppm)	2.5	122	50-174
n-Propylbenzene	mg/kg (ppm)	2.5	101	77-115
Bromobenzene	mg/kg (ppm)	2.5	99	76-112
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	106	77-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	104	74-121
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	96	73-117
2-Chlorotoluene	mg/kg (ppm)	2.5	101	75-113
4-Chlorotoluene	mg/kg (ppm)	2.5	98	77-115
tert-Butylbenzene	mg/kg (ppm)	2.5	105	77-123
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	103	77-119
sec-Butylbenzene	mg/kg (ppm)	2.5	105	78-120
p-Isopropyltoluene	mg/kg (ppm)	2.5	105	77-120
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	104	76-112
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	97	74-109
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	104	75-114
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	116	68-122
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	106	75-122
Hexachlorobutadiene	mg/kg (ppm)	2.5	105	74-130
Naphthalene	mg/kg (ppm)	2.5	107	73-122
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	109	75-117

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte 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 due to sample matrix effects.

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.

907438

SAMPLE CHAIN OF CUSTODY

ME 07-24-19

Page # 1 of 3

BI3 VS2

Send Report To Paul Whitman

Company Whitman Env. Services

Address 6812 16th Ave NE

City, State, ZIP Seattle, WA 98115

Phone # 206-523-3566 Fax # Whitmanvs@ATT.net

Email Address

SAMPLERS *(signature)*

PROJECT NAME/NO. 12th + Yesler

PO # DES 1591

PROJECT ADDRESS

• ELECTRONIC DATA REQUESTED

TURNAROUND TIME
- X Standard Turnaround
- RUSH
- Rush charges authorized by:

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

Samples Received at ____ °C

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	HOLD	MTCA 5 Metals				Notes
MW-10-8'	01A-E	7-22		SOIL	5				X			X					/
MW-11-9'	021	"			5				X								/
MW-12-9'	03A-C	"			3				X			X					/
MW-14-10'	04A-E	7-23			5		X		X				X				
MW-14-15'	05	"			5												HOLD
BW-12-17'	06A-C	"			3		X		X								
BW-12-24'	07	"			3		X		X								
BW-13-7'	08	"			1								X				
BW-13-11'	09	"			1							X	X				
BW-13-16'	10	"			1								X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		DES	7-24-19	1345
Received by:	Liz Webber-Bruya	FTB1	7/24/19	1345
Relinquished by:				
Received by:				

Samples ~~received~~ at 3 °C

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

FORMS\COC\COC.DOC

907438

SAMPLE CHAIN OF CUSTODY

ME 07-24-19

Page # 2 of 3

BTJ VS2

Send Report To Paul Whitman

Company Whitman Env. Services

Address 6812 16th Ave NW

City, State, ZIP Seattle, WA 98115

Phone # 206-523-3585 Fax # whitmanes@msn.com

Email Address

SAMPLERS *(signature)*

PROJECT NAME/NO. 12th + Yesler — PO # DES 1591

PROJECT ADDRESS

• ELECTRONIC DATA REQUESTED

TURNAROUND TIME
- X 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	HOLD	4 METALS + MTCA 5 METALS	LEAD			Notes
BW-14-11'	11	7-23		SOIL	1	X							X				1
BW-14-18'	12 A-E	"			5	X	X		X								1
BW-14-21'	13 A-C	"			1	X	X		X								1
BW-14-26'	14	"			1												HOLD
BW-15-8'	15 A-E	"			5		X	X									1
BW-15-16'	16 A-C	"			3	X	X	X									1
BW-15-19'	17	"			1												HOLD
BW-16-11'	18 A-C	"			3		X	X									1
BW-16-14'	19	"			1	X								X			
BW-16-15'	20 A-D	"			4		X	X									

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		DES	7/24/19	1:50
Received by:	Liz Webber - Bruya	F?B1	7/24/19	1350
Relinquished by:				
Received by:				

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

FORMS\COC\COC.DOC

Samples received at 3 °C

907438

SAMPLE CHAIN OF CUSTODY

ME ~~OT~~ sub 07-24-19 Page # 3 of 3 BI3 VS2

Send Report To Paul Whitman

Company Whitman Env. Services

Address 5812 16th Ave NE

City, State, ZIP Seattle, WA 98105

Phone # 206-523-[illegible] Fax # whitmanpa@ahoo.com

Email Address

SAMPLERS (signature)

PROJECT NAME/NO. 12th + Yesler

PO # DES 1591

PROJECT ADDRESS

• ELECTRONIC DATA REQUESTED

TURNAROUND TIME
- X Standard Turnaround
- RUSH
Rush charges authorized by:

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

Samples Received at ____ °C

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	HCID	MTCA 5 Metals	Lead			Notes
BW-16-17	21 A-E	7-23		Soil	5		X	X						X			
BW-16-19	22 A-C	"		"	3												Hold
BW-17-5	23 A-E	"		"	5								X				
BW-17-10	24	"		"	5								X				
BW-17-13	25	"		"	5	X			X								
DES-13-6	26	"		"	5	X	X		X								
DES-14-6	27	"		"	5	X	X		X								
DES-14-9.5	28	"		"	5	X	X		X								

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

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:			DES	7/24/19	1450
Received by:		Liz Webber-Bruya	F. BI	7/24/19	1360
Relinquished by:					
Received by:					

Samples received at 3 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 14, 2019

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

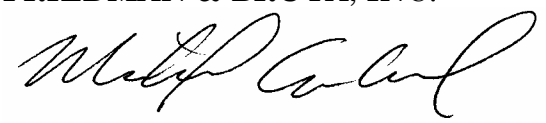
Dear Mr Whitman:

Included are the results from the testing of material submitted on August 6, 2019 from the 12th and Yesler WES 1591, F&BI 908101 project. There are 11 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0814R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 6, 2019 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 908101 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
908101 -01	MW-1D-GW
908101 -02	MW-1S-GW
908101 -03	BN-17-13'
908101 -04	BN-17-15'

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

All other quality control requirements were acceptable.

Analysis For Total Metals By EPA Method 6020B

Client ID:	BN-17-13'	Client:	Whitman Environmental Sciences
Date Received:	08/06/19	Project:	12th and Yesler WES 1591
Date Extracted:	08/07/19	Lab ID:	908101-03
Date Analyzed:	08/07/19	Data File:	908101-03.122
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	32.6

Analysis For Total Metals By EPA Method 6020B

Client ID:	BN-17-15'	Client:	Whitman Environmental Sciences
Date Received:	08/06/19	Project:	12th and Yesler WES 1591
Date Extracted:	08/07/19	Lab ID:	908101-04
Date Analyzed:	08/07/19	Data File:	908101-04.123
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	2.86

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591
Date Extracted:	08/07/19	Lab ID:	I9-479 mb
Date Analyzed:	08/07/19	Data File:	I9-479 mb.118
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-1D-GW	Client:	Whitman Environmental Sciences
Date Received:	08/06/19	Project:	12th and Yesler WES 1591
Date Extracted:	08/08/19	Lab ID:	908101-01
Date Analyzed:	08/08/19	Data File:	080824.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-1S-GW	Client:	Whitman Environmental Sciences
Date Received:	08/06/19	Project:	12th and Yesler WES 1591
Date Extracted:	08/08/19	Lab ID:	908101-02
Date Analyzed:	08/08/19	Data File:	080825.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.21	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591
Date Extracted:	08/08/19	Lab ID:	09-1857 mb
Date Analyzed:	08/08/19	Data File:	080810.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 08/14/19
Date Received: 08/06/19
Project: 12th and Yesler WES 1591, F&BI 908101

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

Laboratory Code: 908098-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	50	9.43	89	91	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	109	80-120

Date of Report: 08/14/19
Date Received: 08/06/19
Project: 12th and Yesler WES 1591, F&BI 908101

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

Laboratory Code: 908137-08 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	84	55-137
Chloromethane	ug/L (ppb)	50	<10	91	57-129
Vinyl chloride	ug/L (ppb)	50	<0.2	93	61-139
Bromomethane	ug/L (ppb)	50	<1	103	20-265
Chloroethane	ug/L (ppb)	50	<1	100	55-149
Trichlorofluoromethane	ug/L (ppb)	50	<1	101	65-137
Acetone	ug/L (ppb)	250	<50	63	48-149
1,1-Dichloroethene	ug/L (ppb)	50	<1	97	71-123
Hexane	ug/L (ppb)	50	200	153 b	44-139
Methylene chloride	ug/L (ppb)	50	<5	83	61-126
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	87	68-125
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	91	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<1	93	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<1	64	48-157
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	88	63-126
Chloroform	ug/L (ppb)	50	<1	112	77-117
2-Butanone (MEK)	ug/L (ppb)	250	<10	76	70-135
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	99	70-119
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	94	75-121
1,1-Dichloropropene	ug/L (ppb)	50	<1	93	67-121
Carbon tetrachloride	ug/L (ppb)	50	<1	100	70-132
Benzene	ug/L (ppb)	50	0.88	91	75-114
Trichloroethene	ug/L (ppb)	50	2.2	95	73-122
1,2-Dichloropropane	ug/L (ppb)	50	<1	96	80-111
Bromodichloromethane	ug/L (ppb)	50	<1	108	78-117
Dibromomethane	ug/L (ppb)	50	<1	99	73-125
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	111	79-140
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	104	76-120
Toluene	ug/L (ppb)	50	2.5	100	73-117
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	110	75-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	102	81-116
2-Hexanone	ug/L (ppb)	250	<10	108	74-127
1,3-Dichloropropane	ug/L (ppb)	50	<1	104	80-113
Tetrachloroethene	ug/L (ppb)	50	<1	96	40-155
Dibromochloromethane	ug/L (ppb)	50	<1	119	69-129
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	105	79-120
Chlorobenzene	ug/L (ppb)	50	<1	99	75-115
Ethylbenzene	ug/L (ppb)	50	18	99 b	66-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	110	76-130
m,p-Xylene	ug/L (ppb)	100	<2	102	63-128
o-Xylene	ug/L (ppb)	50	<1	98	64-129
Styrene	ug/L (ppb)	50	<1	104	56-142
Isopropylbenzene	ug/L (ppb)	50	54	101 b	74-122
Bromoform	ug/L (ppb)	50	<1	107	49-138
n-Propylbenzene	ug/L (ppb)	50	26	103 b	65-129
Bromobenzene	ug/L (ppb)	50	<1	103	70-121
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	102	60-138
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	112	77-120
1,2,3-Trichloropropane	ug/L (ppb)	50	1.2	104	62-125
2-Chlorotoluene	ug/L (ppb)	50	<1	101	40-159
4-Chlorotoluene	ug/L (ppb)	50	<1	102	76-122
tert-Butylbenzene	ug/L (ppb)	50	3.5	102	74-125
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	101	59-136
sec-Butylbenzene	ug/L (ppb)	50	7.9	101	69-127
p-Isopropyltoluene	ug/L (ppb)	50	5.1	101	64-132
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	102	77-113
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	97	75-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	101	70-120
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	114	69-129
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	99	66-123
Hexachlorobutadiene	ug/L (ppb)	50	<1	90	53-136
Naphthalene	ug/L (ppb)	50	2.7	105	60-145
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	101	59-130

Date of Report: 08/14/19
Date Received: 08/06/19
Project: 12th and Yesler WES 1591, F&BI 908101

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	89	90	50-157	1
Chloromethane	ug/L (ppb)	50	94	97	62-130	3
Vinyl chloride	ug/L (ppb)	50	94	95	70-128	1
Bromomethane	ug/L (ppb)	50	106	110	60-143	4
Chloroethane	ug/L (ppb)	50	101	103	66-149	2
Trichlorofluoromethane	ug/L (ppb)	50	109	111	65-138	2
Acetone	ug/L (ppb)	250	61	63	44-145	3
1,1-Dichloroethene	ug/L (ppb)	50	103	105	72-121	2
Hexane	ug/L (ppb)	50	91	93	51-153	2
Methylene chloride	ug/L (ppb)	50	80	82	63-132	2
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	87	93	70-122	7
trans-1,2-Dichloroethene	ug/L (ppb)	50	92	95	76-118	3
1,1-Dichloroethane	ug/L (ppb)	50	90	93	77-119	3
2,2-Dichloropropane	ug/L (ppb)	50	95	97	62-141	2
cis-1,2-Dichloroethene	ug/L (ppb)	50	90	92	76-119	2
Chloroform	ug/L (ppb)	50	96	99	78-117	3
2-Butanone (MEK)	ug/L (ppb)	250	77	82	48-150	6
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	96	100	75-116	4
1,1,1-Trichloroethane	ug/L (ppb)	50	101	104	80-116	3
1,1-Dichloropropene	ug/L (ppb)	50	96	98	78-119	2
Carbon tetrachloride	ug/L (ppb)	50	110	112	72-128	2
Benzene	ug/L (ppb)	50	91	94	75-116	3
Trichloroethene	ug/L (ppb)	50	94	97	72-119	3
1,2-Dichloropropane	ug/L (ppb)	50	95	99	79-121	4
Bromodichloromethane	ug/L (ppb)	50	109	112	76-120	3
Dibromomethane	ug/L (ppb)	50	101	105	79-121	4
4-Methyl-2-pentanone	ug/L (ppb)	250	106	113	54-153	6
cis-1,3-Dichloropropene	ug/L (ppb)	50	108	111	76-128	3
Toluene	ug/L (ppb)	50	100	103	79-115	3
trans-1,3-Dichloropropene	ug/L (ppb)	50	116	120	76-128	3
1,1,2-Trichloroethane	ug/L (ppb)	50	98	104	78-120	6
2-Hexanone	ug/L (ppb)	250	101	105	49-147	4
1,3-Dichloropropane	ug/L (ppb)	50	103	107	81-111	4
Tetrachloroethene	ug/L (ppb)	50	101	102	78-109	1
Dibromochloromethane	ug/L (ppb)	50	130	133	63-140	2
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	105	111	82-118	6
Chlorobenzene	ug/L (ppb)	50	101	103	80-113	2
Ethylbenzene	ug/L (ppb)	50	101	104	83-111	3
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	119	121	76-125	2
m,p-Xylene	ug/L (ppb)	100	105	107	81-112	2
o-Xylene	ug/L (ppb)	50	101	103	81-117	2
Styrene	ug/L (ppb)	50	105	108	83-121	3
Isopropylbenzene	ug/L (ppb)	50	102	105	78-118	3
Bromoform	ug/L (ppb)	50	122	122	40-161	0
n-Propylbenzene	ug/L (ppb)	50	106	107	81-115	1
Bromobenzene	ug/L (ppb)	50	104	107	80-113	3
1,3,5-Trimethylbenzene	ug/L (ppb)	50	108	109	83-117	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	108	111	79-118	3
1,2,3-Trichloropropane	ug/L (ppb)	50	102	105	74-116	3
2-Chlorotoluene	ug/L (ppb)	50	101	105	79-112	4
4-Chlorotoluene	ug/L (ppb)	50	104	106	80-116	2
tert-Butylbenzene	ug/L (ppb)	50	107	109	81-119	2
1,2,4-Trimethylbenzene	ug/L (ppb)	50	106	107	81-121	1
sec-Butylbenzene	ug/L (ppb)	50	108	109	83-123	1
p-Isopropyltoluene	ug/L (ppb)	50	107	109	81-117	2
1,3-Dichlorobenzene	ug/L (ppb)	50	104	106	80-115	2
1,4-Dichlorobenzene	ug/L (ppb)	50	100	102	77-112	2
1,2-Dichlorobenzene	ug/L (ppb)	50	104	104	79-115	0
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	115	120	62-133	4
1,2,4-Trichlorobenzene	ug/L (ppb)	50	99	102	75-119	3
Hexachlorobutadiene	ug/L (ppb)	50	100	102	70-116	2
Naphthalene	ug/L (ppb)	50	98	103	72-131	5
1,2,3-Trichlorobenzene	ug/L (ppb)	50	98	102	74-122	4

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 analyte 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 due to sample matrix effects.

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

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

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

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

SAMPLE CHAIN OF CUSTODY

908101

ME 8/6/19 BI2/NW1/EOT

Page # ____ of ____

Report To [illegible]

Company [illegible]

Address [illegible]

City, State, ZIP [illegible]

Phone [illegible] Email [illegible]

SAMPLERS (signature)

PROJECT NAME: [illegible]

PO #: [illegible]

REMARKS

INVOICE TO

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	Total Lead				Notes
MW-1D-6D	01 A-C	8-2-19	3:00	[illegible]	3					X							
MW-1S-6D	02	"	3:20	"	3					X							
BH-17-13'	03	7-23-19	9:10	Soil	1								X				
BH-17-15'	04	"	9:05	"	1								X				
																	Samples received at 27 °C

ANALYSES REQUESTED

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[illegible]	[illegible]	[illegible]	8/6/19	4:30
Received by:	[illegible]	Liza Rafford	FBA	8/6/19	4:30
Relinquished by:					
Received by:					

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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August 28, 2019

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

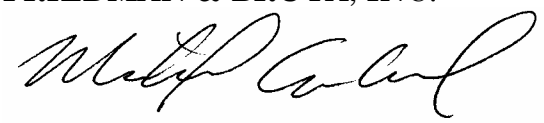
Dear Mr Whitman:

Included are the results from the testing of material submitted on August 16, 2019 from the 12th & Yesler PO WES 1591A, F&BI 908343 project. There are 11 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0828R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 16, 2019 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th & Yesler PO WES 1591A, F&BI 908343 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
908343 -01	MW-11-GW
908343 -02	MW-14-GW

Several 8260C compounds failed below the acceptance criteria in the matrix spike samples. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

All other quality control requirements were acceptable.

Date of Report: 08/28/19
Date Received: 08/16/19
Project: 12th & Yesler PO WES 1591A, F&BI 908343
Date Extracted: 08/19/19
Date Analyzed: 08/19/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW-11-GW 908343-01	<100	104
MW-14-GW 908343-02	<100	109
Method Blank 09-1962 MB	<100	110

Date of Report: 08/28/19
Date Received: 08/16/19
Project: 12th & Yesler PO WES 1591A, F&BI 908343
Date Extracted: 08/19/19
Date Analyzed: 08/19/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW-11-GW 908343-01	400 x	370 x	105
MW-14-GW 908343-02	130 x	<250	103
Method Blank 09-2048 MB	<50	<250	106

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-11-GW	Client:	Whitman Environmental Sciences
Date Received:	08/16/19	Project:	12th & Yesler PO WES 1591A
Date Extracted:	08/23/19	Lab ID:	908343-01
Date Analyzed:	08/23/19	Data File:	082310.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	1.9	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-14-GW	Client:	Whitman Environmental Sciences
Date Received:	08/16/19	Project:	12th & Yesler PO WES 1591A
Date Extracted:	08/23/19	Lab ID:	908343-02
Date Analyzed:	08/23/19	Data File:	082311.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.65	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	2.3	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	1.8	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th & Yesler PO WES 1591A
Date Extracted:	08/23/19	Lab ID:	09-1879 mb
Date Analyzed:	08/23/19	Data File:	082309.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 08/28/19
Date Received: 08/16/19
Project: 12th & Yesler PO WES 1591A, F&BI 908343

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

Laboratory Code: 908315-01 (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

Date of Report: 08/28/19
Date Received: 08/16/19
Project: 12th & Yesler PO WES 1591A, F&BI 908343

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	80	88	61-133	10

Date of Report: 08/28/19
Date Received: 08/16/19
Project: 12th & Yesler PO WES 1591A, F&BI 908343

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

Laboratory Code: 908399-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	<1	104	104	55-137	0
Chloromethane	ug/L (ppb)	50	<10	97	99	57-129	2
Vinyl chloride	ug/L (ppb)	50	<0.2	100	102	61-139	2
Bromomethane	ug/L (ppb)	50	<1	101	102	20-265	1
Chloroethane	ug/L (ppb)	50	<1	103	104	55-149	1
Trichlorofluoromethane	ug/L (ppb)	50	<1	101	103	65-137	2
Acetone	ug/L (ppb)	250	<50	53	52	48-149	2
1,1-Dichloroethene	ug/L (ppb)	50	<1	103	104	71-123	1
Hexane	ug/L (ppb)	50	<1	103	106	44-139	3
Methylene chloride	ug/L (ppb)	50	<5	99	103	61-126	4
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	104	107	68-125	3
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	106	108	72-122	2
1,1-Dichloroethane	ug/L (ppb)	50	<1	102	104	79-113	2
2,2-Dichloropropane	ug/L (ppb)	50	<1	111	112	48-157	1
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	104	104	63-126	0
Chloroform	ug/L (ppb)	50	<1	101	104	77-117	3
2-Butanone (MEK)	ug/L (ppb)	250	<10	68 vo	70	70-135	3
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	96	99	70-119	3
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	105	108	75-121	3
1,1-Dichloropropene	ug/L (ppb)	50	<1	103	107	67-121	4
Carbon tetrachloride	ug/L (ppb)	50	<1	102	104	70-132	2
Benzene	ug/L (ppb)	50	<0.35	97	99	75-114	2
Trichloroethene	ug/L (ppb)	50	<1	99	101	73-122	2
1,2-Dichloropropane	ug/L (ppb)	50	<1	100	103	80-111	3
Bromodichloromethane	ug/L (ppb)	50	<1	102	106	78-117	4
Dibromomethane	ug/L (ppb)	50	<1	98	101	73-125	3
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	110	112	79-140	2
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	100	106	76-120	6
Toluene	ug/L (ppb)	50	<1	99	101	73-117	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	100	106	75-122	6
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	101	103	81-116	2
2-Hexanone	ug/L (ppb)	250	<10	91	93	74-127	2
1,3-Dichloropropane	ug/L (ppb)	50	<1	97	100	80-113	3
Tetrachloroethene	ug/L (ppb)	50	<1	102	104	40-155	2
Dibromochloromethane	ug/L (ppb)	50	<1	105	109	69-129	4
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	99	103	79-120	4
Chlorobenzene	ug/L (ppb)	50	<1	98	100	75-115	2
Ethylbenzene	ug/L (ppb)	50	<1	99	100	66-124	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	107	108	76-130	1
m,p-Xylene	ug/L (ppb)	100	<2	100	101	63-128	1
o-Xylene	ug/L (ppb)	50	<1	101	103	64-129	2
Styrene	ug/L (ppb)	50	<1	103	105	56-142	2
Isopropylbenzene	ug/L (ppb)	50	21	146 b	146 b	74-122	0 b
Bromoform	ug/L (ppb)	50	<1	106	109	49-138	3
n-Propylbenzene	ug/L (ppb)	50	27	154 b	159 b	65-129	3 b
Bromobenzene	ug/L (ppb)	50	<1	96	101	70-121	5
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	104	107	60-138	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	123 vo	125 vo	77-120	2
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	99	103	62-125	4
2-Chlorotoluene	ug/L (ppb)	50	<1	99	102	40-159	3
4-Chlorotoluene	ug/L (ppb)	50	<1	99	103	76-122	4
tert-Butylbenzene	ug/L (ppb)	50	<1	110	113	74-125	3
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	104	107	59-136	3
sec-Butylbenzene	ug/L (ppb)	50	2.3	108	112	69-127	4
p-Isopropyltoluene	ug/L (ppb)	50	<1	101	104	64-132	3
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	97	100	77-113	3
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	95	98	75-110	3
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	99	101	70-120	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	109	114	69-129	4
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	103	103	66-123	0
Hexachlorobutadiene	ug/L (ppb)	50	<1	97	97	53-136	0
Naphthalene	ug/L (ppb)	50	<1	111	112	60-145	1
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	105	106	59-130	1

Date of Report: 08/28/19
Date Received: 08/16/19
Project: 12th & Yesler PO WES 1591A, F&BI 908343

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	83	84	50-157	1
Chloromethane	ug/L (ppb)	50	84	88	62-130	5
Vinyl chloride	ug/L (ppb)	50	86	90	70-128	5
Bromomethane	ug/L (ppb)	50	86	90	60-143	5
Chloroethane	ug/L (ppb)	50	89	91	66-149	2
Trichlorofluoromethane	ug/L (ppb)	50	91	96	65-138	5
Acetone	ug/L (ppb)	250	60	59	44-145	2
1,1-Dichloroethene	ug/L (ppb)	50	90	93	72-121	3
Hexane	ug/L (ppb)	50	108	109	51-153	1
Methylene chloride	ug/L (ppb)	50	90	91	63-132	1
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	95	99	70-122	4
trans-1,2-Dichloroethene	ug/L (ppb)	50	94	98	76-118	4
1,1-Dichloroethane	ug/L (ppb)	50	93	96	77-119	3
2,2-Dichloropropane	ug/L (ppb)	50	111	124	62-141	11
cis-1,2-Dichloroethene	ug/L (ppb)	50	94	96	76-119	2
Chloroform	ug/L (ppb)	50	94	98	78-117	4
2-Butanone (MEK)	ug/L (ppb)	250	84	85	48-150	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	98	101	75-116	3
1,1,1-Trichloroethane	ug/L (ppb)	50	96	101	80-116	5
1,1-Dichloropropene	ug/L (ppb)	50	98	102	78-119	4
Carbon tetrachloride	ug/L (ppb)	50	101	103	72-128	2
Benzene	ug/L (ppb)	50	95	98	75-116	3
Trichloroethene	ug/L (ppb)	50	97	99	72-119	2
1,2-Dichloropropane	ug/L (ppb)	50	104	108	79-121	4
Bromodichloromethane	ug/L (ppb)	50	108	111	76-120	3
Dibromomethane	ug/L (ppb)	50	101	104	79-121	3
4-Methyl-2-pentanone	ug/L (ppb)	250	116	117	54-153	1
cis-1,3-Dichloropropene	ug/L (ppb)	50	118	122	76-128	3
Toluene	ug/L (ppb)	50	98	99	79-115	1
trans-1,3-Dichloropropene	ug/L (ppb)	50	120	123	76-128	2
1,1,2-Trichloroethane	ug/L (ppb)	50	108	110	78-120	2
2-Hexanone	ug/L (ppb)	250	105	103	49-147	2
1,3-Dichloropropane	ug/L (ppb)	50	105	107	81-111	2
Tetrachloroethene	ug/L (ppb)	50	101	103	78-109	2
Dibromochloromethane	ug/L (ppb)	50	114	115	63-140	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	105	108	82-118	3
Chlorobenzene	ug/L (ppb)	50	97	100	80-113	3
Ethylbenzene	ug/L (ppb)	50	96	99	83-111	3
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	101	104	76-125	3
m,p-Xylene	ug/L (ppb)	100	98	99	81-112	1
o-Xylene	ug/L (ppb)	50	95	98	81-117	3
Styrene	ug/L (ppb)	50	103	105	83-121	2
Isopropylbenzene	ug/L (ppb)	50	96	100	78-118	4
Bromoform	ug/L (ppb)	50	117	118	40-161	1
n-Propylbenzene	ug/L (ppb)	50	105	108	81-115	3
Bromobenzene	ug/L (ppb)	50	100	102	80-113	2
1,3,5-Trimethylbenzene	ug/L (ppb)	50	104	108	83-117	4
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	107	111	79-118	4
1,2,3-Trichloropropane	ug/L (ppb)	50	104	106	74-116	2
2-Chlorotoluene	ug/L (ppb)	50	100	102	79-112	2
4-Chlorotoluene	ug/L (ppb)	50	104	107	80-116	3
tert-Butylbenzene	ug/L (ppb)	50	105	110	81-119	5
1,2,4-Trimethylbenzene	ug/L (ppb)	50	103	107	81-121	4
sec-Butylbenzene	ug/L (ppb)	50	105	109	83-123	4
p-Isopropyltoluene	ug/L (ppb)	50	101	105	81-117	4
1,3-Dichlorobenzene	ug/L (ppb)	50	97	101	80-115	4
1,4-Dichlorobenzene	ug/L (ppb)	50	95	98	77-112	3
1,2-Dichlorobenzene	ug/L (ppb)	50	91	95	79-115	4
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	107	110	62-133	3
1,2,4-Trichlorobenzene	ug/L (ppb)	50	92	98	75-119	6
Hexachlorobutadiene	ug/L (ppb)	50	96	101	70-116	5
Naphthalene	ug/L (ppb)	50	95	101	72-131	6
1,2,3-Trichlorobenzene	ug/L (ppb)	50	95	100	74-122	5

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 analyte 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 due to sample matrix effects.

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.

908343

SAMPLE CHAIN OF CUSTODY

ME 08-16-19 AI2/VW1/C04

Page # 1 of 1

Report To [illegible]

Company [illegible]

Address [illegible]

City, State, ZIP [illegible]

Phone _____ Email [illegible]

SAMPLERS (*signature*)

PROJECT NAME: 12th + Yesler

PO # 159144

REMARKS

INVOICE TO

TURNAROUND TIME
- [X] Standard Turnaround
- [ ] RUSH _____
- Rush charges authorized by: _____

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other _____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
MW-11-GW	01 A-D	8/15	3:45	GW	4		X	X		X							
MW-14-GW	02 A-E	8/15	3:10	"	5		X	X		X							
																	Samples received at 8 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [illegible]		[illegible]	8/16/19	3:25
Received by: [illegible]	Liz Webber-Bruya	F'B1	8/16/19	3:25
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

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August 28, 2019

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on August 19, 2019 from the 12th and Yesler WES 1591A, F&BI 908371 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES0828R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 19, 2019 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591A, F&BI 908371 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
908371 -01	MW-12-GW

Several 8260C compounds failed below the acceptance criteria in the matrix spike samples. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

All other quality control requirements were acceptable.

Date of Report: 08/28/19
Date Received: 08/19/19
Project: 12th and Yesler WES 1591A, F&BI 908371
Date Extracted: 08/20/19
Date Analyzed: 08/20/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW-12-GW 908371-01	<100	103
Method Blank 09-2020 MB	<100	111

Date of Report: 08/28/19
Date Received: 08/19/19
Project: 12th and Yesler WES 1591A, F&BI 908371
Date Extracted: 08/20/19
Date Analyzed: 08/20/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW-12-GW 908371-01	140 x	270 x	81
Method Blank 09-2048 MB2	<50	<250	108

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-12-GW	Client:	Whitman Environmental Sciences
Date Received:	08/19/19	Project:	12th and Yesler WES 1591A
Date Extracted:	08/23/19	Lab ID:	908371-01
Date Analyzed:	08/23/19	Data File:	082317.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591A
Date Extracted:	08/23/19	Lab ID:	09-1879 mb
Date Analyzed:	08/23/19	Data File:	082309.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 08/28/19
Date Received: 08/19/19
Project: 12th and Yesler WES 1591A, F&BI 908371

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

Laboratory Code: 908375-01 (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	100	69-134

Date of Report: 08/28/19
Date Received: 08/19/19
Project: 12th and Yesler WES 1591A, F&BI 908371

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	80	88	61-133	10

Date of Report: 08/28/19
Date Received: 08/19/19
Project: 12th and Yesler WES 1591A, F&BI 908371

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

Laboratory Code: 908399-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	<1	104	104	55-137	0
Chloromethane	ug/L (ppb)	50	<10	97	99	57-129	2
Vinyl chloride	ug/L (ppb)	50	<0.2	100	102	61-139	2
Bromomethane	ug/L (ppb)	50	<1	101	102	20-265	1
Chloroethane	ug/L (ppb)	50	<1	103	104	55-149	1
Trichlorofluoromethane	ug/L (ppb)	50	<1	101	103	65-137	2
Acetone	ug/L (ppb)	250	<50	53	52	48-149	2
1,1-Dichloroethene	ug/L (ppb)	50	<1	103	104	71-123	1
Hexane	ug/L (ppb)	50	<1	103	106	44-139	3
Methylene chloride	ug/L (ppb)	50	<5	99	103	61-126	4
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	104	107	68-125	3
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	106	108	72-122	2
1,1-Dichloroethane	ug/L (ppb)	50	<1	102	104	79-113	2
2,2-Dichloropropane	ug/L (ppb)	50	<1	111	112	48-157	1
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	104	104	63-126	0
Chloroform	ug/L (ppb)	50	<1	101	104	77-117	3
2-Butanone (MEK)	ug/L (ppb)	250	<10	68 vo	70	70-135	3
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	96	99	70-119	3
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	105	108	75-121	3
1,1-Dichloropropene	ug/L (ppb)	50	<1	103	107	67-121	4
Carbon tetrachloride	ug/L (ppb)	50	<1	102	104	70-132	2
Benzene	ug/L (ppb)	50	<0.35	97	99	75-114	2
Trichloroethene	ug/L (ppb)	50	<1	99	101	73-122	2
1,2-Dichloropropane	ug/L (ppb)	50	<1	100	103	80-111	3
Bromodichloromethane	ug/L (ppb)	50	<1	102	106	78-117	4
Dibromomethane	ug/L (ppb)	50	<1	98	101	73-125	3
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	110	112	79-140	2
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	100	106	76-120	6
Toluene	ug/L (ppb)	50	<1	99	101	73-117	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	100	106	75-122	6
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	101	103	81-116	2
2-Hexanone	ug/L (ppb)	250	<10	91	93	74-127	2
1,3-Dichloropropane	ug/L (ppb)	50	<1	97	100	80-113	3
Tetrachloroethene	ug/L (ppb)	50	<1	102	104	40-155	2
Dibromochloromethane	ug/L (ppb)	50	<1	105	109	69-129	4
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	99	103	79-120	4
Chlorobenzene	ug/L (ppb)	50	<1	98	100	75-115	2
Ethylbenzene	ug/L (ppb)	50	<1	99	100	66-124	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	107	108	76-130	1
m,p-Xylene	ug/L (ppb)	100	<2	100	101	63-128	1
o-Xylene	ug/L (ppb)	50	<1	101	103	64-129	2
Styrene	ug/L (ppb)	50	<1	103	105	56-142	2
Isopropylbenzene	ug/L (ppb)	50	21	146 b	146 b	74-122	0 b
Bromoform	ug/L (ppb)	50	<1	106	109	49-138	3
n-Propylbenzene	ug/L (ppb)	50	27	154 b	159 b	65-129	3 b
Bromobenzene	ug/L (ppb)	50	<1	96	101	70-121	5
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	104	107	60-138	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	123 vo	125 vo	77-120	2
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	99	103	62-125	4
2-Chlorotoluene	ug/L (ppb)	50	<1	99	102	40-159	3
4-Chlorotoluene	ug/L (ppb)	50	<1	99	103	76-122	4
tert-Butylbenzene	ug/L (ppb)	50	<1	110	113	74-125	3
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	104	107	59-136	3
sec-Butylbenzene	ug/L (ppb)	50	2.3	108	112	69-127	4
p-Isopropyltoluene	ug/L (ppb)	50	<1	101	104	64-132	3
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	97	100	77-113	3
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	95	98	75-110	3
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	99	101	70-120	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	109	114	69-129	4
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	103	103	66-123	0
Hexachlorobutadiene	ug/L (ppb)	50	<1	97	97	53-136	0
Naphthalene	ug/L (ppb)	50	<1	111	112	60-145	1
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	105	106	59-130	1

Date of Report: 08/28/19
Date Received: 08/19/19
Project: 12th and Yesler WES 1591A, F&BI 908371

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	83	84	50-157	1
Chloromethane	ug/L (ppb)	50	84	88	62-130	5
Vinyl chloride	ug/L (ppb)	50	86	90	70-128	5
Bromomethane	ug/L (ppb)	50	86	90	60-143	5
Chloroethane	ug/L (ppb)	50	89	91	66-149	2
Trichlorofluoromethane	ug/L (ppb)	50	91	96	65-138	5
Acetone	ug/L (ppb)	250	60	59	44-145	2
1,1-Dichloroethene	ug/L (ppb)	50	90	93	72-121	3
Hexane	ug/L (ppb)	50	108	109	51-153	1
Methylene chloride	ug/L (ppb)	50	90	91	63-132	1
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	95	99	70-122	4
trans-1,2-Dichloroethene	ug/L (ppb)	50	94	98	76-118	4
1,1-Dichloroethane	ug/L (ppb)	50	93	96	77-119	3
2,2-Dichloropropane	ug/L (ppb)	50	111	124	62-141	11
cis-1,2-Dichloroethene	ug/L (ppb)	50	94	96	76-119	2
Chloroform	ug/L (ppb)	50	94	98	78-117	4
2-Butanone (MEK)	ug/L (ppb)	250	84	85	48-150	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	98	101	75-116	3
1,1,1-Trichloroethane	ug/L (ppb)	50	96	101	80-116	5
1,1-Dichloropropene	ug/L (ppb)	50	98	102	78-119	4
Carbon tetrachloride	ug/L (ppb)	50	101	103	72-128	2
Benzene	ug/L (ppb)	50	95	98	75-116	3
Trichloroethene	ug/L (ppb)	50	97	99	72-119	2
1,2-Dichloropropane	ug/L (ppb)	50	104	108	79-121	4
Bromodichloromethane	ug/L (ppb)	50	108	111	76-120	3
Dibromomethane	ug/L (ppb)	50	101	104	79-121	3
4-Methyl-2-pentanone	ug/L (ppb)	250	116	117	54-153	1
cis-1,3-Dichloropropene	ug/L (ppb)	50	118	122	76-128	3
Toluene	ug/L (ppb)	50	98	99	79-115	1
trans-1,3-Dichloropropene	ug/L (ppb)	50	120	123	76-128	2
1,1,2-Trichloroethane	ug/L (ppb)	50	108	110	78-120	2
2-Hexanone	ug/L (ppb)	250	105	103	49-147	2
1,3-Dichloropropane	ug/L (ppb)	50	105	107	81-111	2
Tetrachloroethene	ug/L (ppb)	50	101	103	78-109	2
Dibromochloromethane	ug/L (ppb)	50	114	115	63-140	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	105	108	82-118	3
Chlorobenzene	ug/L (ppb)	50	97	100	80-113	3
Ethylbenzene	ug/L (ppb)	50	96	99	83-111	3
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	101	104	76-125	3
m,p-Xylene	ug/L (ppb)	100	98	99	81-112	1
o-Xylene	ug/L (ppb)	50	95	98	81-117	3
Styrene	ug/L (ppb)	50	103	105	83-121	2
Isopropylbenzene	ug/L (ppb)	50	96	100	78-118	4
Bromoform	ug/L (ppb)	50	117	118	40-161	1
n-Propylbenzene	ug/L (ppb)	50	105	108	81-115	3
Bromobenzene	ug/L (ppb)	50	100	102	80-113	2
1,3,5-Trimethylbenzene	ug/L (ppb)	50	104	108	83-117	4
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	107	111	79-118	4
1,2,3-Trichloropropane	ug/L (ppb)	50	104	106	74-116	2
2-Chlorotoluene	ug/L (ppb)	50	100	102	79-112	2
4-Chlorotoluene	ug/L (ppb)	50	104	107	80-116	3
tert-Butylbenzene	ug/L (ppb)	50	105	110	81-119	5
1,2,4-Trimethylbenzene	ug/L (ppb)	50	103	107	81-121	4
sec-Butylbenzene	ug/L (ppb)	50	105	109	83-123	4
p-Isopropyltoluene	ug/L (ppb)	50	101	105	81-117	4
1,3-Dichlorobenzene	ug/L (ppb)	50	97	101	80-115	4
1,4-Dichlorobenzene	ug/L (ppb)	50	95	98	77-112	3
1,2-Dichlorobenzene	ug/L (ppb)	50	91	95	79-115	4
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	107	110	62-133	3
1,2,4-Trichlorobenzene	ug/L (ppb)	50	92	98	75-119	6
Hexachlorobutadiene	ug/L (ppb)	50	96	101	70-116	5
Naphthalene	ug/L (ppb)	50	95	101	72-131	6
1,2,3-Trichlorobenzene	ug/L (ppb)	50	95	100	74-122	5

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 analyte 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 due to sample matrix effects.

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.

908371

SAMPLE CHAIN OF CUSTODY

ME 08-19-19

Page # _____ of D04/W1

Report To Tom Hitman

Company Hitman Env. Services

Address 6816 16th Ave SE

City, State, ZIP Seattle WA 98115

Phone _____ Email M.Tenaro@yahoo.com

SAMPLERS (*signature*)

PROJECT NAME: Rhett Keller

PO #: GES 1591A

REMARKS

INVOICE TO

TURNAROUND TIME

- [x] Standard Turnaround
- [ ] RUSH _____

Rush charges authorized by: _____

SAMPLE DISPOSAL

- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other _____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
MW-18-GW	01A-D	8/17/19	[illegible]	[illegible]	4		X	X		X							

Samples received at 4 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		GES	8/19/19	5:12
Received by:		F&B	8/20/19	1712
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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October 11, 2019

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

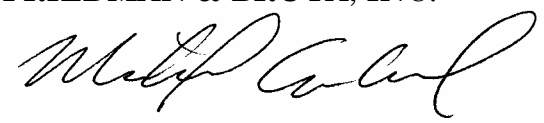
Dear Mr Whitman:

Included are the results from the testing of material submitted on October 1, 2019 from the 12th+Yesler WES 1591A, F&BI 910022 project. There are 9 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES1011R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 1, 2019 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th+Yesler WES 1591A, F&BI 910022 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
910022 -01	WES-16-GW

All quality control requirements were acceptable.

Date of Report: 10/11/19
Date Received: 10/01/19
Project: 12th+Yesler WES 1591A, F&BI 910022
Date Extracted: 10/02/19
Date Analyzed: 10/02/19

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID
Results Reported as Not Detected (ND) or Detected (D)

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

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 56-165)
WES-16-GW 910022-01	ND	ND	ND	111
Method Blank 09-2405 MB2	ND	ND	ND	115

ND - Material not detected at or above 0.2 mg/L gas, 0.5 mg/L diesel and 0.5 mg/L heavy oil.

Date of Report: 10/11/19
Date Received: 10/01/19
Project: 12th+Yesler WES 1591A, F&BI 910022
Date Extracted: 10/02/19
Date Analyzed: 10/02/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
WES-16-GW 910022-01	<100	79
Method Blank 09-2321 MB	<100	84

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-16-GW	Client:	Whitman Environmental Sciences
Date Received:	10/01/19	Project:	12th+Yesler WES 1591A
Date Extracted:	10/08/19	Lab ID:	910022-01
Date Analyzed:	10/09/19	Data File:	100919.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<5	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	1.9	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th+Yesler WES 1591A
Date Extracted:	10/08/19	Lab ID:	09-2447 mb
Date Analyzed:	10/08/19	Data File:	100810.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

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

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<5	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 10/11/19
Date Received: 10/01/19
Project: 12th+Yesler WES 1591A, F&BI 910022

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

Laboratory Code: 909487-01 (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	91	69-134

Date of Report: 10/11/19
Date Received: 10/01/19
Project: 12th+Yesler WES 1591A, F&BI 910022

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

Laboratory Code: 910002-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	122	10-172
Chloromethane	ug/L (ppb)	50	<10	108	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	110	36-166
Bromomethane	ug/L (ppb)	50	<1	109	47-169
Chloroethane	ug/L (ppb)	50	<1	113	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	118	44-165
Acetone	ug/L (ppb)	250	<50	63	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	110	60-136
Hexane	ug/L (ppb)	50	<1	92	52-150
Methylene chloride	ug/L (ppb)	50	<5	106	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	111	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	103	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	105	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	83	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	105	71-127
Chloroform	ug/L (ppb)	50	<1	101	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	86	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	99	48-149
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	107	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	102	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	114	56-152
Benzene	ug/L (ppb)	50	<0.35	104	76-125
Trichloroethene	ug/L (ppb)	50	<1	97	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	104	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	109	61-150
Dibromomethane	ug/L (ppb)	50	<1	102	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	108	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	101	72-132
Toluene	ug/L (ppb)	50	<1	96	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	96	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	102	68-131
2-Hexanone	ug/L (ppb)	250	<10	98	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	99	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	98	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	112	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	99	69-134
Chlorobenzene	ug/L (ppb)	50	<1	101	77-122
Ethylbenzene	ug/L (ppb)	50	<1	99	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	109	73-137
m,p-Xylene	ug/L (ppb)	100	<2	99	69-135
o-Xylene	ug/L (ppb)	50	<1	102	60-140
Styrene	ug/L (ppb)	50	<1	98	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	99	65-142
Bromoform	ug/L (ppb)	50	<1	106	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	101	58-144
Bromobenzene	ug/L (ppb)	50	<1	101	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	98	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	109	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	97	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	100	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	99	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	101	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	100	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	101	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	99	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	100	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	100	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	99	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	98	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	90	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<1	88	60-143
Naphthalene	ug/L (ppb)	50	<1	93	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	91	69-148

Date of Report: 10/11/19
Date Received: 10/01/19
Project: 12th+Yesler WES 1591A, F&BI 910022

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	139	143	25-158	3
Chloromethane	ug/L (ppb)	50	121	121	45-156	0
Vinyl chloride	ug/L (ppb)	50	121	126	50-154	4
Bromomethane	ug/L (ppb)	50	122	127	55-143	4
Chloroethane	ug/L (ppb)	50	128	130	58-146	2
Trichlorofluoromethane	ug/L (ppb)	250	128	134	50-150	5
Acetone	ug/L (ppb)	250	66	63	53-131	5
1,1-Dichloroethene	ug/L (ppb)	50	118	123	67-136	4
Hexane	ug/L (ppb)	50	108	111	57-137	3
Methylene chloride	ug/L (ppb)	50	119	125	39-148	5
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	122	127	64-147	4
trans-1,2-Dichloroethene	ug/L (ppb)	50	113	118	68-128	4
1,1-Dichloroethane	ug/L (ppb)	50	110	114	79-121	4
2,2-Dichloropropane	ug/L (ppb)	50	132	137	55-143	4
cis-1,2-Dichloroethene	ug/L (ppb)	50	111	115	80-123	4
Chloroform	ug/L (ppb)	50	106	108	80-121	2
2-Butanone (MEK)	ug/L (ppb)	250	82	76	57-149	8
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	98	96	73-132	2
1,1,1-Trichloroethane	ug/L (ppb)	50	115	120	81-125	4
1,1-Dichloropropene	ug/L (ppb)	50	104	105	77-129	1
Carbon tetrachloride	ug/L (ppb)	50	122	126	75-158	3
Benzene	ug/L (ppb)	50	105	104	69-134	1
Trichloroethene	ug/L (ppb)	50	98	96	79-113	2
1,2-Dichloropropane	ug/L (ppb)	50	104	101	77-123	3
Bromodichloromethane	ug/L (ppb)	50	108	106	81-133	2
Dibromomethane	ug/L (ppb)	50	101	98	82-125	3
4-Methyl-2-pentanone	ug/L (ppb)	250	104	102	65-138	2
cis-1,3-Dichloropropene	ug/L (ppb)	50	103	97	82-132	6
Toluene	ug/L (ppb)	50	100	98	72-122	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	99	93	80-136	6
1,1,2-Trichloroethane	ug/L (ppb)	50	100	96	75-124	4
2-Hexanone	ug/L (ppb)	250	89	84	60-136	6
1,3-Dichloropropane	ug/L (ppb)	50	96	90	76-126	6
Tetrachloroethene	ug/L (ppb)	50	105	103	76-121	2
Dibromochloromethane	ug/L (ppb)	50	112	107	84-133	5
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	96	92	82-115	4
Chlorobenzene	ug/L (ppb)	50	104	101	83-114	3
Ethylbenzene	ug/L (ppb)	50	103	103	77-124	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	118	118	84-127	0
m,p-Xylene	ug/L (ppb)	100	105	104	81-112	1
o-Xylene	ug/L (ppb)	50	110	109	81-121	1
Styrene	ug/L (ppb)	50	102	101	84-119	1
Isopropylbenzene	ug/L (ppb)	50	108	110	80-117	2
Bromoform	ug/L (ppb)	50	106	103	74-136	3
n-Propylbenzene	ug/L (ppb)	50	107	101	74-126	6
Bromobenzene	ug/L (ppb)	50	101	95	80-121	6
1,3,5-Trimethylbenzene	ug/L (ppb)	50	106	101	78-123	5
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	110	103	66-126	7
1,2,3-Trichloropropane	ug/L (ppb)	50	97	91	67-124	6
2-Chlorotoluene	ug/L (ppb)	50	105	100	77-127	5
4-Chlorotoluene	ug/L (ppb)	50	102	97	78-128	5
tert-Butylbenzene	ug/L (ppb)	50	108	102	80-123	6
1,2,4-Trimethylbenzene	ug/L (ppb)	50	108	104	79-122	4
sec-Butylbenzene	ug/L (ppb)	50	110	105	80-116	5
p-Isopropyltoluene	ug/L (ppb)	50	110	106	81-123	4
1,3-Dichlorobenzene	ug/L (ppb)	50	107	103	83-113	4
1,4-Dichlorobenzene	ug/L (ppb)	50	105	102	83-107	3
1,2-Dichlorobenzene	ug/L (ppb)	50	107	104	84-112	3
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	108	106	57-141	2
1,2,4-Trichlorobenzene	ug/L (ppb)	50	103	101	72-130	2
Hexachlorobutadiene	ug/L (ppb)	50	106	102	53-141	4
Naphthalene	ug/L (ppb)	50	104	102	64-133	2
1,2,3-Trichlorobenzene	ug/L (ppb)	50	102	98	65-136	4

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 analyte 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 due to sample matrix effects.

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.

910022

SAMPLE CHAIN OF CUSTODY

ME 10/01/19 VW1 / B02 G02

Page # _____ of _____

Report To Ron Whitman

Company Hart Crowser Env. Services

Address 6812 16th Ave NE

City, State, ZIP Seattle WA 98115

Phone _____ Email R.Whitman@hartcrowser.com

SAMPLERS (*signature*)

PROJECT NAME: Tesoro / Tesoro

PO #: WES 1591A

REMARKS

INVOICE TO

TURNAROUND TIME
- ☒ Standard Turnaround
- ☐ RUSH _____

Rush charges authorized by: _____

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
WES 16-GW	01A-D	10/1/19	11:20	GW	4	X		X		X							
																	Samples received at 4 °C

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		WES	10/1/19	12:00
Received by:	Michael Eachl	FCBn	↓	↓
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
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Eric Young, B.S.

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

October 15, 2019

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on October 3, 2019 from the 12th+Yesler WES 1591A, F&BI 910079 project. There are 17 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES1015R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 3, 2019 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th+Yesler WES 1591A, F&BI 910079 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
910079 -01	WES-16-1
910079 -02	WES-16-6
910079 -03	MW-13-6
910079 -04	MW-13-9
910079 -05	MW-13-11.5

All quality control requirements were acceptable.

Date of Report: 10/15/19
Date Received: 10/03/19
Project: 12th+Yesler WES 1591A, F&BI 910079
Date Extracted: 10/04/19
Date Analyzed: 10/04/19

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

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

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
WES-16-1 910079-01	<5	71
WES-16-6 910079-02	<5	78
MW-13-6 910079-03	<5	76
MW-13-9 910079-04	<5	74
MW-13-11.5 910079-05	<5	77
Method Blank 09-2420 MB	<5	75

Date of Report: 10/15/19
Date Received: 10/03/19
Project: 12th+Yesler WES 1591A, F&BI 910079
Date Extracted: 10/03/19
Date Analyzed: 10/03/19

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

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

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
WES-16-1 910079-01	81 x	1,200	100
WES-16-6 910079-02	<50	<250	101
MW-13-6 910079-03	<50	<250	111
MW-13-9 910079-04	<50	<250	105
MW-13-11.5 910079-05	<50	<250	105
Method Blank 09-2436 MB	<50	<250	100

Analysis For Total Metals By EPA Method 6020B

Client ID:	WES-16-1	Client:	Whitman Environmental Sciences
Date Received:	10/03/19	Project:	12th+Yesler WES 1591A
Date Extracted:	10/04/19	Lab ID:	910079-01 and 910079-01 x5
Date Analyzed:	10/04/19	Data File:	910079-01.104 and 910079-01 x5.095
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	12.1
Cadmium	2.13
Chromium	28.1
Lead	883
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	NA	Project:	12th+Yesler WES 1591A
Date Extracted:	10/04/19	Lab ID:	I9-620 mb2
Date Analyzed:	10/04/19	Data File:	I9-620 mb2.101
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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-16-1	Client:	Whitman Environmental Sciences
Date Received:	10/03/19	Project:	12th+Yesler WES 1591A
Date Extracted:	10/10/19	Lab ID:	910079-01
Date Analyzed:	10/10/19	Data File:	101050.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	93	107
Toluene-d8	98	87	110
4-Bromofluorobenzene	95	85	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.12
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WES-16-6	Client:	Whitman Environmental Sciences
Date Received:	10/03/19	Project:	12th+Yesler WES 1591A
Date Extracted:	10/10/19	Lab ID:	910079-02
Date Analyzed:	10/11/19	Data File:	101051.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	93	107
Toluene-d8	98	87	110
4-Bromofluorobenzene	97	85	112

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-13-6	Client:	Whitman Environmental Sciences
Date Received:	10/03/19	Project:	12th+Yesler WES 1591A
Date Extracted:	10/10/19	Lab ID:	910079-03
Date Analyzed:	10/11/19	Data File:	101052.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	93	107
Toluene-d8	99	87	110
4-Bromofluorobenzene	101	85	112

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-13-9	Client:	Whitman Environmental Sciences
Date Received:	10/03/19	Project:	12th+Yesler WES 1591A
Date Extracted:	10/10/19	Lab ID:	910079-04
Date Analyzed:	10/11/19	Data File:	101053.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	93	107
Toluene-d8	97	87	110
4-Bromofluorobenzene	94	85	112

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-13-11.5	Client:	Whitman Environmental Sciences
Date Received:	10/03/19	Project:	12th+Yesler WES 1591A
Date Extracted:	10/10/19	Lab ID:	910079-05
Date Analyzed:	10/11/19	Data File:	101054.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	93	107
Toluene-d8	98	87	110
4-Bromofluorobenzene	96	85	112

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th+Yesler WES 1591A
Date Extracted:	10/10/19	Lab ID:	09-2456 mb
Date Analyzed:	10/10/19	Data File:	101012.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	145
Toluene-d8	103	55	145
4-Bromofluorobenzene	97	65	139

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

Date of Report: 10/15/19
Date Received: 10/03/19
Project: 12th+Yesler WES 1591A, F&BI 910079

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

Laboratory Code: 910079-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	85	71-131

Date of Report: 10/15/19
Date Received: 10/03/19
Project: 12th+Yesler WES 1591A, F&BI 910079

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

Laboratory Code: 910073-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	108	104	64-133	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	108	58-147

Date of Report: 10/15/19
Date Received: 10/03/19
Project: 12th+Yesler WES 1591A, F&BI 910079

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

Laboratory Code: 909511-01 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	<5	99	104	75-125	5
Cadmium	mg/kg (ppm)	10	<5	96	98	75-125	2
Chromium	mg/kg (ppm)	50	17.6	88	88	75-125	0
Lead	mg/kg (ppm)	50	<5	106	108	75-125	2
Mercury	mg/kg (ppm	5	<5	103	104	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	109	80-120
Cadmium	mg/kg (ppm)	10	99	80-120
Chromium	mg/kg (ppm)	50	95	80-120
Lead	mg/kg (ppm)	50	114	80-120
Mercury	mg/kg (ppm)	5	109	80-120

Date of Report: 10/15/19
Date Received: 10/03/19
Project: 12th+Yesler WES 1591A, F&BI 910079

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

Laboratory Code: 910176-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	29	26	10-142	11
Chloromethane	mg/kg (ppm)	2.5	<0.5	61	61	10-126	0
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	66	64	10-138	3
Bromomethane	mg/kg (ppm)	2.5	<0.5	71	69	10-163	3
Chloroethane	mg/kg (ppm)	2.5	<0.5	72	73	10-176	1
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	69	70	10-176	1
Acetone	mg/kg (ppm)	12.5	<0.5	109	90	10-163	19
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	82	80	10-160	2
Hexane	mg/kg (ppm)	2.5	0.27	58	54	10-137	3
Methylene chloride	mg/kg (ppm)	2.5	<0.5	84	85	10-156	1
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	95	95	21-145	0
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	86	87	14-137	1
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	89	89	19-140	0
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	75	73	10-158	3
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	88	90	25-135	2
Chloroform	mg/kg (ppm)	2.5	<0.05	90	89	21-145	1
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	95	86	19-147	10
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	91	88	12-160	3
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	92	89	10-156	3
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	90	88	17-140	2
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	89	88	9-164	1
Benzene	mg/kg (ppm)	2.5	<0.03	87	86	29-129	1
Trichloroethene	mg/kg (ppm)	2.5	<0.02	98	96	21-139	2
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	92	88	30-135	4
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	89	86	23-155	3
Dibromomethane	mg/kg (ppm)	2.5	<0.05	89	86	23-145	3
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	101	93	24-155	8
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	90	86	28-144	5
Toluene	mg/kg (ppm)	2.5	<0.05	88	90	35-130	2
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	88	83	26-149	6
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	98	92	10-205	6
2-Hexanone	mg/kg (ppm)	12.5	<0.5	95	82	15-166	15
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	90	86	31-137	5
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	89	89	20-133	0
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	93	91	28-150	2
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	91	86	28-142	6
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	89	87	32-129	2
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	91	90	32-137	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	92	93	31-143	1
m,p-Xylene	mg/kg (ppm)	5	<0.1	92	91	34-136	1
o-Xylene	mg/kg (ppm)	2.5	<0.05	97	95	33-134	2
Styrene	mg/kg (ppm)	2.5	<0.05	95	93	35-137	2
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	95	96	31-142	1
Bromoform	mg/kg (ppm)	2.5	<0.05	101	93	21-156	8
n-Propylbenzene	mg/kg (ppm)	2.5	0.095	90	92	23-146	2
Bromobenzene	mg/kg (ppm)	2.5	<0.05	88	88	34-130	0
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	0.062	94	95	18-149	2
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	86	83	28-140	4
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	89	88	25-144	1
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	90	90	31-134	0
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	88	89	31-136	1
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	93	95	30-137	2
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	0.35	109	105	10-182	4
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	94	95	23-145	1
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	94	96	21-149	2
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	88	90	30-131	2
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	93	94	29-129	1
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	88	90	31-132	2
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	106	102	11-161	4
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	97	93	22-142	6
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	86	92	10-142	7
Naphthalene	mg/kg (ppm)	2.5	<0.05	103	105	14-157	2
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	90	94	20-144	4

Date of Report: 10/15/19
Date Received: 10/03/19
Project: 12th+Yesler WES 1591A, F&BI 910079

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	47	10-146
Chloromethane	mg/kg (ppm)	2.5	69	27-133
Vinyl chloride	mg/kg (ppm)	2.5	75	22-139
Bromomethane	mg/kg (ppm)	2.5	75	38-114
Chloroethane	mg/kg (ppm)	2.5	79	9-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	81	10-196
Acetone	mg/kg (ppm)	12.5	95	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	87	47-128
Hexane	mg/kg (ppm)	2.5	76	43-142
Methylene chloride	mg/kg (ppm)	2.5	84	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	90	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	88	67-129
1,1-Dichloroethane	mg/kg (ppm)	2.5	87	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	85	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	85	72-127
Chloroform	mg/kg (ppm)	2.5	85	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	81	72-127
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	82	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	89	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	83	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	89	60-139
Benzene	mg/kg (ppm)	2.5	80	68-114
Trichloroethene	mg/kg (ppm)	2.5	86	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	81	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	78	72-130
Dibromomethane	mg/kg (ppm)	2.5	81	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	84	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	79	75-136
Toluene	mg/kg (ppm)	2.5	78	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	77	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	81	75-113
2-Hexanone	mg/kg (ppm)	12.5	79	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	77	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	80	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	83	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	77	74-132
Chlorobenzene	mg/kg (ppm)	2.5	80	76-111
Ethylbenzene	mg/kg (ppm)	2.5	83	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	86	69-135
m,p-Xylene	mg/kg (ppm)	5	83	78-122
o-Xylene	mg/kg (ppm)	2.5	88	77-124
Styrene	mg/kg (ppm)	2.5	85	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	88	76-127
Bromoform	mg/kg (ppm)	2.5	88	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	83	74-124
Bromobenzene	mg/kg (ppm)	2.5	80	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	86	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	77	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	79	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	83	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	81	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	84	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	87	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	85	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	87	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	83	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	88	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	84	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	92	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	94	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	95	50-153
Naphthalene	mg/kg (ppm)	2.5	99	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	93	63-138

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 analyte 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 due to sample matrix effects.

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.

910079

SAMPLE CHAIN OF CUSTODY

ME 10-03-19

Page # _____ of BS2/VS1

Report To Liz Webber

Company Webber Env. Services

Address 6812 16th Ave NE

City, State, ZIP Seattle, WA 98115

Phone _____ Email webberliz@yahoo.com

SAMPLERS (*signature*)

PROJECT NAME: Ben + Jessie

PO # WES 159/A

REMARKS

INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	MTCA 5 Metals				Notes
WES-16-1	01A-E	10-1	AM	Soil	5		X	X		X			X				
WES-16-6	02																
MW-13-6	03																
MW-13-9	04																
MW-13-11.5	05																

Samples received at 19 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		WES	10-3-19	12:60
Received by:	Liz Webber-Bruya	FB1	10/3/19	1256
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
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

October 8, 2019

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on October 3, 2019 from the 12th+Yesler WES 1591A, F&BI 910084 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES1008R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 3, 2019 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th+Yesler WES 1591A, F&BI 910084 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
910084 -01	MW-13-GW

1,3-Dichloropropane in the 8260C 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.

Date of Report: 10/08/19
Date Received: 10/03/19
Project: 12th+Yesler WES 1591A, F&BI 910084
Date Extracted: 10/04/19
Date Analyzed: 10/04/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW-13-GW 910084-01	<100	82
Method Blank 09-2324 MB	<100	84

Date of Report: 10/08/19
Date Received: 10/03/19
Project: 12th+Yesler WES 1591A, F&BI 910084
Date Extracted: 10/04/19
Date Analyzed: 10/04/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW-13-GW 910084-01	<50	<250	106
Method Blank 09-2431 MB2	<50	<250	122

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-13-GW	Client:	Whitman Environmental Sciences
Date Received:	10/03/19	Project:	12th+Yesler WES 1591A
Date Extracted:	10/01/19	Lab ID:	910084-01
Date Analyzed:	10/04/19	Data File:	100420.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	AEN/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	93	107
Toluene-d8	101	91	108
4-Bromofluorobenzene	109 vo	90	108

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th+Yesler WES 1591A
Date Extracted:	10/04/19	Lab ID:	09-2401 mb
Date Analyzed:	10/04/19	Data File:	100418.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	AEN/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	93	107
Toluene-d8	101	91	108
4-Bromofluorobenzene	112	90	108

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 10/08/19
Date Received: 10/03/19
Project: 12th+Yesler WES 1591A, F&BI 910084

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	95	91	69-134	4

Date of Report: 10/08/19
Date Received: 10/03/19
Project: 12th+Yesler WES 1591A, F&BI 910084

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	72	88	58-134	20

Date of Report: 10/08/19
Date Received: 10/03/19
Project: 12th+Yesler WES 1591A, F&BI 910084

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

Laboratory Code: 910032-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	98	55-137
Chloromethane	ug/L (ppb)	50	<10	104	57-129
Vinyl chloride	ug/L (ppb)	50	<0.2	106	61-139
Bromomethane	ug/L (ppb)	50	<1	106	20-265
Chloroethane	ug/L (ppb)	50	<1	107	55-149
Trichlorofluoromethane	ug/L (ppb)	50	<1	109	65-137
Acetone	ug/L (ppb)	250	<50	100	48-149
1,1-Dichloroethene	ug/L (ppb)	50	<1	98	71-123
Hexane	ug/L (ppb)	50	<1	92	44-139
Methylene chloride	ug/L (ppb)	50	<5	72	61-126
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	85	68-125
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	89	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<1	93	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<1	81	48-157
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	95	63-126
Chloroform	ug/L (ppb)	50	3.5	96	77-117
2-Butanone (MEK)	ug/L (ppb)	250	<10	87	70-135
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	101	70-119
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	90	75-121
1,1-Dichloropropene	ug/L (ppb)	50	<1	99	67-121
Carbon tetrachloride	ug/L (ppb)	50	<1	95	70-132
Benzene	ug/L (ppb)	50	<0.35	99	75-114
Trichloroethene	ug/L (ppb)	50	<1	93	73-122
1,2-Dichloropropane	ug/L (ppb)	50	<1	104	80-111
Bromodichloromethane	ug/L (ppb)	50	<1	102	78-117
Dibromomethane	ug/L (ppb)	50	<1	102	73-125
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	103	79-140
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	101	76-120
Toluene	ug/L (ppb)	50	<1	99	73-117
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	101	75-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	106	81-116
2-Hexanone	ug/L (ppb)	250	<10	99	74-127
1,3-Dichloropropane	ug/L (ppb)	50	<1	107	80-113
Tetrachloroethene	ug/L (ppb)	50	5.5	97	40-155
Dibromochloromethane	ug/L (ppb)	50	<1	96	69-129
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	108	79-120
Chlorobenzene	ug/L (ppb)	50	<1	96	75-115
Ethylbenzene	ug/L (ppb)	50	<1	95	66-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	97	76-130
m,p-Xylene	ug/L (ppb)	100	<2	96	63-128
o-Xylene	ug/L (ppb)	50	<1	94	64-129
Styrene	ug/L (ppb)	50	<1	99	56-142
Isopropylbenzene	ug/L (ppb)	50	<1	92	74-122
Bromoform	ug/L (ppb)	50	<1	85	49-138
n-Propylbenzene	ug/L (ppb)	50	<1	103	65-129
Bromobenzene	ug/L (ppb)	50	<1	101	70-121
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	108	60-138
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	105	77-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	105	62-125
2-Chlorotoluene	ug/L (ppb)	50	<1	102	40-159
4-Chlorotoluene	ug/L (ppb)	50	<1	108	76-122
tert-Butylbenzene	ug/L (ppb)	50	<1	102	74-125
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	105	59-136
sec-Butylbenzene	ug/L (ppb)	50	<1	104	69-127
p-Isopropyltoluene	ug/L (ppb)	50	<1	102	64-132
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	97	77-113
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	96	75-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	96	70-120
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	109	69-129
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	94	66-123
Hexachlorobutadiene	ug/L (ppb)	50	<1	87	53-136
Naphthalene	ug/L (ppb)	50	<1	90	60-145
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	88	59-130

Date of Report: 10/08/19
Date Received: 10/03/19
Project: 12th+Yesler WES 1591A, F&BI 910084

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	83	67	50-157	21 vo
Chloromethane	ug/L (ppb)	50	105	99	62-130	6
Vinyl chloride	ug/L (ppb)	50	112	107	70-128	5
Bromomethane	ug/L (ppb)	50	115	115	60-143	0
Chloroethane	ug/L (ppb)	50	113	112	66-149	1
Trichlorofluoromethane	ug/L (ppb)	50	119	119	65-138	0
Acetone	ug/L (ppb)	250	144	141	44-145	2
1,1-Dichloroethene	ug/L (ppb)	50	107	109	72-121	2
Hexane	ug/L (ppb)	50	105	102	51-153	3
Methylene chloride	ug/L (ppb)	50	92	94	63-132	2
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	98	94	70-122	4
trans-1,2-Dichloroethene	ug/L (ppb)	50	95	94	76-118	1
1,1-Dichloroethane	ug/L (ppb)	50	99	98	77-119	1
2,2-Dichloropropane	ug/L (ppb)	50	99	96	62-141	3
cis-1,2-Dichloroethene	ug/L (ppb)	50	98	96	76-119	2
Chloroform	ug/L (ppb)	50	100	99	78-117	1
2-Butanone (MEK)	ug/L (ppb)	250	124	119	48-150	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	108	107	75-116	1
1,1,1-Trichloroethane	ug/L (ppb)	50	96	96	80-116	0
1,1-Dichloropropene	ug/L (ppb)	50	103	103	78-119	0
Carbon tetrachloride	ug/L (ppb)	50	101	101	72-128	0
Benzene	ug/L (ppb)	50	104	103	75-116	1
Trichloroethene	ug/L (ppb)	50	99	98	72-119	1
1,2-Dichloropropane	ug/L (ppb)	50	110	109	79-121	1
Bromodichloromethane	ug/L (ppb)	50	109	109	76-120	0
Dibromomethane	ug/L (ppb)	50	110	109	79-121	1
4-Methyl-2-pentanone	ug/L (ppb)	250	121	121	54-153	0
cis-1,3-Dichloropropene	ug/L (ppb)	50	114	113	76-128	1
Toluene	ug/L (ppb)	50	103	102	79-115	1
trans-1,3-Dichloropropene	ug/L (ppb)	50	115	115	76-128	0
1,1,2-Trichloroethane	ug/L (ppb)	50	112	113	78-120	1
2-Hexanone	ug/L (ppb)	250	114	115	49-147	1
1,3-Dichloropropane	ug/L (ppb)	50	115 vo	116 vo	81-111	1
Tetrachloroethene	ug/L (ppb)	50	101	102	78-109	1
Dibromochloromethane	ug/L (ppb)	50	110	107	63-140	3
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	116	117	82-118	1
Chlorobenzene	ug/L (ppb)	50	100	100	80-113	0
Ethylbenzene	ug/L (ppb)	50	101	101	83-111	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	104	104	76-125	0
m,p-Xylene	ug/L (ppb)	100	102	102	81-112	0
o-Xylene	ug/L (ppb)	50	100	100	81-117	0
Styrene	ug/L (ppb)	50	105	106	83-121	1
Isopropylbenzene	ug/L (ppb)	50	98	100	78-118	2
Bromoform	ug/L (ppb)	50	109	104	40-161	5
n-Propylbenzene	ug/L (ppb)	50	104	109	81-115	5
Bromobenzene	ug/L (ppb)	50	105	107	80-113	2
1,3,5-Trimethylbenzene	ug/L (ppb)	50	113	116	83-117	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	112	115	79-118	3
1,2,3-Trichloropropane	ug/L (ppb)	50	112	116	74-116	4
2-Chlorotoluene	ug/L (ppb)	50	105	108	79-112	3
4-Chlorotoluene	ug/L (ppb)	50	112	116	80-116	4
tert-Butylbenzene	ug/L (ppb)	50	109	110	81-119	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	111	113	81-121	2
sec-Butylbenzene	ug/L (ppb)	50	113	113	83-123	0
p-Isopropyltoluene	ug/L (ppb)	50	109	111	81-117	2
1,3-Dichlorobenzene	ug/L (ppb)	50	103	103	80-115	0
1,4-Dichlorobenzene	ug/L (ppb)	50	103	103	77-112	0
1,2-Dichlorobenzene	ug/L (ppb)	50	104	102	79-115	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	129	123	62-133	5
1,2,4-Trichlorobenzene	ug/L (ppb)	50	111	107	75-119	4
Hexachlorobutadiene	ug/L (ppb)	50	110	109	70-116	1
Naphthalene	ug/L (ppb)	50	111	107	72-131	4
1,2,3-Trichlorobenzene	ug/L (ppb)	50	107	103	74-122	4

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 analyte 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 due to sample matrix effects.

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.

910084

SAMPLE CHAIN OF CUSTODY ME 10/3/19 VWI / COS

Page # _____ of _____

Report To _____

Company _____

Address _____

City, State, ZIP _____

Phone _____ Email _____

SAMPLERS (*signature*)

PROJECT NAME: 1 FAM + GESLER

PO #: COS 1591A

REMARKS

INVOICE TO

TURNAROUND TIME
- ☐ Standard Turnaround
- ☒ RUSH FRIDAY?

Rush charges authorized by: _____

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
MW-13-GD	01A-D	10/3/19	4:15	WATER	4		X	X		X							

Samples received at 16 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		COS	10/3/19	5:16
Received by:	Khoi Hoang	FBI	10/3/19	5:16
Relinquished by:				
Received by:				

Samples received at ____ °C

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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fbi@isomedia.com
www.friedmanandbruya.com

October 21, 2019

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

Dear Mr Whitman:

Included are the results from the testing of material submitted on October 3, 2019 from the 12th+Yesler WES 1591A, F&BI 910085 project. There are 7 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
WES1021R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 3, 2019 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th+Yesler WES 1591A, F&BI 910085 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
910085 -01	DSVP-1
910085 -02	DSVP-2

The TO-15 calibration standard failed the acceptance criteria for bromomethane and 2-propanol. Methylene chloride and 2-propanol in the laboratory control sample failed the acceptance criteria. In addition, propene concentration for samples DSVP-1 and DSVP-2 exceeded the calibration range. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	DSVP-1	Client:	Whitman Environmental Sciences
Date Received:	10/03/19	Project:	12th+Yesler WES 1591A, F&BI 910085
Date Collected:	10/03/19	Lab ID:	910085-01 1/2.8
Date Analyzed:	10/09/19	Data File:	100841.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	85	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	240 ve	140 ve	1,2-Dichloropropane	0.70	0.15
Dichlorodifluoromethane	1.5	0.30	1,4-Dioxane	<1	<0.28
Chloromethane	<5.8	<2.8	2,2,4-Trimethylpentane	<13	<2.8
F-114	<2	<0.28	Methyl methacrylate	<11	<2.8
Vinyl chloride	65	25	Heptane	35	8.5
1,3-Butadiene	<0.062	<0.028	Bromodichloromethane	<0.19	<0.028
Butane	130	55	Trichloroethene	8.2	1.5
Bromomethane	<4.3 ca	<1.1 ca	cis-1,3-Dichloropropene	<1.3	<0.28
Chloroethane	<7.4	<2.8	4-Methyl-2-pentanone	<11	<2.8
Vinyl bromide	<1.2	<0.28	trans-1,3-Dichloropropene	<1.3	<0.28
Ethanol	<21	<11	Toluene	<53	<14
Acrolein	<2.6	<1.1	1,1,2-Trichloroethane	<0.31	<0.056
Pentane	120	41	2-Hexanone	19	4.6
Trichlorofluoromethane	<6.3	<1.1	Tetrachloroethene	<19	<2.8
Acetone	120	51	Dibromochloromethane	<0.24	<0.028
2-Propanol	51 ca	21 ca	1,2-Dibromoethane (EDB)	<0.22	<0.028
1,1-Dichloroethene	<1.1	<0.28	Chlorobenzene	<1.3	<0.28
trans-1,2-Dichloroethene	22	5.6	Ethylbenzene	1.8	0.41
Methylene chloride	<240 jl	<70 jl	1,1,2,2-Tetrachloroethane	<0.38	<0.056
t-Butyl alcohol (TBA)	<34	<11	Nonane	<15	<2.8
3-Chloropropene	<3.5	<1.1	Isopropylbenzene	<6.9	<1.4
CFC-113	<2.1	<0.28	2-Chlorotoluene	<14	<2.8
Carbon disulfide	25	8.0	Propylbenzene	<6.9	<1.4
Methyl t-butyl ether (MTBE)	<5	<1.4	4-Ethyltoluene	<6.9	<1.4
Vinyl acetate	<20	<5.6	m,p-Xylene	4.1	0.95
1,1-Dichloroethane	<1.1	<0.28	o-Xylene	1.9	0.45
cis-1,2-Dichloroethene	57	14	Styrene	<2.4	<0.56
Hexane	140	39	Bromoform	<5.8	<0.56
Chloroform	0.21	0.042	Benzyl chloride	<0.14	<0.028
Ethyl acetate	<20	<5.6	1,3,5-Trimethylbenzene	<6.9	<1.4
Tetrahydrofuran	<0.83	<0.28	1,2,4-Trimethylbenzene	<6.9	<1.4
2-Butanone (MEK)	32	11	1,3-Dichlorobenzene	32	5.3
1,2-Dichloroethane (EDC)	<0.11	<0.028	1,4-Dichlorobenzene	<0.67	<0.11
1,1,1-Trichloroethane	<1.5	<0.28	1,2-Dichlorobenzene	<1.7	<0.28
Carbon tetrachloride	<1.8	<0.28	1,2,4-Trichlorobenzene	<2.1	<0.28
Benzene	27	8.5	Naphthalene	2.7	0.52
Cyclohexane	<19	<5.6	Hexachlorobutadiene	<0.6	<0.056

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	DSVP-2	Client:	Whitman Environmental Sciences
Date Received:	10/03/19	Project:	12th+Yesler WES 1591A, F&BI 910085
Date Collected:	10/03/19	Lab ID:	910085-02 1/3.2
Date Analyzed:	10/09/19	Data File:	100842.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	88	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	170 ve	100 ve	1,2-Dichloropropane	<0.74	<0.16
Dichlorodifluoromethane	1.7	0.34	1,4-Dioxane	<1.2	<0.32
Chloromethane	<6.6	<3.2	2,2,4-Trimethylpentane	<15	<3.2
F-114	<2.2	<0.32	Methyl methacrylate	<13	<3.2
Vinyl chloride	<0.82	<0.32	Heptane	35	8.5
1,3-Butadiene	<0.071	<0.032	Bromodichloromethane	<0.21	<0.032
Butane	94	40	Trichloroethene	1.5	0.28
Bromomethane	<5 ca	<1.3 ca	cis-1,3-Dichloropropene	<1.5	<0.32
Chloroethane	<8.4	<3.2	4-Methyl-2-pentanone	<13	<3.2
Vinyl bromide	<1.4	<0.32	trans-1,3-Dichloropropene	<1.5	<0.32
Ethanol	<24	<13	Toluene	<60	<16
Acrolein	<2.9	<1.3	1,1,2-Trichloroethane	<0.35	<0.064
Pentane	71	24	2-Hexanone	<13	<3.2
Trichlorofluoromethane	<7.2	<1.3	Tetrachloroethene	<22	<3.2
Acetone	150	65	Dibromochloromethane	<0.27	<0.032
2-Propanol	77 ca	31 ca	1,2-Dibromoethane (EDB)	<0.25	<0.032
1,1-Dichloroethene	<1.3	<0.32	Chlorobenzene	<1.5	<0.32
trans-1,2-Dichloroethene	<1.3	<0.32	Ethylbenzene	4.8	1.1
Methylene chloride	<280 jl	<80 jl	1,1,2,2-Tetrachloroethane	<0.44	<0.064
t-Butyl alcohol (TBA)	<39	<13	Nonane	<17	<3.2
3-Chloropropene	<4	<1.3	Isopropylbenzene	<7.9	<1.6
CFC-113	<2.5	<0.32	2-Chlorotoluene	<17	<3.2
Carbon disulfide	44	14	Propylbenzene	<7.9	<1.6
Methyl t-butyl ether (MTBE)	<5.8	<1.6	4-Ethyltoluene	<7.9	<1.6
Vinyl acetate	<23	<6.4	m,p-Xylene	5.5	1.3
1,1-Dichloroethane	<1.3	<0.32	o-Xylene	2.6	0.59
cis-1,2-Dichloroethene	19	4.7	Styrene	<2.7	<0.64
Hexane	97	28	Bromoform	<6.6	<0.64
Chloroform	0.64	0.13	Benzyl chloride	<0.17	<0.032
Ethyl acetate	<23	<6.4	1,3,5-Trimethylbenzene	<7.9	<1.6
Tetrahydrofuran	<0.94	<0.32	1,2,4-Trimethylbenzene	<7.9	<1.6
2-Butanone (MEK)	26	8.7	1,3-Dichlorobenzene	36	6.0
1,2-Dichloroethane (EDC)	<0.13	<0.032	1,4-Dichlorobenzene	<0.77	<0.13
1,1,1-Trichloroethane	<1.7	<0.32	1,2-Dichlorobenzene	<1.9	<0.32
Carbon tetrachloride	<2	<0.32	1,2,4-Trichlorobenzene	<2.4	<0.32
Benzene	31	9.7	Naphthalene	18	3.5
Cyclohexane	<22	<6.4	Hexachlorobutadiene	<0.68	<0.064

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th+Yesler WES 1591A, F&BI 910085
Date Collected:	Not Applicable	Lab ID:	09-2452 mb
Date Analyzed:	10/09/19	Data File:	100826.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	88	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<0.69	<0.4	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<2.1	<1	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.27	<0.05
Bromomethane	<1.6 ca	<0.4 ca	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<0.92	<0.4	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6 ca	<3.5 ca	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<87 jl	<25 jl	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.3	<0.4	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.26	<0.05
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Date of Report: 10/21/19
Date Received: 10/03/19
Project: 12th+Yesler WES 1591A, F&BI 910085

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ppbv	5	88	70-130
Dichlorodifluoromethane	ppbv	5	104	70-130
Chloromethane	ppbv	5	87	70-130
F-114	ppbv	5	96	70-130
Vinyl chloride	ppbv	5	93	70-130
1,3-Butadiene	ppbv	5	95	70-130
Butane	ppbv	5	93	70-130
Bromomethane	ppbv	5	93	70-130
Chloroethane	ppbv	5	93	70-130
Ethanol	ppbv	5	90	70-130
Acrolein	ppbv	5	92	70-130
Pentane	ppbv	5	97	70-130
Trichlorofluoromethane	ppbv	5	104	70-130
Acetone	ppbv	5	80	70-130
2-Propanol	ppbv	5	66 vo	70-130
1,1-Dichloroethene	ppbv	5	99	70-130
trans-1,2-Dichloroethene	ppbv	5	95	70-130
Methylene chloride	ppbv	5	66 vo	70-130
t-Butyl alcohol (TBA)	ppbv	5	96	70-130
3-Chloropropene	ppbv	5	97	70-130
CFC-113	ppbv	5	93	70-130
Carbon disulfide	ppbv	5	90	70-130
Methyl t-butyl ether (MTBE)	ppbv	5	101	70-130
Vinyl acetate	ppbv	5	84	70-130
1,1-Dichloroethane	ppbv	5	95	70-130
cis-1,2-Dichloroethene	ppbv	5	95	70-130
Hexane	ppbv	5	94	70-130
Chloroform	ppbv	5	96	70-130
Ethyl acetate	ppbv	5	91	70-130
Tetrahydrofuran	ppbv	5	99	70-130
2-Butanone (MEK)	ppbv	5	91	70-130
1,2-Dichloroethane (EDC)	ppbv	5	98	70-130
1,1,1-Trichloroethane	ppbv	5	98	70-130
Carbon tetrachloride	ppbv	5	103	70-130
Benzene	ppbv	5	95	70-130
Cyclohexane	ppbv	5	84	70-130
1,2-Dichloropropane	ppbv	5	89	70-130
1,4-Dioxane	ppbv	5	99	70-130
2,2,4-Trimethylpentane	ppbv	5	97	70-130
Methyl methacrylate	ppbv	5	102	70-130

Date of Report: 10/21/19
Date Received: 10/03/19
Project: 12th+Yesler WES 1591A, F&BI 910085

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample (continued)

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Heptane	ppbv	5	94	70-130
Bromodichloromethane	ppbv	5	94	70-130
Trichloroethene	ppbv	5	95	70-130
cis-1,3-Dichloropropene	ppbv	5	94	70-130
4-Methyl-2-pentanone	ppbv	5	101	70-130
trans-1,3-Dichloropropene	ppbv	5	98	70-130
Toluene	ppbv	5	89	70-130
1,1,2-Trichloroethane	ppbv	5	80	70-130
2-Hexanone	ppbv	5	95	70-130
Tetrachloroethene	ppbv	5	88	70-130
Dibromochloromethane	ppbv	5	91	70-130
1,2-Dibromoethane (EDB)	ppbv	5	95	70-130
Chlorobenzene	ppbv	5	95	70-130
Ethylbenzene	ppbv	5	91	70-130
1,1,2,2-Tetrachloroethane	ppbv	5	81	70-130
Nonane	ppbv	5	92	70-130
Isopropylbenzene	ppbv	5	84	70-130
2-Chlorotoluene	ppbv	5	90	70-130
Propylbenzene	ppbv	5	90	70-130
4-Ethyltoluene	ppbv	5	92	70-130
m,p-Xylene	ppbv	10	90	70-130
o-Xylene	ppbv	5	95	70-130
Styrene	ppbv	5	87	70-130
Bromoform	ppbv	5	91	70-130
Benzyl chloride	ppbv	5	96	70-130
1,3,5-Trimethylbenzene	ppbv	5	90	70-130
1,2,4-Trimethylbenzene	ppbv	5	88	70-130
1,3-Dichlorobenzene	ppbv	5	95	70-130
1,4-Dichlorobenzene	ppbv	5	87	70-130
1,2-Dichlorobenzene	ppbv	5	90	70-130
1,2,4-Trichlorobenzene	ppbv	5	78	70-130
Naphthalene	ppbv	5	102	70-130
Hexachlorobutadiene	ppbv	5	88	70-130

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 analyte 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 due to sample matrix effects.

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.

(NP) 9100885 910085

SAMPLE CHAIN OF CUSTODY

ME 10/3/19

Report To Ted Whitman

Company Whitman Env. Services

Address 6812 16th Ave NE

City, State, ZIP Seattle, WA 98115

Phone _____ Email whitmanro@yahoo.com

SAMPLERS (*signature*)	
PROJECT NAME: 12th + Yesler	PO #: WES 1591A
REPORTING LEVEL: ☐ Indoor Air ☒ Deep Soil Gas ☐ Sub Slab/Soil Gas ☐ SVE/Grab	INVOICE TO

Page # _____ of _____

TURNAROUND TIME
☒ Standard
☐ RUSH _____
Rush charges authorized by: _____

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

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	TO-15 BTEXN	TO-15 cVOCs		Notes
DSVP-1	01	3249	231	10-3	30	3:20	7	5:27	X				
DSVP-2	02	3674	225	10-3	30	3:00	5	3:07	X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		WES	10/3/19	5:17
Received by:	Khoi Hoang	FBI	10/3/19	5:17
Relinquished by:				
Received by:				

Samples received at 16 °C

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

APPENDIX E

Data from Prior Site Investigations
2014 AEG Phase II of 124 12th Avenue Parcel
2016 Farallon Phase II of 104 12th Avenue Parcel

FILENAME	DRAWN BY		CHECKED BY		APPROVED BY		PROJECT NUMBER
14-142_14Q4_1.DWG	ICD	11/4/2014	LC	11/4/2014	LC	11/4/2014	14-142

N
W E
S

PROJECT LOCATION



VICINITY MAP

0 1,500 3,000
SCALE IN FEET

NOTES

1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE
2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT.

REFERENCE

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.
VICINITY IMAGE SOURCE: U.S. GEOLOGICAL SURVEY– 2013, 7.5 MINUTE QUADRANGLE MAP SEATTLE, WASHINGTON



0 50 100
SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 1

SITE VICINITY MAP

110 12TH AVENUE
SEATTLE, WASHINGTON

PROJECT NUMBER	14-142
APPROVED BY	LC 11/04/2014
CHECKED BY	LC 11/04/2014
DRAWN BY	ICD 11/04/2014
FILENAME	14-142_1404_1.DWG

SIDEWALK

BUILDING

SIDEWALK

PLANTER

PLANTER

E FIRST STREET

SIDEWALK

PLANTER

PLANTER

SIDEWALK

SIDEWALK

BUILDING

SIDEWALK

PLANTER

PLANTER

SIDEWALK

B-6

B-1

PARKING LOT

B-2

B-5

B-3

B-4

BUILDING

BUILDING

BUILDING

BUILDING

BUILDING

BUILDING

BUILDING

BUILDING

12TH AVENUE

N

W E

S

LEGEND

PROPERTY LINE

TENTATIVE BORING LOCATION

NOTES

1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE
2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT.

REFERENCE

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.

0 10 20

SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 2

SITE MAP

110 12TH AVENUE
SEATTLE, WASHINGTON

Table 1 - Summary of Soil Analytical Results

Orion 12th Ave Seattle
Seattle, Washington

Boring	Sample Number	Depth Collected (feet)	Date Collected	Total Petroleum Hydrocarbons (TPH) (mg/kg)			Volatile Organic Compounds (mg/kg)			
				Gasoline	Diesel	Lube Oil	Benzene	Toluene	Ethylbenzene	Xylenes
B-1	B1-S1-15	15.0	10/21/2014	<10	<50	<100	<0.02	<0.05	<0.05	<0.15
B-2	B2-S1-10	10.0	10/21/2014	<10	<50	**160**	<0.02	<0.05	<0.05	<0.15
	B2-S2-13.5	13.5	10/21/2014	<10	<50	<100	<0.02	<0.05	<0.05	<0.15
	B2-S3-20	20.0	10/21/2014	**11**	**150**	<100	<0.02	<0.05	<0.05	<0.15
B-3	B3-S1-15	15.0	10/21/2014	**2500**	<50	<100	<0.02	<0.05	**0.34**	**0.20**
B-4	B4-S1-14	14.0	10/21/2014	<10	<50	<100	<0.02	<0.05	<0.05	<0.15
B-5	B5-S1-11.5	11.5	10/21/2014	<10	<50	<100	<0.02	<0.05	<0.05	<0.15
	B5-S2-18.5	18.5	10/21/2014	<10	<50	<100	<0.02	<0.05	<0.05	<0.15
B-6	B6-S1-13.5	13.5	10/21/2014	**480**	<50	<100	<0.02	<0.05	**0.56**	**2.80**
	B6-S2-18	18.0	10/21/2014	**50**	<50	<100	<0.02	<0.05	**0.23**	**0.66**
PQL (mg/kg)				10	50	50	0.02	0.05	0.05	0.15
MTCA Method A Cleanup Levels (mg/kg)				100	2000	2000	0.03	7	6	9

Notes:
mg/kg = milligrams per kilogram
-- Not analyzed for constituent
< Not detected at the listed laboratory detection limits
PQL = Practical Quantification Limit (laboratory detection 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

Table 2 - Summary of Groundwater Analytical Results

Orion 12th Ave Seattle
Seattle, Washington

Sample Number	Date Collected	Total Petroleum Hydrocarbons (TPH) (ug/l)			Volatile Organic Compounds (µg/l)			
		Gasoline (µg/l)	Diesel	Lube Oil	Benzene	Toluene	Ethylbenzene	Xylenes
B1-W	10/21/2014	<100	<250	<500	<1.0	<1.0	<1.0	<3.0
B2-W	10/21/2014	<100	<250	<500	<1.0	<1.0	<1.0	<3.0
B3-W	10/21/2014	**14,000**	<250	<500	**7.6**	**4.2**	**26.0**	**12.0**
B4-W	10/21/2014	**740**	<250	<500	**15**	<1.0	<1.0	**14.0**
B5-W	10/21/2014	<100	<250	<500	<1.0	<1.0	<1.0	<3.0
PQL (µg/l)		100	250	500	1.0	1.0	1.0	3.0
MTCA Method A Cleanup Levels (µg/l)		800	500	500	5.0	1,000	700	1,000

Notes:
ug/L= micrograms per liter
-- Not analyzed for constituent
< Not detected at the listed laboratory detection limits
PQL = Practical Quantification Limit (laboratory detection 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

APPENDIX A

Site Photographs

605 11th Ave. SE, Suite 201 • Olympia, WA • 98501
Phone: 360-352-9835 • Fax: 360-352-8164 • Email: admin@aegwa.com

ASSOCIATED ENVIRONMENTAL GROUP, LLC

SITE PHOTOGRAPHIC RECORD

Orion 12th Ave Seattle
Project Number: 14-142
November 4, 2014

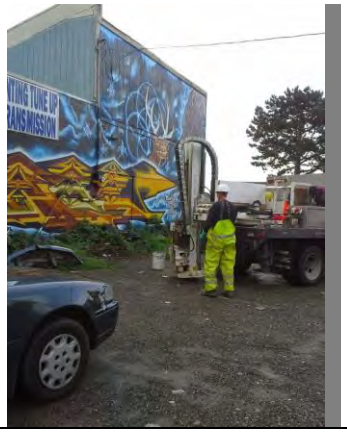


Photo #1:	*Boring B-1 being advanced. Photo looking southwest.*

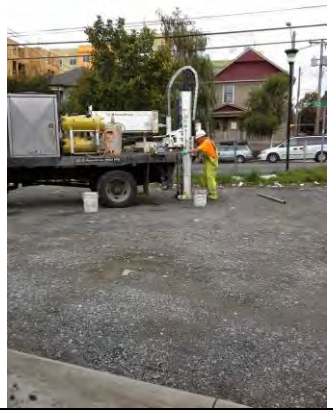


Photo #2:	*Boring B-6 being advanced. Photo looking east.*



Photo #3:	*Core samples from B-3.*



Photo #4:	*Core samples from B-4.*



Photo #5:	*Core samples from B-2.*

605 11th Avenue SE, Suite 201 • Olympia, WA • 98501
Phone: 360-352-9835 • Fax: 360-352-8164 • Email: admin@aegwa.com

APPENDIX B

Supporting Documents
Boring Logs
Laboratory Datasheets

605 11th Ave. SE, Suite 201 • Olympia, WA • 98501
Phone: 360-352-9835 • Fax: 360-352-8164 • Email: admin@aegwa.com

ASSOCIATED ENVIRONMENTAL GROUP, LLC **LOG OF BOREHOLE**

PROJECT:	***Orion 12th Avenue - Seattle***	**JOB #** ***14-142***	**BORING #** ***B-1*** **PAGE 1 OF 1**
Location:	*110 12th Ave, Seattle, Washington*	**Approximate Elevation:**	
Subcontractor / Driller:	*ESN / Casey*	**Equipment / Drilling Method:**	*Geoprobe / Direct Push*
Date:	*October 21, 2014*	**Logged By:**	*B. Dilba*

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Gravel surface underlain by; Light gray, moist, medium dense GRAVELLY SAND; fine grained sand, fine to medium gravel	SP				9:00	N/A			
5	at 4.5 feet; broken brick material									
10										
15	Dark brown, moist, medium dense SILTY SAND; fine grained	SM			B1-S1-15	9:15		0.0		
20	at 19 feet; saturated, with medium gravel, some silt								Not observed	
25										

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- ATD — Groundwater level at time of drilling or date of measurement

ASSOCIATED ENVIRONMENTAL GROUP, LLC **LOG OF BOREHOLE**

PROJECT:	***Orion 12th Avenue c- Seattle***	**JOB #** ***14-142***	**BORING #** ***B-2*** **PAGE 1 OF 1**
Location:	*110 12th Ave, Seattle, Washington*	**Approximate Elevation:**	
Subcontractor / Driller:	*ESN / Casey*	**Equipment / Drilling Method:**	*Geoprobe / Direct Push*
Date:	*October 21, 2014*	**Logged By:**	*B. Dilba*

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Gravel surface underlain by; Light gray, moist, dense GRAVELLY SAND; medium grained sand, fine to medium gravel, trace of organic material	SP	1			9:55	N/A			
			2							
			3							
			4							
5			5							
			6							
			7							
			8							
			9							
10			10		B2-S1-10	10:10		0.1		Odor
	at 10 feet; discolored soil		11							
			12							
			13		B2-S2-13.5	10:15		0.3		Strong Odor
		▽	14						Not observed	
15	at 14 feet; dark gray, saturated, dense		15							
			16							
	Dark gray, moist, stiff GRAVELLY SILT; trace of clay	ML	17							
			18							
			19							
20			20		B2-S3-20	11:00				Odor
	Dark gray, saturated, loose SANDY GRAVEL; fine grained grael, fine sand	GP	21							
	Dark gray, moist, stiff GRAVELLY SILT; fine gravel, trace of clay, trace organics	ML	22							
			23							
			24							
25			25							

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- ATD — Groundwater level at time of drilling or date of measurement

ASSOCIATED ENVIRONMENTAL GROUP, LLC **LOG OF BOREHOLE**

PROJECT:	***Orion 12th Avenue - Seattle***	**JOB #** ***14-142***	**BORING #** ***B-3*** **PAGE 1 OF 1**
Location:	*110 12th Ave, Seattle, Washington*	**Approximate Elevation:**	
Subcontractor / Driller: *ESN / Casey*		**Equipment / Drilling Method:** *Geoprobe / Direct Push*	
Date:	*October 21, 2014*	**Logged By:**	*B. Dilba*

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Gravel surface underlain by; Brown, dry, medium dense GRAVELLY SAND; fine grained sand, fine gravel, organic content	SP				11:30	N/A			
	at 7 feet; Yellowish brown									
5										
	at 9 feet; brick residue									
10										
15	Black, moist, medium dense SILTY SAND; fine grained, trace organics	SM			B3-S1-15	11:00		0.3	Not observed	Odor
	at 17 feet; gray, saturated, dense									
20										
	Dark gray, moist, stiff GRAVELLY SILT; fine gravel, trace organics	ML								
25										

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- ATD — Groundwater level at time of drilling or date of measurement

ASSOCIATED ENVIRONMENTAL GROUP, LLC **LOG OF BOREHOLE**

PROJECT:	***Orion 12th Avenue - Seatlle***	**JOB #** ***14-142***	**BORING #** ***B-4*** **PAGE 1 OF 1**
Location:	*110 12th Ave, Seattle, Washington*	**Approximate Elevation:**	
Subcontractor / Driller: *ESN / Casey*		**Equipment / Drilling Method:** *Geoprobe / Direct Push*	
Date:	*October 21, 2014*	**Logged By:**	*B. Dilba*

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Gravel surface underlain by; Light brown, moist, medium, dense GRAVELLY SAND; fine to medium grained sand, fine gravel, trace organics	SP	1–5				N/A			
5	at 9.5 feet; brick material		6–10							
10			11–15		B4-S1-14	13:00		0.1	Not observed	Slight odor
15	Greenish gray, saturated, dense SILTY SAND; fine grained	SM	16–20							
20	at 16.5 feet; moist		21–25							
25										

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- ATD — Groundwater level at time of drilling or date of measurement

ASSOCIATED ENVIRONMENTAL GROUP, LLC **LOG OF BOREHOLE**

PROJECT: *12th Ave Parking Lot*	**JOB #** *14-142*	**BORING #** *B-5*	**PAGE 1 OF 1**
Location: *110 12th Ave, Seattle, Washington*	**Approximate Elevation:**		
Subcontractor / Driller: *ESN/Casey*	**Equipment / Drilling Method:**		*Geoprobe*
Date: *October 21, 2014*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Gravel surface underlain by; Light gray, moist, medium dense GRAVELLY SAND; fine grained sand, fine gravel	SP	1–5			13:55	N/A			
5			6–8							
	Brown,moist, medium dense SILTY SAND; fine grained sand, with fine to medium gravel	SM	9–10							
10			11–15		B5-S1-11.5	1415		0.1		faint odor
	at 11.5 feet; greenish gray									
15			16						Not observed	
	at 16 feet; a 0.5 foot layer of light gray GRAVELLY SAND, underlain by: Black moist, dense SILTY SAND, fine grained	SP SM	17–20		B5-S2-18.5	14:25		0.0		
20	at 19 feet; greenish gray, saturated									
			21–25							
25										

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- ATD — Groundwater level at time of drilling or date of measurement

ASSOCIATED ENVIRONMENTAL GROUP, LLC **LOG OF BOREHOLE**

PROJECT:	***Orion 12th Avenue - Seattle***	**JOB #** ***14-142***	**BORING #** ***B-6*** **PAGE 1 OF 1**
Location:	*110 12th Ave, Seattle, Washington*	**Approximate Elevation:**	
Subcontractor / Driller: *ESN / Casey*		**Equipment / Drilling Method:** *Geoprobe / Direct Push*	
Date:	*October 21, 2014*	**Logged By:** *B. Dilba*	

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Gravel surface underlain by; Brown, moist, medium dense GRAVELLY SAND; fine grained sand, fine gravel	SP	1–5				N/A			
5			5							
10			10							
			13		B6-S1-13.5	15:15		10		odor from 13.5 to 15.0
	Dark green, moist, dense SILTY SAND with GRAVEL; fine sand, fine gravel	SM	14							
15	at 14 feet; GREENISH GRAY, trace of fine gravel, trace of clay		15							
			18		B6-S2-18	15:25		2.8		Odor from 16.5 to 18.5
20	at 19.5 feet; wet, with fine gravel	▽	20						Not observed	
25			25							

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- ATD — Groundwater level at time of drilling or date of measurement

ESN NORTHWEST, INC. | Environmental Services Network

CHAIN-OF-CUSTODY RECORD

CLIENT: AEG
ADDRESS: 605 11th Ave Suite 201 Olympia, WA
PHONE: (360) 352-9835 FAX:
CLIENT PROJECT #: 14-142 PROJECT MANAGER: M. Chun

DATE: 10/22/14 PAGE 1 OF 1
PROJECT NAME: 12th Ave Parking Lot
LOCATION: Seattle, WA
COLLECTOR: B. Dulba DATE OF COLLECTION: 10/21/14

Sample Number	Depth	Time	Sample Type	Container Type	TPH - HCID	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	Asbestos - PLM	GRO Suite	DRO Suite	WO Suite	NOTES	Total Number of Containers	Laboratory Note Number
1. B1-S1-15	15	0915	Soil	4oz/40mL	X	X	X																3	
2. B2-S1-10	10	1010																					3	
3. B2-S2-13.5	13.5	1015																					3	
4. B2-S3-20	20	1100																					3	
5. B3-S1-15	15	1145																					3	
6. B4-S1-14	14	1300																					3	
7. B5-S1-11.5	11.5	1415																					3	
8. B5-S2-18.5	18.5	1425																					3	
9. B6-S1-13.5	13.5	1515																					3	
10. B6-S2-18	18	1525	Soil																				3	
11. B1-W	-	1615	Water	Amber/40mL																			2	
12. B2-W	-	1115		Amber/40mL																			3	
13. B3-W	-	1215																					3	
14. B4-W	-	1338																					3	
15. B5-W	-	1455																					3	
16.																								
17.																								
18.																								

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
[signature]	10/22/14 0930	[signature]	10/22/14
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
			930

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR (5 DAY)

1210 Eastside Street SE, Suite 200
Olympia, Washington 98501
Phone: 360-459-4670
Fax: 360-459-3432
Website: www.esnnw.com
E-Mail: info@esnnw.com

ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group
PROJECT 12th AVE PARKING LOT
PROJECT #14-142
Seattle, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Diesel Range Organics & Lube Oil Range Organics in Soil by Method NWTPH-Dx Extended

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (mg/kg)	Lube Oil Range Organics (mg/kg)
Method Blank	10/24/2014	10/24/2014	118	nd	nd
LCS	10/24/2014	10/24/2014	119	62%	---
B1-S1-15	10/24/2014	10/24/2014	115	nd	nd
B2-S1-10	10/24/2014	10/24/2014	124	nd	**160**
B2-S2-13.5	10/24/2014	10/24/2014	102	nd	nd
B2-S3-20	10/24/2014	10/24/2014	126	**150**	nd
B3-S1-15	10/24/2014	10/24/2014	126	nd	nd
B4-S1-14	10/24/2014	10/24/2014	131	nd	nd
B4-S1-14 Duplicate	10/24/2014	10/24/2014	119	nd	nd
B5-S1-11.5	10/24/2014	10/24/2014	118	nd	nd
B5-S2-18.5	10/24/2014	10/24/2014	107	nd	nd
B6-S1-13.5	10/24/2014	10/27/2014	115	nd	nd
B6-S2-18	10/24/2014	10/27/2014	128	nd	nd
Reporting Limits				50	100

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group
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PROJECT #14-142
Seattle, Washington

ESN Northwest
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Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Diesel Range Organics & Lube Oil Range Organics in Water by Method NWTPH-Dx Extended

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (ug/L)	Lube Oil Range Organics (ug/L)
Method Blank	10/23/2014	10/23/2014	132	nd	nd
LCS	10/23/2014	10/23/2014	138	89%	---
B1-W	10/23/2014	10/23/2014	129	nd	nd
B2-W	10/23/2014	10/23/2014	147	nd	nd
B3-W	10/23/2014	10/23/2014	134	nd	nd
B4-W	10/23/2014	10/23/2014	117	nd	nd
B5-W	10/23/2014	10/23/2014	109	nd	nd
Reporting Limits				250	500

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group
PROJECT 12th AVE PARKING LOT
PROJECT #14-142
Seattle, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Gasoline Range Organics & BTEX in Soil by Method NWTPH-Gx/8260

Sample Number	Date Prepared	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline Range Organics (mg/kg)	Surrogate Recovery (%)
Method Blank	10/22/2014	10/22/2014	nd	nd	nd	nd	nd	118
LCS	10/22/2014	10/22/2014	76%	85%	87%	91%	92%	104
LCSD	10/22/2014	10/22/2014	90%	98%	102%	103%	---	102
B1-S1-15	10/21/2014	10/1/2314	nd	nd	nd	nd	nd	116
B2-S1-10	10/21/2014	10/22/2014	nd	nd	nd	nd	nd	116
B2-S2-13.5	10/21/2014	10/22/2014	nd	nd	nd	nd	nd	116
B2-S3-20	10/21/2014	10/22/2014	nd	nd	nd	nd	**11**	117
B3-S1-15	10/21/2014	10/22/2014	nd	nd	**0.34**	**0.20**	**2500**	113
B4-S1-14	10/21/2014	10/23/2014	nd	nd	nd	nd	nd	115
B5-S1-11.5	10/21/2014	10/23/2014	nd	nd	nd	nd	nd	108
B5-S2-18.5	10/21/2014	10/22/2014	nd	nd	nd	nd	nd	111
B6-S1-13.5	10/21/2014	10/23/2014	nd	nd	**0.56**	**2.8**	**480**	113
B6-S2-18	10/21/2014	10/23/2014	nd	nd	**0.23**	**0.66**	**50**	116
B6-S2-18 Duplicate	10/21/2014	10/23/2014	nd	nd	**0.08**	**0.24**	**23**	115
Reporting Limits			0.02	0.05	0.05	0.15	10	

"---" Indicates not tested for component.
"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Bromoflurorbenzene) & LCS : 65% TO 135%

ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group
PROJECT 12th AVE PARKING LOT
PROJECT #14-142
Seattle, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Gasoline Range Organics & BTEX in Water by Method NWTPH-Gx/8260

Sample Number	Date Analyzed	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	Gasoline Range Organics (ug/L)	Surrogate Recovery (%)
Method Blank	10/24/2014	nd	nd	nd	nd	nd	114
LCS	10/24/2014	85%	85%	87%	86%	98%	102
LCSD	10/24/2014	91%	83%	94%	116%	---	132
B1-W	10/24/2014	nd	nd	nd	nd	nd	115
B2-W	10/24/2014	nd	nd	nd	nd	nd	117
B3-W	10/24/2014	**7.6**	**4.2**	**26**	**12**	**14,000**	119
B4-W	10/24/2014	**15**	nd	nd	**14**	**740**	115
B5-W	10/24/2014	nd	nd	nd	nd	nd	122
B5-W Duplicate	10/24/2014	nd	nd	nd	nd	nd	121
Trip Blank	10/24/2014	nd	nd	nd	nd	nd	119
Reporting Limits		1.0	1.0	1.0	3.0	100	

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Bromoflurorbenzene) & LCS: 65% TO 135%

Farallon 2016 Bore Logs
from WDOE Well Log Database

RESOURCE PROTECTION WELL REPORT Notice of Intent No. KE-12220

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

MW-1

Construction/Decommission *("x" in circle)*

- (x) Construction
- ( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

- (x) Resource Protection
- ( ) Geotech Soil Boring

Property Owner Spectrum Development

Unique Ecology Well ID Tag No. BIS-195

Consulting Firm Pan Geo

Driller or Trainee Name Robert A Sheldon

Driller or Trainee Signature [signature]

Driller or Trainee License No. 1815

If trainee, licensed driller's Signature and License no. _____

Site Address 104 12th AVE

City Seattle County: King

Location NE 1/4- 1/4 NE 1/4 Sec 5 Twn 24 R 4 (EWM circle one / WWM)

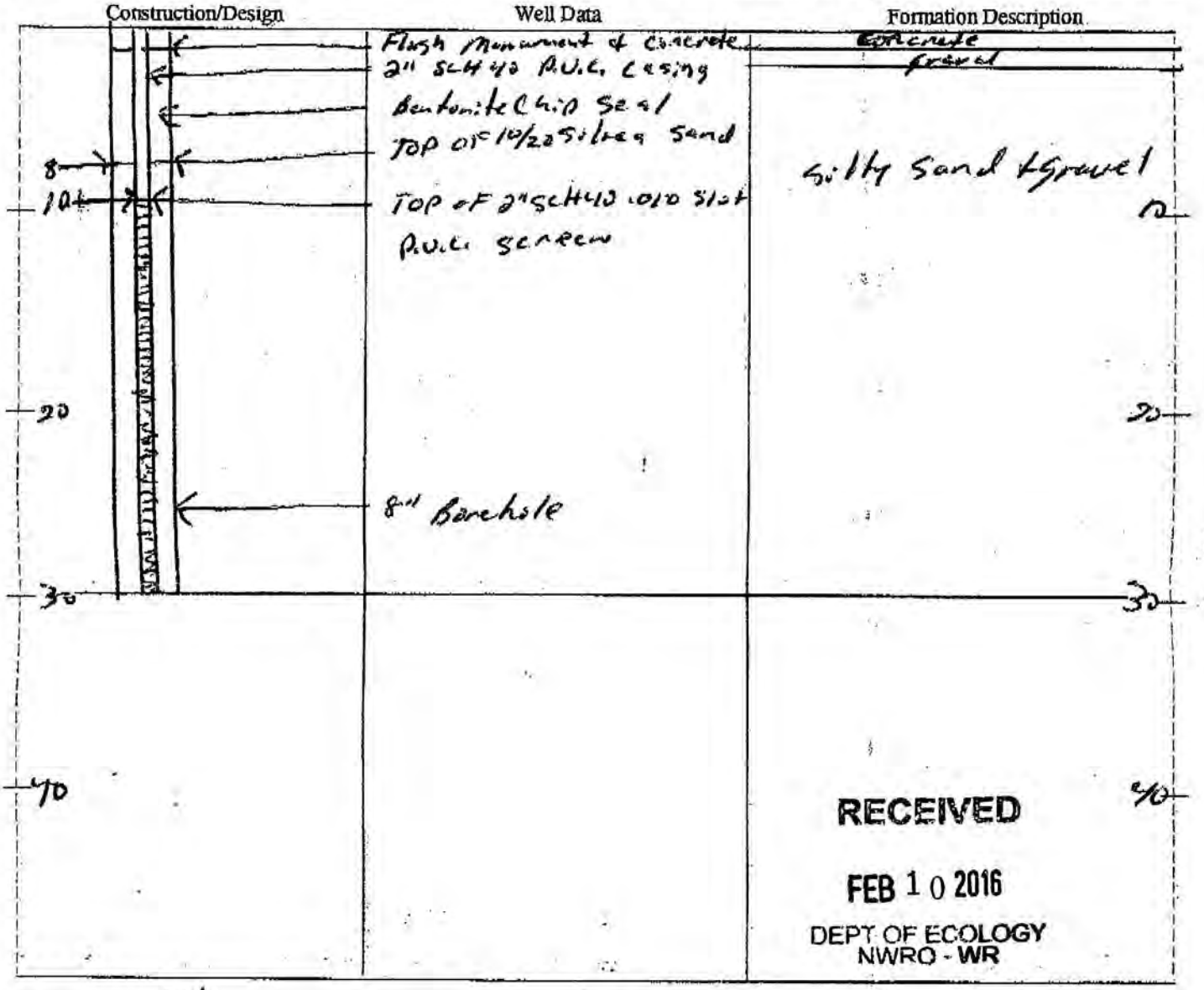
Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level _____

Work/Decommission Start Date 12-21-15

Work/Decommission Completed Date 12-23-15



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Scale 1"= 10'

Page 1 of 1

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The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report

RESOURCE PROTECTION WELL REPORT

Notice of Intent No. KE-12220

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

MW-4

Construction/Decommission *("x" in circle)*

- (x) Construction
- ( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

- (x) Resource Protection
- ( ) Geotech Soil Boring

Property Owner Spectrum Development

Site Address 104 12th AVE

Unique Ecology Well ID Tag No. BFS-187

City Seattle County: King

Consulting Firm Pan Geo

Location NE 1/4- 1/4 NE 1/4 Sec 5 Twn 24 R 4 (EWM) WWM *circle one*

Driller or Trainee Name Robert A Sheldon

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Driller or Trainee Signature _____

Long Deg _____ Long Min/Sec _____

Driller or Trainee License No. 1815

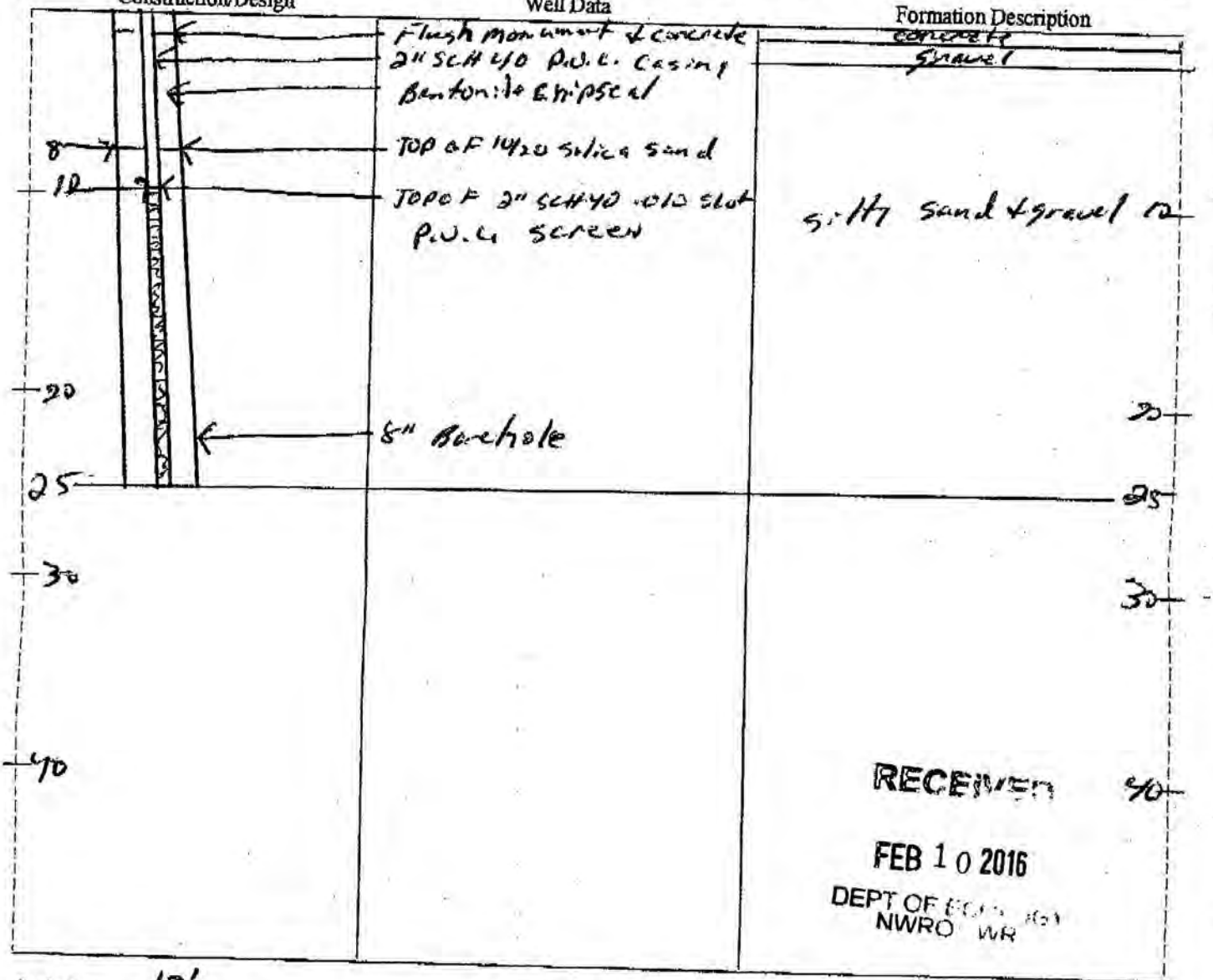
Tax Parcel No. _____

If trainee, licensed driller's Signature and License no. _____

Cased or Uncased Diameter 2" Static Level _____

Work/Decommission Start Date 12-21-15

Work/Decommission Completed Date 12-23-15



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NWRO WR

Scale 1"= 10'

Page 1 of 1

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The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report

RESOURCE PROTECTION WELL REPORT

Notice of Intent No. KE-12220

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

MW-2

Construction/Decommission *("x" in circle)*

(x) Construction
( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

(x) Resource Protection
( ) Geotech Soil Boring

Property Owner Spectrum Development

Site Address 1064 12th Ave

Unique Ecology Well ID Tag No. BTS-[redacted]196

City Seattle County: King

Consulting Firm Pan Geo

Location NE 1/4 - 1/4 NE 1/4 Sec 5 Twn 24 R 4 EWM WWM (circle one)

Driller or Trainee Name Robert A Sheldon

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Driller or Trainee Signature [signature]

Long Deg _____ Long Min/Sec _____

Driller or Trainee License No 1815

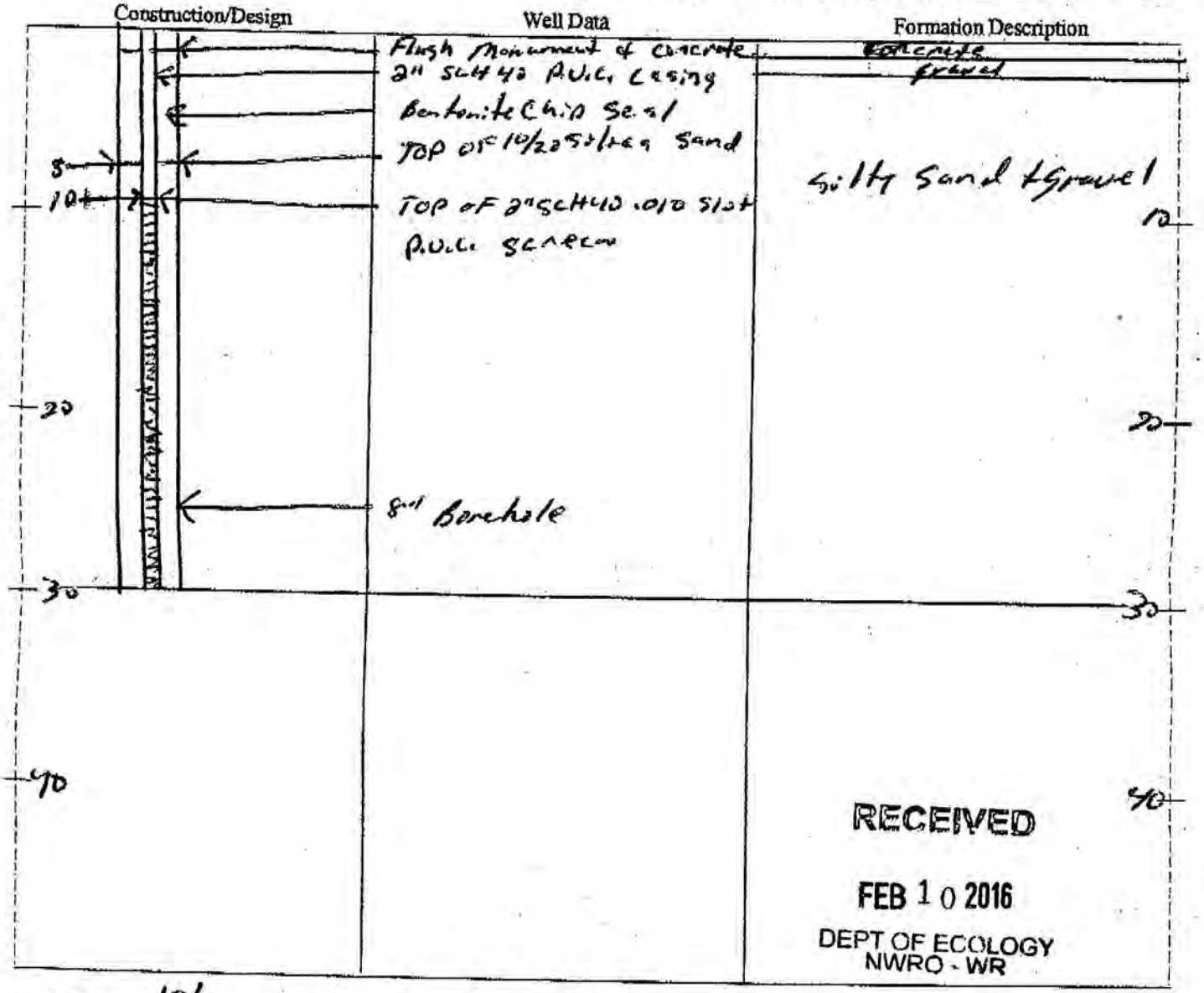
Tax Parcel No. _____

If trainee, licensed driller's Signature and License no. _____

Cased or Uncased Diameter 2" Static Level _____

Work/Decommission Start Date 12-21-15

Work/Decommission Completed Date 12-23-15



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Scale 1"= 10'

Page 1 of 1

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RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT
Notice of Intent No. RE12393

MW-3

Construction/Decommission
[X] Construction
[ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number*

Type of Well
[X] Resource Protection
[ ] Geotechnical Soil Boring

Property Owner: Seattle Curtain Shop
Site Address: 104 12th Ave
Consulting Firm: Farallon Consulting
City: Seattle County: King

EWM

Unique Ecology Well ID Tag No. BIX306

Location 1/4 NE 1/4 NE Sec 5 TWN 24N R 4E or WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s,t,r still Required) Lat Deg x Lat Min/Sec x Long Deg x Long Min/Sec x

Tax Parcel No. 0

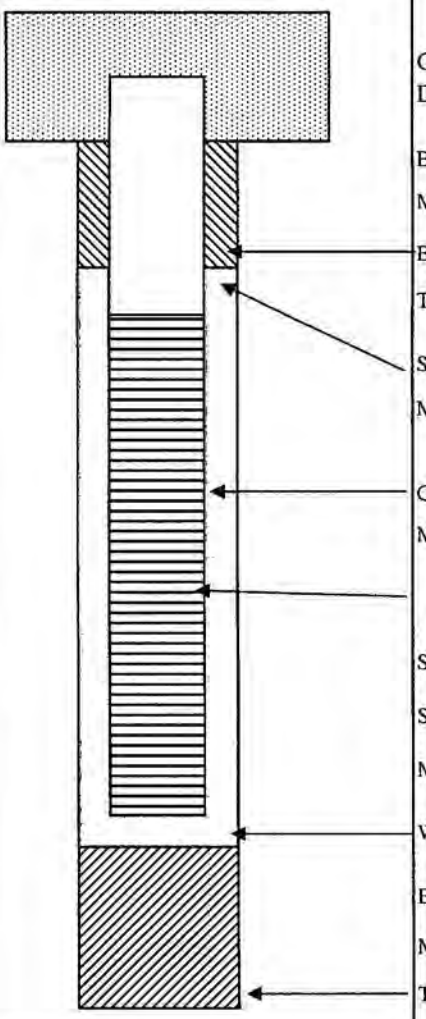
[ ] Driller [X] Trainee Name (Print) Tim Watson
Driller/Trainee Signature
Driller/Trainee License No. 3203T

Cased or Uncased Diameter 3/4" Static Level 4'

If trainee, licensed driller's Signature and License No. 2501

Work/Decommision Start Date 2-12-16
Work/Decommision End Date 2-15-16

Construction/Design | Well Data 103-16-1011 | Formation Description



Concrete Surface Seal Depth: 2'-0 Concrete FT
Blank Casing (dia x dep): 3/4" x 6'
Material: PVC
Backfill: 2' FT
Type: Bent. chip
Seal:
Material:
Gravel Pack: 6' FT
Material: 2/12 Sand
Screen (dia x dep): 3/4" x 5'
Slot Size: .010
Material: PVC
Well Depth: 11' FT
Backfill:
Material: 2/12 Sand
Total Hole Depth: 12' FT

0 - 2' FT
Brown Soil and Cobble

0 2' - 5' FT
med gray sand

0 5' - 11' FT
gray Fine Silt Sand

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RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT
Notice of Intent No. RE12393

MW-5

Construction/Decommission
[X] Construction
[ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well
[X] Resource Protection
[ ] Geotechnical Soil Boring

Property Owner: Seattle Curtain Shop
Site Address: 104 12th Ave
Consulting Firm: Farallon Consulting
City: Seattle County: King

Unique Ecology Well ID Tag No. Bix 305

Location 1/4 NE 1/4 NE Sec 5 TWN 24N R 4E [EWM] or WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

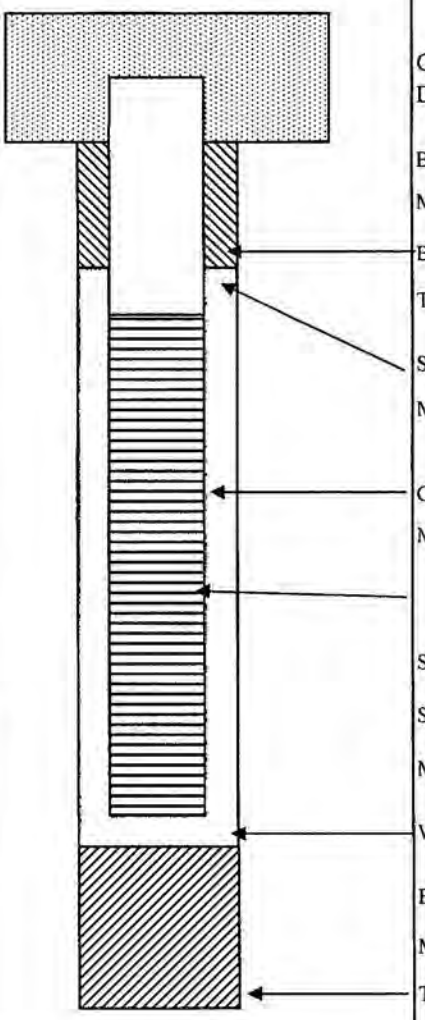
Lat/Long (s,t,r still Required) Lat Deg x Lat Min/Sec x
Long Deg x Long Min/Sec x

Tax Parcel No. 0

[ ] Driller [X] Trainee Name (Print) Tim Watson
Driller/Trainee Signature Tim Watson
Driller/Trainee License No. 3203T
If trainee, licensed driller's Signature and License No. 2501

Cased or Uncased Diameter 2" Static Level 6'
Work/Decommision Start Date 2-12-16
Work/Decommision End Date 2-12-16

Construction/Design — Well Data 103-16-1011 — Formation Description



Concrete Surface Seal Depth	2'-0 FT
Blank Casing (dia x dep)	3/4" X 3'
Material	PVC
Backfill	2.5'-2' FT
Type	Bent. chip
Seal	
Material	
Gravel Pack	13'-2.5' FT
Material	2/12 Sand.
Screen (dia x dep)	3/4" X 10'
Slot Size	.010
Material	PVC
Well Depth	13' FT
Backfill	2'
Material	2/12 Sand
Total Hole Depth	15' FT

Formation Description:
0 - 2' FT — soil with small cobble
0 2' - 5' FT — Gray med sand
0 5' - 15' FT — Gray silty sand

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RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT
Notice of Intent No. EE05869,

Construction/Decommission

[X] Construction

[ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

[X] Resource Protection

[ ] Geotechnical Soil Boring

Property Owner: **Seattle Curtain Shop**
Site Address: **104 12th Ave**

Consulting Firm: **Farallon Consulting**
City: **Seattle** County: **King**

Unique Ecology Well ID
Tag No. FB-10

Location 1/4 **NE** 1/4 **NE** Sec **5** TWN **24N** R **4E** EWM WWM

Lat/Long (s,t,r Lat Deg x Lat Min/Sec x
Long Deg x Long Min/Sec x

Tax Parcel No. **0**

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

[ ] Driller [X] Trainee Name (Print) **Tim Watson**
Driller/Trainee Signature Tim Watson
Driller/Trainee License No. **3203T**

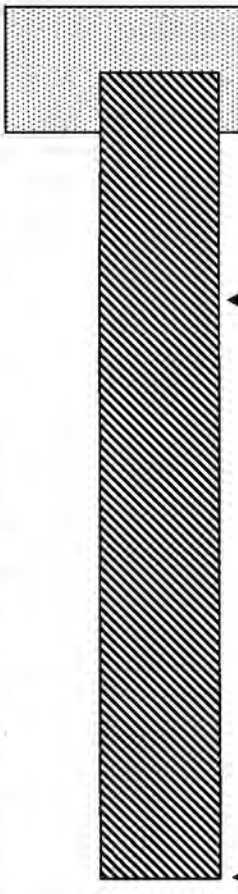
If trainee, licesned drillers' Signature and License No. 2501

Cased or **Uncased** Diameter 2" Static Level 8.5'

Work/Decommision Start Date 1-4-16

Work/Decommision Completed Date 1-4-16

Construction/Design — Well Data 103-15-0993 — Formation Description



CONCRETE SURFACE SEAL 1 FT (concrete)

BACKFILL 9.5 FT (Bento chip)

DEPTH OF BORING 10.5' FT

		Formation Description
0 - 3' FT		Fill
0 3' - 10.5 FT		Gray silty Sand small Gravel
0 - FT		

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