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November 5, 2022

Centric Partners LLC  
c/o Trent Development  
1420 5th Avenue, Suite 2000  
Seattle, WA 98101

Attention: Mr. Michael Pollard

Subject: Independent Remedial Action Summary Report  
12<sup>th</sup> & Yesler Redevelopment Project  
104-124 12<sup>th</sup> Avenue & 1209 E. Fir Street  
Seattle, Washington 98122

Dear Mr. Pollard:

As you have authorized, **Whitman Environmental Sciences, (WES)** has observed and documented the cleanup of contaminated soil and groundwater at the above referenced property (Property). The enclosed report summarizes the work and confirmation sampling conducted for this cleanup. This report has been prepared as an intended submittal to the Voluntary Cleanup Program (VCP) of the Washington State Department of Ecology (Ecology) as documentation of the completed cleanup actions.

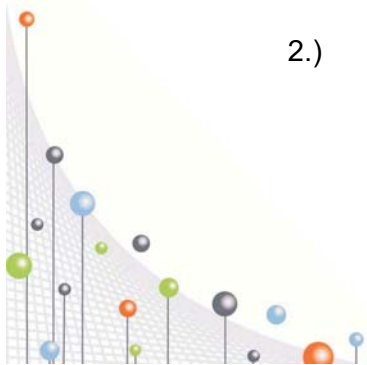
The Property includes four formerly separate parcels, all of which are now referred to as the 12<sup>th</sup> & Yesler Development (Project). The Property includes a parcel identified as the TD Auto Body & Repair Site in Department of Ecology databases, assigned Cleanup Site ID No. 2666. The Project is enrolled in the VCP under that name and has been assigned VCP ID NW3194.

The Property is undergoing redevelopment as a 280-unit multi-story, mixed-use residential/commercial building with two levels of underground parking. This redevelopment involved shoring around the perimeter of the western part of the Property and excavating to depths ranging from 13 to 36 feet below the 12<sup>th</sup> Avenue street level, removing about 36,000 cubic yards of soil for the construction.

Cleanup actions were conducted in general conformance with the April 8, 2020 Independent Remedial Action Plan for the Project, including performance and compliance sampling which exceeded that outlined in the April 6, 2020 Compliance Monitoring Plan for this project.

Cleanup was conducted in five phases:

- 1.) In-situ treatment of groundwater in the former SE Parking Lot portion of the Property, using a combination of activated carbon and zero-valent iron to immobilize and degrade volatile organic compounds;
- 2.) Screening and segregation of tetrachloroethylene (PCE) and lead contaminated soil from a limited area prior to the overall redevelopment excavation. These soils were managed as dangerous waste;



- 3.) Screening and segregation of lead contaminated soil from a limited area during the initial phases of the overall excavation. These soils were managed as solid waste;
- 4.) Screening and segregation of petroleum contaminated soil during the course of the overall excavation. These soils were transported to a treatment facility for thermal processing and disposal; and
- 5.) Additional in-situ groundwater treatment in a “barrier zone” along the northern boundary of the SE Parking Lot, to capture and degrade any continued migration of volatile organic compounds from off-site sources.

A total of approximately 39.80 tons of PCE and lead contaminated soil was excavated and transported to the Chem Waste Management, Inc., landfill in Arlington, Oregon. All final compliance sampling confirmed that all Property soils meet Model Toxics Control Act soil cleanup levels for PCE or other volatile organic compounds. Two samples indicate PCE contaminated soils are still present at the Property line to the adjacent King County Warehouse.

A total of approximately 630.44 tons of lead, cadmium and petroleum contaminated soil was excavated and transported to the Regional Disposal Company landfill in Roosevelt, Klilkat County, Washington. Final compliance sampling of the excavation sidewalls and base meet MTCA cleanup levels for lead, cadmium and petroleum. No further metals contaminated soil remains on or beneath the Property and the Property meets Model Toxics Control Act soil cleanup levels for these contaminants.

A total of approximately 3,729.76 tons of petroleum contaminated soil (PCS) was excavated and disposed. 3,679.52 tons were transported to the Iron Mountain Quarry, Inc., thermal treatment facility in Granite Falls, Washington. An additional 50.24 tons of PCS were transported and disposed at the Regional Disposal Company through their South Seattle transfer station. Final compliance sampling confirmed that no further petroleum contaminated soil remained on or beneath the Property and the Property meets Model Toxics Control Act soil cleanup levels for these contaminants.

All below grade building areas are sealed with a combined waterproofing and chemically resistant vapor barrier system. The slab-on-grade portion of the building in the former SE Parking Lot area is equipped with a chemical resistant vapor barrier, a sub-slab vapor extraction piping array, and sub-slab vapor monitoring points. These features allow for monitoring and if necessary, mitigation of any potential soil vapor intrusion or indoor air quality concerns related to residual conditions on or adjacent to the Property.

Based on our observations and testing, all contaminated soil has been removed from the Property. Based on this, no further soil cleanup action is warranted.

Groundwater compliance monitoring is on-going in accordance with the Compliance Monitoring Plan for the Project. Groundwater treatment was initially effective at reducing or eliminating concentrations of vinyl chloride and other volatile organic compounds. However, subsequent testing encountered rebound along the northern edge of the SE Parking Lot, to concentrations



similar to those observed prior to remediation. Based on this, a barrier zone of activated carbon was injected along the northern boundary in the impacted area, to manage contaminants migrating toward the Property. On-going monitoring will be used to demonstrate the effectiveness of this treatment.

De-watering was conducted from a set of 117 well points surrounding the excavation for about one year. A total of over 1.99 million gallons of water was collected and discharged to the Metro sewer system under King County Industrial Wastewater Discharge Authorization No. 4544-01. The discharge water was monitored for volatile organic compounds and arsenic. No VOCs were detected in the de-watering discharge at any time. In ten monthly analyzed samples, arsenic concentrations ranged from 5.67 to 38.0 ug/l, with a median concentration of 11.9 ug/l.

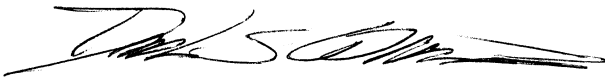
De-watering collects water from the Property and surrounding area until the groundwater is drawn down, then all additional water withdrawn is exclusively from the surroundings as it flows toward the well points. The monitoring showed increasing concentrations of arsenic over time. This demonstrates that the groundwater in the surrounding area is at concentrations equal to or higher than that collected from the immediate area around the excavation. Because the data set represents a large volume of water from the Property and surrounding area it can represent a natural background condition. This de-watering data should be considered when characterizing the extent and magnitude of arsenic occurrence on and around the Property.

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

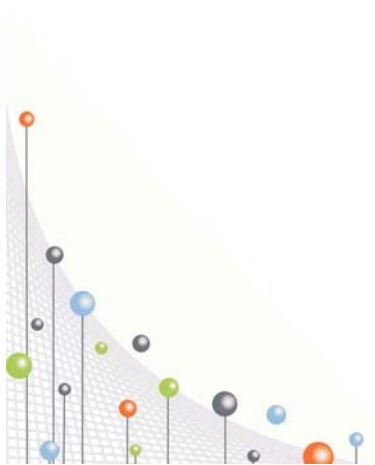
WES has been pleased to have the opportunity to be of service to you in this matter. If you have any questions regarding the information contained in this report, or if I may be of any further assistance, please feel free to contact me.

Respectfully submitted,

**Whitman Environmental Sciences**



Daniel S. Whitman  
Principal

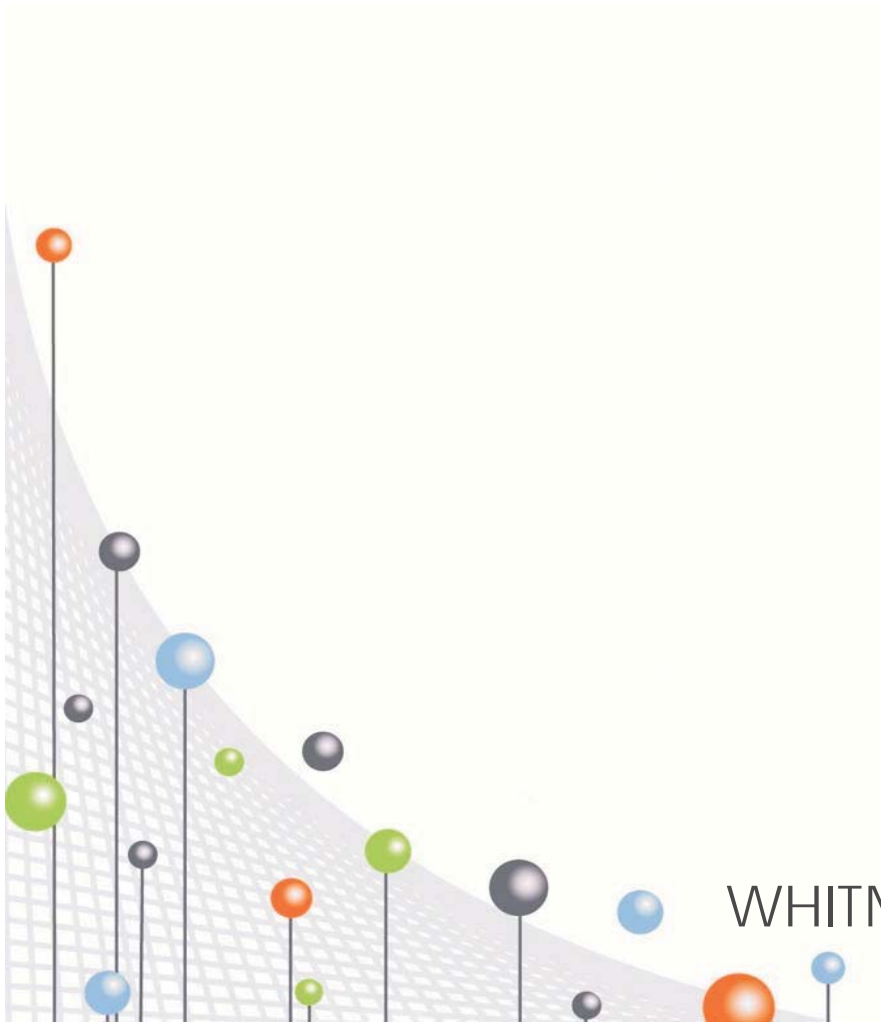


# INDEPENDENT REMEDIAL ACTION SUMMARY REPORT

12<sup>TH</sup> & YESLER REDEVELOPMENT PROJECT  
104-124 12<sup>TH</sup> AVENUE & 1209 EAST FIR STREET  
SEATTLE, WASHINGTON 98122

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November 5, 2022  
Project No. WES-1591



WHITMAN Environmental Sciences

**INDEPENDENT REMEDIAL ACTION SUMMARY REPORT**

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**12<sup>TH</sup> & YESLER REDEVELOPMENT PROJECT  
104-124 12<sup>TH</sup> AVENUE & 1209 EAST FIR STREET  
SEATTLE, WASHINGTON**

**November 5, 2022  
Project No. WES-1591**

**Prepared for:  
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# ***INDEPENDENT REMEDIAL ACTION SUMMARY REPORT***

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## ***12<sup>TH</sup> & YESLER REDEVELOPMENT PROJECT 104-124 12<sup>TH</sup> AVENUE & 1209 EAST FIR STREET SEATTLE, WASHINGTON***

### ***1.0 INTRODUCTION***

Whitman Environmental Sciences (WES) was retained by Centric Partners LLC to observe and document independent remedial actions for the cleanup of contaminated soil and groundwater at the above referenced redevelopment project, in Seattle, Washington. This report summarizes our observations and testing conducted during the completion of the remedial actions. This report has been prepared as an intended submittal to the Voluntary Cleanup Program (VCP) of the Washington State Department of Ecology (Ecology) as documentation of the completed cleanup actions.

### ***2.0 PROJECT BACKGROUND***

#### ***2.1 Site Description***

The Property consists of approximately 47,433 square feet of land located on the east side of 12<sup>th</sup> Avenue between East Yesler Way and East Fir Street, in Seattle, Washington. The Property consists of four adjoining tax parcels identified by King County Tax Parcel IDs 806100-0005, 0015, 0025 and 0035. 12<sup>th</sup> & Yesler Owner LLC is the owner of all four parcels. The Property is currently being redeveloped with a six-story mixed-use building with two levels of below-grade parking, approximately 280 residential units, 16 live-work units and about 10,000 square feet of ground floor commercial spaces (Project).

Figure 1, a Site Location Map, shows the Property and surrounding area. The Property is on a north-south arterial street in a primarily residential area, with an adjacent multi-family development underway to the east, an existing multi-family building to the west, across 12<sup>th</sup> Avenue, Bailey Gatzert Elementary School to the south, across Yesler Way, and small commercial buildings and homes to the north, across East Fir Street. There is a warehouse building housing the King County Archives adjacent to the northeastern part of the Property. The Property and surrounding area has an overall slope to the south or southeast, with about 20 feet of relief from the northwestern corner, at an elevation of about 218 feet, to the southeastern corner at about 198 feet.

Prior to this redevelopment there were three former commercial structures on the Property. The largest was a two-story brick and concrete structure dating to the 1920s that most recently housed the Seattle Curtain Company, located at 104 12<sup>th</sup> Avenue, in the southwestern part of the site. North of that was a dilapidated one-story wood-framed structure fronting 12<sup>th</sup> Avenue (110-118 12<sup>th</sup> Avenue) that was partially vacant and housed an Ethiopian restaurant. At the north end of the Property was an auto body repair shop at 1209 E. Fir Street, (TD Auto Body & Repair).

There were also two parking lots, in the northwestern and southeastern parts of the Property. The northwestern lot was historically a gas station and auto repair addressed 124 12<sup>th</sup> Avenue, that was removed in about 1990. Five underground storage tanks were removed at that time and petroleum contamination was identified. Some cleanup of petroleum contaminated soil was conducted in 1991, but the work was incomplete. The excavated area was backfilled and left as a gravel surfaced parking lot. The southeastern part of the Property had never been developed and had

remained a parking lot for the adjacent 104 12<sup>th</sup> Avenue building throughout its history. Figure 2 shows the Property with the former buildings in place, as it was prior to the redevelopment.

## **2.2 Site History**

The Property has a history of commercial uses, documented by previously conducted environmental site assessments. WES conducted Phase I and II studies on the Property (WES, 2017), and conducted additional site investigations to further delineate conditions (WES 2019, 2020a). An Independent Remedial Action Plan was prepared for the Property to address the known and potential issues that could be encountered during redevelopment (WES, 2020b).

Prior to any known development of the Property, it was filled extensively with soil reportedly generated by regrading of 12<sup>th</sup> Avenue. Poor quality fill containing organic topsoil and debris was found, extended to depths of about 16 to 19 feet in the northwestern part of the Property.

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. The next identified development was the two-story concrete building at 104 12<sup>th</sup> Avenue, constructed in 1926. The building had a variety of uses over its history, including auto repair conducted in the lower level of the building until the mid-1950s.

A multi-tenant wood-framed building was constructed directly north of the concrete building in about 1940, aligned along 12<sup>th</sup> Avenue. The building held mostly environmentally benign businesses throughout most of its history, except for a relatively short tenancy of a dry cleaner at 118 12<sup>th</sup> Avenue from about 1966 to 1972.

A gas station was developed at the northwestern corner of the Property in 1941. The station was a Maxwell Oil station with five underground storage tanks. It operated as a gas station until about 1975, then was limited to auto repair uses until about 1989, when the station burned. The building and underground storage tanks were removed in 1990 and a release of petroleum was identified at that time. Some additional cleanup was conducted in 1991, but subsequent investigations concluded the cleanup was incomplete (AEG, 2015, WES 2017, 2019).

An auto repair building was constructed at 1209 E. Fir Street, in the northeastern part of the Property, in 1949. The building was never used as a gas station and did not have underground storage tanks. The building was used for auto repair until it was closed for this redevelopment. It was identified by Ecology as a confirmed contaminated site in 1994 due to some observed dumping on the slope in the central part of the Property. A Site Hazard Assessment was conducted in 2002, ranking the TD Auto site a 3 on a scale of 5 implying moderate risk to the environment.

## **2.3 Remediation and Redevelopment Planning**

Beginning in 2017, Centric Partners LLC began planning to redevelop the Property with a multi-story mixed-use building with first-floor commercial space and residences on the upper floors. Figure 3 shows the planned development. The building was designed with two levels of underground parking. All prior structures were to be removed and the western  $\frac{3}{4}$  of the site excavated. The former SE Parking Lot area would be built as a slab-on-grade portion of the structure.

The development plan included shoring around the western part of the site, to allow excavation of approximately 38,500 cubic yards of soil. This plan involved excavating to depths of about 32 feet below the original street level near the northwestern corner of the Property, and about 13 to 17 feet adjacent to the south Property line.

Prior to redevelopment, WES' investigations identified environmental conditions that would require remedial action as part of the redevelopment plan (WES, 2019, 2020a). These included:

- A plume of groundwater contaminated by vinyl chloride, extending from beneath the adjacent King County warehouse building;
- Elevated concentrations of total and dissolved arsenic in groundwater not directly associated with other observed contamination;
- An area of shallow tetrachloroethylene (PCE) contaminated soil on the Property adjacent to the south side of the King County warehouse;
- Petroleum contaminated soil from the former gas station, extending to the south into the central part of the Property;
- Petroleum contaminated soil near the southern boundary of the site, dating to the former auto repair in the lower level of the 104 12<sup>th</sup> Avenue building;
- Lead contaminated soil in the central part of the Property, near the northwestern corner of the King County warehouse.

WES developed an independent remedial action plan to address the observed conditions (WES, 2020a). The plan included in-situ groundwater treatment in the vinyl chloride plume area, excavation and disposal of the limited area of PCE contaminated soil, segregation and disposal of lead contaminated soil during the overall mass excavation of the Property, and segregation and treatment of petroleum contaminated soil (PCS). WES anticipated cleanup of approximately 10-15 cubic yards of PCE contaminated soil, 200-600 cubic yards of lead contaminated soil and 1,500 to 2,600 cubic yards of PCS within this scope of work.

The independent remedial action plan included a compliance monitoring plan that outlined the sampling and documentation that would be completed to demonstrate that the goals of the cleanup plan were being met (WES, 2020b). The work conducted for this cleanup and the compliance monitoring were conducted in accordance with these plans.

### **3.0 IN-SITU GROUNDWATER REMEDIATION**

Groundwater remediation was conducted in the SE Parking Lot area from June 9<sup>th</sup>-18<sup>th</sup>, 2020, prior to other construction activities. The remedial action was planned and conducted by Regenesys, Inc., an environmental contractor that produces and applies proprietary remedial products for in-situ soil or groundwater cleanup. Based on the groundwater conditions, Regenesys recommended application of two products to form an adsorption and treatment zone in the area where the highest

concentrations were observed or migration could bring additional contaminants onto the Property. The applied products were PlumeStop™, a finely milled activated carbon to adsorb chlorinated compounds from groundwater, and S-MicroZVI™, a zero-valent iron product in suspension. The zero-valent iron creates an anoxic and highly reducing environment, which breaks susceptible chemical bonds and also promotes enhanced anaerobic biodegradation to destroy chlorinated contaminants and their breakdown products.

Field testing was used to determine an appropriate spacing of injection points and the quantity of products to be injected. The approximate location of injection points in the treatment area are shown in Figure 4. During the injections, Regenesis used a subcontracted geoprobe drill rig to drive a screen to the lowest planned depth at each injection point. The screen was used to pump the planned volume of injectate in each interval, then the screen was raised to the next higher interval and the process repeated until the planned injection zone was fully treated.

During the injection program, Regenesis applied a total of approximately 4,400 pounds of PlumeStop activated carbon and 4,000 pounds of S-MicroZVI, mixed into solution with approximately 12,105 gallons of water. The mixture was applied through 71 injection points, at depths ranging from 6 to 17 feet below the ground surface. The mixture resulted in a planned application rate of approximately 63 lbs. of activated carbon and 57 lbs. of zero-valent iron into each injection point at a spacing of approximately seven feet. This provided treatment throughout the area with an assumption that the radius of influence would be relatively small (less than 4 feet) due to soil conditions.

Regenesis' Application Summary Report, detailing the injections is included in Appendix A. Regenesis was able to inject the planned volume (or more) into 59 of the injection points. At some locations the injection pressure caused groundwater or injectate to flow to the ground surface through cracks in the pavement or up through pre-existing monitoring wells. At those locations, the volume of water was reduced to increase the concentration of the injected mixture to obtain the planned dosing. At the planned mixing level the PlumeStop concentration was 5,049 mg/l of carbon. As surfacing occurred, the mixture was increased several times, to as much as 21,150 mg/l to allow injection of the planned dosage.

The injections caused surfacing primarily at the south end of the treatment area, through cracks and in particular, up through monitoring well MW-12. This occurred during injections at points as much as 50 feet away from the well, suggesting preferential flow paths may exist in the native soils in this area, and a much greater than anticipated radius of influence through these flow paths.

After injections, groundwater was discolored black in all of the monitoring wells in and around the treatment area, confirming distribution of activated carbon throughout the planned area. The black color persisted for months after the treatment, indicating the carbon remained in suspension, rather than completely adhering to soil particles in the subsurface.

### **3.1 Groundwater Compliance Monitoring**

Following the in-situ treatment, WES began compliance monitoring through quarterly groundwater monitoring. In each sampling event, samples were obtained following appropriate environmental sampling techniques, using peristaltic pumps equipped with dedicated polyethylene tubing. Each well was purged of at least three times the volume of standing water prior to sampling; volumes ranging from one to 20 gallons. Field measurements of dissolved oxygen, pH, temperature, conductivity and oxidation reduction potential (ORP) were used to evaluate when stabilized

conditions were reached in the pump discharge water. Samples for dissolved arsenic were field filtered through single use 0.45 micron filters before preservation.

Compliance monitoring events have been conducted quarterly since treatment. The results are summarized in previously issued groundwater monitoring summary reports dated November 30<sup>th</sup>, 2020 (WES, 2020c) and May 9<sup>th</sup>, 2022 (WES, 2022). As noted in these reports, groundwater concentrations of vinyl chloride were initially eliminated, but over time rebound occurred in monitoring wells MW-5 and GEO B-7, along the northern boundary of the treatment area adjacent to the King County warehouse. Based on the rebound, an additional round of in-situ treatment was conducted in August 2022, as discussed in Section 7.0, below.

#### **4.0 SOIL CLEANUP PREPARATIONS AND DEMOLITION**

In preparation for cleanup as part of redevelopment, the Independent Remedial Action Plan was reviewed with the Property ownership, general contractor W. G. Clark Construction, shoring contractor DBM, Inc. and excavation contractor Santana, Inc. W. G. Clark prepared a site Health and Safety Plan to regulate activities of all site personnel during the cleanup and overall construction.

Waste disposal characterization was completed and authorization for disposal was obtained from Waste Management, Inc., for dangerous waste contaminated soil. The site was assigned EPA Hazardous Waste Generator ID WAH000058700 for the management of dangerous waste soils. Lead and petroleum contaminated soil was characterized to Regional Disposal Company which accepted it for disposal. Iron Mountain Quarry, Inc., accepted petroleum contaminated soil (PCS) for treatment and disposal at their facility in Granite Falls, Washington.

The existing buildings were demolished in preparation for redevelopment beginning in January 2021. Demolition debris was removed to allow access for shoring equipment. The asphalt surface of the SE Parking Lot was maintained as long as possible during construction, as a staging area for the work on the western part of the Property.

#### **5.0 SHORING AND SOIL EXCAVATION**

WES, under contract with Centric Partners LLC, observed and documented the shoring installation and excavation. Photographs of the work while in progress are included in Appendix B.

##### **5.1 Shoring Installation**

In April, 2021, DBM began drilling along the site perimeter, installing the vertical steel piles for the shoring system. The piles were drilled using 24-inch, 30-inch or 36-inch diameter flight augers on a crane mounted rig, depending on the size of steel pile to be installed. The piles were drilled to depths of up to approximately 50 feet below the ground surface, 10.5 to 19 feet below the planned base of excavation. At each pile, the flight auger was used to drill a free-standing hole, then a crane lowered the steel beam in place. Lean-mixed grout was then poured into the open hole surrounding the pile. Temporary steel casings were used if the boring showed signs of instability.

Shoring piles were drilled at approximately 6-foot spacing along the perimeter of the area to be excavated. Each pile was identified by numbering along the length of the wall (i.e. N1 through N23, S1 through S18, E1 through E31, or W1 through W54). WES used these pile numbers to identify compliance sample locations along the sidewalls and establish a sampling grid across the work area for excavation base sampling. Figure 6 shows the general layout of the piles around the perimeter of the Property.

WES screened soil cuttings during the drilling of the shoring, with emphasis on areas where prior testing had identified PCS near the northwestern and southern Property lines. Grab samples for field screening were collected from the auger as it was withdrawn from the borings. These samples typically represented a depth interval of about four to six feet each time the auger was withdrawn. Minor odors or discoloration were encountered along the perimeter at three isolated locations; along the south side of the site at the locations of piles S4 through S8 and S14, and along the west side of the site at pile W42. Soil from these areas were segregated and stockpiled for disposal. Two truckloads of drill cuttings were transported off-site for treatment at the Iron Mountain Quarry on April 20<sup>th</sup>, 2021. However, subsequent shoring drilling and field screening concluded that the organic soils of the Property often had unusual colors ranging from blues to green and black, and musty or rotting odors. The previously detected smells and discoloration were unrelated to petroleum. Subsequent laboratory testing found the organic content of soils at the site ranged from 6.8 to 13.6 percent.

There were no detectable petroleum odors, discolored soils or elevated measurements of organic vapors with a photoionization detector (PID) encountered in the cuttings from any of the remaining drilled holes. The cuttings from the north, west and south side shoring were stockpiled and removed as part of the overall site excavation.

On the east line of shoring, some of the drilling was anticipated to extend through or near lead contaminated soils adjacent to the northwestern corner of the King County warehouse, before cleanup was to be conducted in this area. Drilling in this area encountered six to ten feet of fill soils containing debris and garbage adjacent to the wall of the warehouse. Native soils were encountered at a depth of about 12 to 15 feet, the approximate depth of the warehouse footings. During drilling, soils were field screened with a PID and field X-ray fluorescence (XRF) meter to check for organic vapors and concentrations of lead, respectively. No elevated concentrations of organic vapors were measured and the reported lead concentrations ranged from 22 to 119 mg/kg. Cuttings from the piles along the north and west sides of the warehouse were segregated and stockpiled for disposal along with the anticipated cleanup wastes from this area.

Shoring pile installation continued from April through most of May, 2021.

## **5.2 Monitoring Well Decommissioning and Replacement Wells**

Prior to the main excavation, monitoring wells in the work area were decommissioned by a licensed well driller. Figure 2 shows the former locations of monitoring wells. The wells were filled with bentonite chips or grout and surface monuments removed prior to excavations. Monitoring wells MW-3, MW-6, MW-7, MW-8, MW-9, MW-14 and GEO B-8 were abandoned on March 30<sup>th</sup>, 2021. Wells MW-1, MW-1S, MW-1D, MW-2, MW-4, MW-5, MW-11, MW-12, MW-15, MW-16, GEO B-7 and GEO B-9 were abandoned later through 2021, as construction extended into the SE Parking Lot. Of the initial monitoring system, only wells MW-10 and MW-13 remain undisturbed. All other wells were displaced by construction.

Replacement monitoring wells MW-5R, MW-12R, MW-15R, GEO B-7R and GEO B-9R were installed in December 2021, at locations outside construction areas as close as possible to the original wells. These monitoring wells are 2-inch diameter PVC wells completed to similar depths as the original wells. Additional replacement wells may be necessary in accordance with the Compliance Monitoring Plan.

### **5.3 Soil Screening and Segregation During Excavation**

The general excavation began after shoring piles were installed. Excavation was conducted in about four-foot deep lifts, allowing wood lagging and tie-backs to be installed in the shoring system as the excavation was deepened. WES and contractor personnel field screened soils to identify any material that warranted segregation or testing. Field screening included visual and olfactory methods, as well as field instrumentation with a PID for organic vapors and XRF to detect lead concentrations.

Five potentially contaminated soil zones had been identified in the Independent Remedial Action Plan. Soils within those areas at the identified depths were considered suspect and managed as contaminated soil unless laboratory testing was used to demonstrate the soil met MTCA Method A cleanup criteria. In some cases, soil documented to meet MTCA cleanup levels were still designated as contaminated waste due to field detectable petroleum odors, oil staining or discoloration.

Soils outside these work areas were routinely checked to identify any other contaminated zones. Those soils with no field identifiable indications of contamination from other areas were managed as suitable for use or disposal as common fill. Any soils identified by field screening as potentially contaminated were segregated, stockpiled and sampled, or managed as contaminated.

Using trackhoes, the excavators moved soil to a haul-out location on the north side of the Property for truck access off East Fir Street. Some soil, including the PCE contaminated waste soil was managed separately and exported from the south side access, off East Yesler Way.

#### **5.3.1 PCE and Lead Contaminated Soil Removal and Disposal**

On April 20<sup>th</sup>, 2021 the PCE and lead contaminated soil area was excavated adjacent to the south side of the King County warehouse. The cleanup area excavation is shown in Figure 5. Two plastic lined 15-cubic yard roll-off containers were delivered to the site by Waste Management, Inc., to hold the material. The asphalt surface was removed and recycled and the underlying soil was excavated and containerized. The excavated area was about 26 feet along the length of the warehouse, extending from 12 to 14 feet south, dug to a depth of about two to two and a half feet. The excavation encountered fill soil containing minor amounts of debris, overlying brown silty and clayey sand, containing some organic matter.

The excavation removed 39.80 tons of waste soil, that was transported to Waste Management's Chemical Waste Management disposal facility in Arlington, Oregon, as RCRA F002 designated dangerous waste.

The excavation was field screened with a photoionization meter and XRF meter to check for organic vapors and concentrations of lead, respectively. No field detectable organic vapors were encountered at any time during the excavation. Field measurements of lead

concentrations in the excavated soil ranged from 31 to 938 mg/kg. Field measurements of lead in the sidewalls and base ranged from 12 to 86 mg/kg. Based on the field screening, 10 samples of the excavation sidewalls and base were collected for laboratory analyses. The soil sampling conducted at the full extent of excavation is shown in Figure 5. Each sample was identified by location and distance from the warehouse, using the southwestern corner of the building as a reference point.

Samples were taken following appropriate environmental sampling techniques, placing portions of the samples in laboratory prepared 40-ml vials with teflon lined lids in accordance with EPA Method 5035A for analysis of volatile organic compounds. The remaining sample volume was placed in 4-ounce glass jars. The samples were labeled, chilled and held under chain-of-custody until delivered to Friedman & Bruya, Inc., a Washington State accredited laboratory, on the same day.

The samples were tested for a list of eleven halogenated volatile organic compounds, including PCE and related compounds by EPA Method 8260D, and lead by EPA Method 6020B. Three of the samples were also analyzed for concentrations of arsenic, cadmium, chromium, and mercury, other commonly encountered regulated metals. The laboratory data is summarized in Table 1. Laboratory analytical reports are included in Appendix C.

Two of the excavation base samples were found to contain detectable concentrations of PCE below the MTCA Method A soil cleanup level of 0.05 mg/kg. Samples "Center Base-36E/2S-2" and "SE Base-44E/8S-2.5" contained 0.035 and 0.030 mg/kg of PCE, with no other detected volatile organic compounds. No other samples contained any detectable volatile organic compounds.

The reported lead concentrations ranged from 2.40 to 35.6 mg/kg, all below the MTCA Method A soil cleanup level of 250 mg/kg.

Based on the findings, the remedial excavation in this area was considered complete. The area was backfilled and used for construction staging until July 2021. Additional sampling was conducted in this area from July to December 2021, as construction excavations began in this portion of the Property. The additional findings are discussed in Section 5.4.1, below.

### **5.3.2 Lead Contaminated Soil Excavation and Disposal**

The area near the northwestern corner of the King County warehouse was excavated in lifts to install lagging, beginning on April 14<sup>th</sup>, 2021. The soil was stockpiled and covered pending availability of trucking. Two truck and trailer loads of the soil were transported off-site to the Regional Disposal Company transfer station in South Seattle on April 20<sup>th</sup>. After this, soil was typically accumulated to allow a full day of trucking to be directed to waste disposal as the only destination for drivers. Additional soil was accumulated and disposed on April 29<sup>th</sup>, May 3<sup>rd</sup>, May 5<sup>th</sup> and May 6<sup>th</sup>, 2021 from this area.

Figure 6 shows the approximate areas where lead and petroleum contaminated soil was encountered near the northwestern corner of the King County warehouse. Much of the soil in this area could be visually screened by the presence of debris in the relatively shallow fill soil, including tires, car parts, wood, brick and glass. None of the observed debris or impacted soil appeared to extend beneath the warehouse. Progress sampling conducted

during this work also identified petroleum in the gasoline, diesel and motor oil ranges in isolated locations in the work area. During excavation, the base and sidewalls of the work were field screened with the XRF and PID to identify any areas requiring additional cleanup.

A total of 630.44 tons of lead and petroleum contaminated soil was excavated and transported to the Regional Disposal Company transfer station at 3<sup>rd</sup> & Lander, in the SoDo area of Seattle. From there, RDC transports the soil by train to the Roosevelt Landfill, in Kikitat County, Washington. A tally sheet and collection of all trucking weight tickets for lead contaminated soil are included in Appendix D.

The base of lead cleanup excavations were eight to 10 feet above the planned depth of construction at the point where XRF screening found no further lead impacts and all debris-laden soil had been removed. Final compliance sampling was conducted in these areas once the final depth of excavation was reached.

### **5.3.3 Petroleum Contaminated Soil Transportation and Disposal**

PCS encountered during excavation was managed separately from general excavation spoils. Figure 6 shows the approximate areas where PCS was encountered during the overall excavation. PCS was segregated, stockpiled and covered for transportation and disposal. On the days when PCS was transported, the stockpiles were moved to the load-out area and trucking was exclusively directed to Iron Mountain Quarry, for treatment and disposal. From May 7<sup>th</sup> to July 19<sup>th</sup>, 2021 a total of 3,679.52 tons was trucked to Iron Mountain on 13 separate days during the course of excavations. Three truckloads totaling 50.24 tons of PCS were also delivered to RDC during the work, on days when access to the northern load-out zone was too limited to allow truck and trailers. A tally sheet and collection of all trucking weight tickets for PCS are included in Appendix D.

During the cleanup, zones of PCS were encountered in the northwestern part of the Property, where partial cleanup of the gas station had been conducted in 1991. This zone was found at depths ranging from 10 to 18 feet, and evidenced migration to the south southeast along the top surface of a zone of silty and clayey soil. The contaminated zone extended southward about 75 feet, ending at about 25 feet east of the west wall pile W35.

In the southern part of the site, near Yesler Way, two zones of PCS were confirmed. One was the former location of a small floor sump that had been in the lower level of the 104 12<sup>th</sup> Avenue building, found about 12 feet north of pile S16. This relatively limited area extended to a depth of about nine feet below the former floor level and showed evidence of potential migration about 30 feet to the east, to about pile S11, surrounding buried historical utility lines.

A second zone of PCS was found in the area near south wall piles S4 to S8. This zone was encountered directly below the former floor slabs of the 104 12<sup>th</sup> Avenue building and extended to a depth of about 10 feet. No potential source was identified during the course of excavation.

A previously unknown zone of PCS was found in the northeastern part of the site, to the east of the former building at 1209 East Fir Street (the location of TD Auto Body & Repair). The area is shown in Figure 6. It was about 25 by 40 feet, contained brick, wood and glass debris in shallow fill and evidenced odors of gasoline and heavy oil in the underlying soil.

The debris was unrelated to that noted in the lead contaminated soil zone (which contained car parts, garbage and tires) and the areas were distinctly separated. This zone extended from depths of about five to 14 feet.

Performance and compliance sampling conducted during the excavations are discussed in Section 7.0, below.

#### **5.4 Construction De-watering**

Construction de-watering was required, since the excavations extended to depths below the natural groundwater level (Bender, 2019). A de-watering system was installed around the perimeter of the excavation, consisting of 117 well points, attached to a vacuum-operated pumping manifold. Figure 7 shows the approximate layout and design of the de-watering wells around the main excavation. Due to this design, individual well points could not be accessed during the de-watering operation.

The system was designed to remove groundwater from the area around the excavation, particularly collecting water from the upgradient direction (generally northwest). The de-watering system included 24 well points drilled through the northern shoring wall, 54 well points along the west shoring, and 15 well points through the south shoring wall. These were drilled using air rotary methods at an approximately 30-degree angle out from the walls, to a depth of about 20 feet (to elevation of approximately 185 feet). Once installed, the wells each consisted of a 3-foot long screen section that would draw water from about ten feet beyond the face of the shoring wall.

Along the eastern boundary of the excavation, 24 vertical well points were installed, since no access agreement was reached to allow tie-backs or wells to extend beneath King County property. These wells extended to approximately the same 185 ft elevation as the angled well points. The eastern wells are closest to the King County warehouse and groundwater remediation area in the SE Parking Lot, but represent only 20 percent of the well points.

Groundwater withdrawals began on June 17<sup>th</sup>, 2021 and extended to June 8<sup>th</sup>, 2022. By the time de-watering began, most of the soil cleanup activities had been completed. The excavations had reached depths that had removed the previously contaminated seepage zones that had been monitored by the site investigation monitoring wells. Underlying soils showed no evidence of contamination.

The withdrawn water was collected, passed through a settling tank and discharged to the Metro sewer system under a King County Industrial Wastewater Discharge Authorization (No. 4544-01). During the de-watering, a total of 1,993,425 gallons of water were collected and discharged.

The Authorization required initial sampling to document the potential concentrations of fats oil and grease (FOG), a list of regulated metals (total arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver and zinc), cyanide and a permit-specific list of volatile organic compounds. Daily field measurements of settleable solids and flow volumes were required as part of the Authorization. Monthly sampling was required for the same list of VOCs. Monthly discharge monitoring reports were required by the Authorization, summarizing the laboratory samples and volume of water discharged. Copies of the laboratory analytical reports and monthly discharge monitoring reports are included in Appendix E.

WES conducted the initial and monthly sampling throughout the de-watering. Daily field measurements were conducted by W. G. Clark personnel. The laboratory results are summarized in Table E1, included in Appendix E. No volatile organic compounds related to soil or groundwater

conditions were ever detected in any sample. One sample from November 2021 contained 21 ug/l of methyl ethyl ketone (MEK), at a time when the solvent was being used as part of waterproofing installed around the building perimeter. The reported concentration is below Metro discharge limits or MTCA groundwater cleanup levels.

#### **5.4.1 Utilization of De-watering Data**

Because the data set represents a large volume of water from the Property and surrounding area it can be useful as a representation of the surrounding area conditions. Determining a natural background concentration of arsenic has been an important part of characterizing the Property. As part of the de-watering monitoring, dissolved or total arsenic samples were obtained initially, and monthly from September 2021 to May 2022.

In the initial stages of de-watering, the flow to the system consisted of a mixture of water from the Property and the surrounding area, as the static water level was drawn down. After reaching a stabilized level below the base of the planned excavation, any additional water is drawn almost exclusively from the surrounding area, as it flows toward the depressed groundwater level of the de-watered area. Figure 8 shows calculated de-watering groundwater elevation profiles used to design the de-watering system (Bender, 2019) based on a range of hydraulic conductivities (K) that could be expected. The profiles extend N-S through the centerline of the planned excavation. They show estimated flow rates ranging from 93 to 149 gallons per minute to maintain the draw-down. Actual flow rates, based on the maximum daily discharges reported in the King County monthly discharge monitoring reports, ranged from approximately 4 to 37 gallons per minute, indicating the hydraulic conductivity of the surrounding area soils was much lower than used in the system design, so the radius of influence would be less than the profiles presented in Figure 8.

Arsenic concentrations in the de-watering ranged from 5.67 to 38.1 ug/l, with a median concentration of 11.9 ug/l. The water was consistently clear, containing no discoloration or detectable settleable solids. Under these conditions, testing has found no significant difference between the concentrations of total or dissolved arsenic. (In groundwater monitoring conducted from 2017 to the present, properly developed monitoring wells have also found little or no difference between the reported total or dissolved arsenic concentrations (WES. 2022).

A time series plot of arsenic concentrations and flow volume is included in Appendix E. The series shows that there was a trend of increasing arsenic concentrations over the year that the site was de-watered. Since later measurements primarily reflect surrounding area groundwater, it suggests that arsenic concentrations in groundwater drawn toward the site is equal to or greater than that collected from the initial water in the drawn-down area.

This monitoring data should be considered when characterizing the extent and magnitude of arsenic occurrence on and around the Property.

#### **5.5 Slab-on-Grade Area Construction**

The former SE Parking Lot area was not excavated to the same degree as the western part of the Property, but foundations and buried utilities were installed. Shallow foundations and utility trenches were dug throughout the course of slab-on-grade construction. Larger-scale excavations in this area included digging for a large crane foundation and installation of a below-ground

stormwater retention structure. Both of these features were located near the northern edge of the Property, near the King County warehouse.

To prepare for the excavations shoring was installed along the northern edge of the Property in two phases. For the crane base, six deep piles were installed along the western part of the boundary as part of the main shoring efforts in May, 2021. The piles were installed at about six to seven-foot spacing, identified as NE1 through NE6, extending 33 feet along the boundary from the southwestern corner of the warehouse.

#### **5.5.1 Additional PCE Area Sampling**

The shoring extended into the former PCE contaminated soil cleanup area, so sampling was conducted along the Property boundary as the wall was exposed to install lagging. Four sidewall samples were obtained on July 16<sup>th</sup>, 2021, identified by the adjacent pile IDs and depth below the original ground surface. The sample locations are shown in Figure 5A.

The samples were analyzed for a list of volatile organic compounds (VOCs). Three of the samples found no detectable VOCs. One sample, identified as NE6.5-SW-4.5' contained a concentration of 0.10 mg/kg of PCE, exceeding the MTCA Method A cleanup level of 0.05 mg/kg. No other VOCs were detected. The laboratory analytical results are summarized in Table 1. Laboratory analytical reports are included in Appendix C.

The sample was collected at the Property line, at a location near the midpoint of the earlier PCE contaminated soil excavation, about two feet deeper than that excavation base. Additional sampling was conducted at varying depths throughout the area and along the Property line separating the site from the adjacent King County warehouse to further delineate any remaining zones of contamination.

A total of 14 additional samples were collected and analyzed for VOCs from August 24<sup>th</sup> to December 12<sup>th</sup>, 2021. The sample locations are shown in Figure 5A. Figure 5A also shows the locations of the PCE area cleanup samples and prior site investigation samples taken from 2017 to 2020 to demonstrate the extent of sampling in this portion of the site, and define the extent of any residual PCE contaminated soil.

Of these additional samples, one contained detectable PCE, at a reported concentration of 0.12 mg/kg. Sample NSW-46E-0S-4.5', was taken from a depth of 4.5 feet at the Property line, on the north sidewall of a test pit 46 feet east of the southwestern corner of the warehouse. No other samples contained any detectable VOCs. Based on the entirety of sampling in this area, no further PCE contaminated soil remains on or beneath the Property. However, PCE in soil is present at and possibly beyond the Property line beneath the King County warehouse.

#### **5.5.2 Stormwater Retention Culvert Installation Monitoring**

Once the sampling confirmed that no further PCE contaminated soil was present, a large concrete stormwater retention structure was installed near the northern edge of the slab-on-grade development area. The structure consists of an 80-foot long 60-inch diameter culvert attached to a manhole riser located near the northeastern corner of the Property. The structure is buried at a depth of about eight feet, with the manhole extending to 12 feet

below the ground surface. The structure and the extent of excavation needed to install it are shown in Figure 5A. WES field screened soils during the excavation and found no evidence of petroleum or PCE contaminated soil at any location.

The structure is bedded in a gravel base and surrounded by a washed pea gravel fill. Excavated site soil was used to backfill over the structure.

### **5.5.3 Sub-Slab Vapor Extraction Piping Installation**

In preparation for slab-on-grade construction, the SE Parking Lot was stripped of asphalt surfacing, and the area brought to sub-slab grade for construction. Shallow utility trenches extended through the area and foundation excavations were dug to depths of about three feet. An approximately 4-inch thick gravel bedding and moisture break was placed to bring the grade to final elevation. A series of lateral PVC vapor extraction screens were installed in the moisture break for potential future soil vapor mitigation, if necessary. The vapor extraction network consists of four approximately 100-foot long 2-inch diameter sections of factory-slotted well screen embedded in the gravel layer. The screen sections attach to solid PVC pipe that extends into the lower level of the western building section, where vapor extraction equipment can be installed if needed. Figure 9 shows the layout of the vapor extraction system piping.

### **5.5.4 Sub-Slab Vapor Monitoring Point Installation**

To evaluate sub-slab conditions, three vapor monitoring points were installed in the moisture break. The monitoring points consist of 1-inch porous stainless steel screens attached to 1/4-inch teflon tubing that extends out to the building perimeter. The screens are surrounded by No. 10-20 silica sand and the teflon tubing is protected within sealed 1-inch diameter PVC conduit. The sampling point access will be protected by a flush-mounted cast-iron monument at the ground surface outside the building once construction is complete. The sub-slab vapor monitoring point locations are shown in Figure 9.

### **5.5.5 Sub-Slab Chemical Resistant Vapor Barrier Installation**

A chemical resistant vapor barrier was installed above the gravel moisture break. The material selected for this application was VaporBlock® Plus™ 20, a seven layer, polyethylene and ethylene vinyl alcohol copolymer (EVOH) co-extruded barrier resistant to gas and moisture transmission. Product information is included in Appendix E. The barrier is 20-mil thick and installed with double-sealed construction joints and pipe boot seals at any plumbing penetrations in accordance with the manufacturers specifications. The vapor barrier extended beneath all foundations and completely underlies the slab-on-grade sections of the building. Figure 9 shows the extent of the chemical resistant vapor barrier.

All of the adjacent below grade areas of the building are sealed with a combined waterproofing and chemical vapor barrier system. Once the groundwater recovers to natural elevations after de-watering, much of the below grade construction will be below the static water level. The below-grade portions of the building are completely encased in Epro E.Protect +, a multi-layer protective barrier. Product information is included in Appendix E.

## **6.0 PERFORMANCE AND COMPLIANCE SAMPLING**

Throughout the course of all excavations, performance and compliance samples were taken for laboratory analyses. The samples were obtained following appropriate environmental sampling procedures, in laboratory-prepared jars and vials appropriate for the planned testing. The samples were sealed, labeled, chilled and delivered to the laboratory within appropriate holding times.

All laboratory testing met the quality assurance/quality control requirements of the project. Sample analyses were completed with detection limits appropriate for direct comparison to applicable regulatory criteria.

### **6.1 Performance and Stockpile Sampling**

During the course of cleanup, soil samples were taken to help direct the work and identify stockpiled soil that should be managed as PCS. All performance and stockpile samples are included in Table 2. Performance and stockpile samples were analyzed for total petroleum hydrocarbons in the gasoline, diesel and oil ranges, VOCs or a list of regulated metals, depending on the work area and anticipated contaminants.

All performance samples were taken from locations that were excavated further at a later date. Performance samples meeting MTCA cleanup levels can be considered to demonstrate final compliance, even though further excavation for construction removed additional soil from the sampled areas. Performance samples meeting cleanup levels are included in the excavation base and sidewall sampling illustrated in Figures 5, 5A, 6 and 10 through 12.

Impacted performance samples encountered gasoline range TPH concentrations up to 250 mg/kg and motor oil range TPH up to 9,300 mg/kg. Lead concentrations up to 543 mg/kg were also found in the lead soil cleanup area.

Stockpile samples demonstrated the concentrations of TPH-G and TPH-O in bulk soil sent to Iron Mountain Quarry for treatment at concentrations ranging up to 580 and 2,650 mg/kg, respectively.

No chlorinated volatile compounds were detected in any of the analyzed performance samples.

### **6.2 Final Compliance Sampling**

Compliance sampling was conducted at the full extent of excavations. Compliance samples were taken from sidewalls as the excavation progressed, in order to obtain samples before lagging was installed. Excavation base samples were taken at the planned full depth. In the excavated western part of the site, the excavations continued to depths of four to twelve feet below the deepest encountered PCS or lead contaminated soil. Base samples were taken at a rate of at least one sample per 400 square feet (a 20' x 20' area) in the cleanup areas.

Sidewall samples were taken at locations and depths along the walls closest to where PCS or lead contaminated soil had been removed. Typically this represented a sampling rate of greater than one sample per 100 square feet of the sidewall areas potentially exposed to contaminants.

A total of 32 final confirmation base samples and 66 confirmation sidewall samples were taken at the final dig dimensions within the shored area of the site. Another 28 samples represent the final

confirmation data for the PCE contaminated soil area. The excavation compliance samples are summarized in Table 1. Figures 5 and 5A show the locations of all confirmation samples in the PCE cleanup area. These sample IDs typically use the southwestern corner of the King County warehouse as a reference point, measuring east and south from there to identify the sample location.

Base sample IDs in the main excavation reference a grid established across the work area, i.e. a sample W38/N4-B represents the intersection of perpendicular lines drawn from west pile W38 and north pile N4 at the final base elevation. Figure 6 shows the locations of all base samples in the main excavation and the reference piles used to identify locations.

Sidewall sample IDs typically consist of the location along the wall, a notation that it is a sidewall sample, with the depth below the original ground surface. By this system, a sample ID of S11.5-SW-10' indicates a sidewall location half way between piles S11 and S12 from a depth of 10 feet. Figures 10, 11 and 12 show the locations of all sidewall samples on the sidewalls and the reference piles used to identify locations.

The laboratory analyses completed for all compliance samples are summarized in Table 1. Most of the main excavation samples were tested for total petroleum hydrocarbons in the gasoline range by Method NWTPH-G, diesel and motor oil range TPH by Method NWTPH-D (extended), and the volatile aromatic compounds benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA Method 8021B. Fifteen sidewall and six base samples from the lead contaminated soil cleanup area and northeastern part of the site were analyzed for lead. Twelve of those samples were also analyzed for total concentrations of arsenic, cadmium, chromium and mercury by EPA Method 6020B.

Two base and two sidewall samples from near the former 104 12<sup>th</sup> floor sump area were also analyzed for VOCs, polychlorinated biphenyls (PCBs) by EPA Method 8082A, arsenic, cadmium, chromium, lead and mercury, based on the premise that waste oil may have been released through the sump. One of these base samples was also analyzed for carcinogenic polynuclear aromatic hydrocarbons (cPAHs) by EPA Method 8270E.

### **6.3 Final Compliance Sample Results**

Table 1 and Figures 5, 5A, 6 and 10 through 12 note all detected analytes of all compliance samples. No excavation base samples contained detectable concentrations of any range of TPH, BTEX compounds, PCBs, PAHs, cadmium, or mercury. No concentrations of PCE, arsenic, chromium or lead were detected above MTCA Method A cleanup levels in any base sample.

Two sidewall samples at the Property line adjacent to the King County warehouse contained PCE at concentrations of 0.10 and 0.12 mg/kg, above the MTCA Method A cleanup level of 0.05 mg/kg. All identified on-Property PCE has been removed and on-Property compliance samples meet the MTCA cleanup level.

No sidewall samples contained detectable concentrations of benzene, xylenes, other VOCs than PCE, cadmium or mercury.

Five south sidewall samples from the main excavation contained detectable TPH-G at concentrations ranging from 10 to 53 mg/kg. Benzene was detected above MTCA cleanup levels in one sample from 2017 site investigations, so the MTCA Method A cleanup level for TPH-G with

benzene at this site is 30 mg/kg. Only one sample exceeds the this cleanup level, the sample containing 53 mg/kg.

One or more sidewall samples contained detectable concentrations of TPH-D, TPH-O, toluene, ethylbenzene, arsenic, or chromium, but at concentrations below MTCA Method A cleanup levels.

One sidewall sample exceeded the 250 mg/kg MTCA Method A cleanup level of lead, with a reported concentration of 383 mg/kg.

MTCA regulations allow up to 10% of compliance samples to exceed cleanup levels, but no sample may exceed two times the cleanup level (WAC 173-340-740-7(e)(i) & (ii)). Table 3 summarizes sampling statistics for the project. The table notes the number of compliance samples for each analyzed parameter, the number (if any) that exceed the respective MTCA Method A cleanup levels, the percentage of samples exceeding cleanup level and the number of samples exceeding two times the cleanup level.

One sample out of 77 exceeded the lowest applicable cleanup level for TPH-G, but no sample exceeded twice the cleanup level. This represents 1.2% of samples, meeting MTCA's statistical criteria.

One sample out of 41 exceeded the Method A cleanup level for lead, but no sample exceeded twice the cleanup level. This represents 2.4% of samples, meeting MTCA's statistical criteria.

No soil sample from final compliance monitoring or any prior site investigation sampling has detected arsenic at concentrations exceeding the 20 mg/kg MTCA Method A soil cleanup level, a total of 34 soil samples analyzed since 2017. Arsenic in soil is not a contaminant of concern for the Property. However, the solubility of arsenic in groundwater is pH dependent and may be higher in reducing environments, where oxygen has been depleted. This can occur in response to degradation of organic contaminants, petroleum or organic matter in soil. Sampling conducted during this cleanup included analysis of five samples of site soil for total organic content. The testing found soils contained from 6.8 to 13.6 percent organic matter, a much higher content than most soil types which typically contain about 0.1 percent organic matter. The presence of degrading organic matter in soil is likely a contributing factor to elevated arsenic concentrations that have been observed in groundwater monitoring at the Property.

The results of all final soil compliance samples found the extent of cleanup to be sufficient under MTCA regulations. No further soil cleanup actions are warranted.

## **7.0 ADDITIONAL IN-SITU GROUNDWATER REMEDIATION**

Based on the rebound of vinyl chloride in groundwater, a second round of in-situ groundwater remediation was conducted as a barrier zone along the northern boundary of the slab-on-grade portion of the building.

The additional application was conducted from August 1<sup>st</sup> to 4<sup>th</sup>, 2022. The remedial action was planned and conducted by Regenesys, Inc. During the additional injection program, Regenesys applied a total of approximately 6,000 pounds of PlumeStop activated carbon mixed into solution

with approximately 6,611 gallons of water. The mixture was applied through 24 injection points, at depths ranging from 7 to 20 feet below the ground surface. The mixture resulted in a planned application rate of approximately 171 lbs. of activated carbon into each injection point.

The approximate location of injection points in the treatment area are shown in Figure 13. Regensis' Application Summary Report, detailing the injections is included in Appendix A. Regensis was able to inject the planned volume (or more) into 19 of the injection points. At some locations the injection pressure caused injectate to flow to the ground surface or up through the nearby monitoring wells. At those locations, the volume of water was reduced to increase the concentration of the injected mixture to obtain the planned dosing. At the planned mixing level the PlumeStop concentration was 10,535 mg/l of carbon. As surfacing occurred, the mixture was increased several times, until undiluted carbon was being pumped to allow injection of the planned dosage.

Groundwater was discolored black after treatment in all of the monitoring wells in and around the treatment area.

### **7.1 Groundwater Compliance Monitoring**

WES will continue compliance monitoring through quarterly groundwater monitoring. Due to the high levels of activated carbon, passive diffusion bag samplers will be used to sample until the turbidity and black coloration of the water decreases. The passive samplers are made from a membrane permeable to VOCs and dissolved metals. The samplers are filled with laboratory prepared de-ionized water, sealed and suspending in the wells at the mid-point of the screened intervals. Over time, the de-ionized water equilibrates with the surrounding water, but the activated carbon is too coarse to pass through the membrane. Periodically, comparative samples will be obtained by purging and sampling to evaluate the effectiveness of the sampling.

Field measurements of dissolved oxygen, pH, temperature, conductivity and oxidation reduction potential (ORP) will be taken directly from the well, using down-hole instrumentation.

## **8.0 CONCLUSIONS AND RECOMMENDATIONS**

Based on our field observations and the results of laboratory testing on representative samples, soil cleanup was successfully completed throughout the entire Property. No observations or sampling conducted during this cleanup found evidence of contamination extending to or beyond the Property boundaries. Two sidewall samples suggest PCE contaminated soil is present beneath the King County warehouse, which may have extended onto the Property. This soil is a likely source of the plume of vinyl chloride in that portion of the site.

A total of approximately 39.80 tons of PCE and lead contaminated soil was excavated and transported to the Chem Waste Management, Inc., landfill in Arlington, Oregon. A total of approximately 630.44 tons of lead, cadmium and petroleum contaminated soil was excavated and transported to the Regional Disposal Company (RDC) landfill in Roosevelt, Klickitat County, Washington. A total of approximately 3,729.76 tons of petroleum contaminated soil (PCS) was excavated and disposed at the Iron Mountain Quarry, Inc., thermal treatment facility in Granite Falls, Washington, or RDC landfill.

All final compliance sampling demonstrates that the Property meets applicable Model Toxics Control Act Method A soil cleanup criteria. The final conditions on the Property indicate there is no residual soil contamination that could be a direct contact exposure, or a source of soil vapors for the newly constructed building.

Groundwater remediation and confirmation sampling is on-going. The detected concentrations of vinyl chloride in groundwater exceeded the MTCA Method A cleanup level of 0.2 ug/l before the additional in-situ treatment was conducted in August 2022. Because groundwater may be a source of exposure primarily through the groundwater to soil vapor pathway, the building construction over this area is equipped with a chemically resistant vapor barrier, an underlying network of vapor extraction screens and soil vapor monitoring points. Should the vapor monitoring points or indoor air quality indicate a potential for soil vapors to be an exposure pathway, an active vapor extraction system can be connected to the sub-slab network. All of the other below grade portions of the building are completely encased in a combined waterproofing and chemically resistant vapor barrier system.

De-watering has demonstrated that the groundwater arsenic concentrations exceed MTCA Method A cleanup level of 5 ug/l. Ten samples were obtained over the year that de-watering was conducted, representing over 1.99 million gallons of discharge. Arsenic concentrations ranged from 5.67 to 38.0 ug/l of arsenic, with a median concentration of 11.9 ug/l.

Once de-watering reaches a static level, the withdrawn water is predominantly from the surrounding area. The monitoring showed increasing concentrations of arsenic over time, which demonstrates that groundwater in the surrounding area is at concentrations equal to or higher than that collected from the Property. This de-watering data should be considered when characterizing the extent and magnitude of arsenic occurrence on and around the Property.

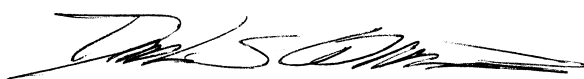
## **9.0 CLOSURE**

### **Limitations**

The conclusions contained in this report represent our professional opinions and are based on our observations, subcontracted analytical testing and information supplied by third party sources. These opinions are based on currently available information and are arrived at in accordance with currently accepted environmental assessment practices at this time and location. No other warranty is expressed or implied. In the event that other information becomes known regarding conditions of the site or surrounding properties, the conclusions of this report should be reviewed and if necessary, updated by WES to reflect the new information.

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

Respectfully Submitted  
**Whitman Environmental Sciences**



Daniel S. Whitman, L.G.  
Principal



DANIEL S. WHITMAN

## **10.0 REFERENCES**

### ***Prior Environmental Studies:***

AEG, 2014 - Associated Environmental Group, Inc., Phase II Environmental Site Assessment, Conducted on 12th Avenue Parking Lot, 110 & 124 12th Avenue, Seattle, Washington, AEG Project No. 14-142, November 14, 2014

WES, 2019 - Whitman Environmental Sciences, Remedial Investigation Summary Report Redevelopment Property, 104-124 12th Avenue & 1209 E. Fir Street Seattle, Washington 98122 October 26, 2019 (Project No. WES-1591)

Bender, 2019 – Bender Consulting LLC, Conceptual Dewatering Design, 104 12<sup>th</sup> Avenue, Seattle, Washington, April 23, 2019 , Project 1910-01

WES, 2020a - Whitman Environmental Sciences, Source Investigation Summary Report, 104-124 12th Avenue & 1209 E. Fir Street Seattle, Washington 98122 April 6, 2020 (Project No. WES-1591)

WES, 2020b - Whitman Environmental Sciences, Independent Remedial Action Plan, 104-124 12th Avenue & 1209 E. Fir Street Seattle, Washington 98122 April 8, 2020 (Project No. WES-1591)

WES, 2020c - Whitman Environmental Sciences, Independent Remedial Action Plan, 104-124 12th Avenue & 1209 E. Fir Street Seattle, Washington 98122 April 8, 2020 (Project No. WES-1591)

WES, 2022 - Whitman Environmental Sciences, Groundwater Monitoring Summary Report, 104-124 12th Avenue & 1209 E. Fir Street Seattle, Washington 98122 April 8, 2020 (Project No. WES-1591)

### ***Regulations and Guidance Documents:***

Model Toxics Control Act Cleanup Regulation WAC Chapter 173-340

“Guidance for Remediation of Petroleum Contaminated Sites, WDOE Publication #10-09-057, Revised June 2016

“Guidance for Site Checks and Site Assessments for Underground Storage Tanks” WDOE Publication #90-52.

“Guidance on Sampling and Data Analysis Methods”, WDOE Publication No 94-49, 1995

Technical Memorandum #5 – “Collecting and Preparing Soil Samples for VOC Analysis”, WDOE Publication 04-09-087

Cleanup Levels and Risk Calculation (CLARC) Database, Washington Department of Ecology, July 2021 Update.

# ***TABLES***

**TABLE 1**  
**Summary of Excavation Confirmation Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)					
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethylbenzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.
<b>PCE Soil Cleanup Area</b>								
Center Base-36E/2S-2'	2'	4/20/21	NA	NA	Tetrachloroethene 0.035 ND (all other)	Arsenic: 2.25 Cadmium: ND (<1) Chromium: 17.2 Lead: 11.1 Mercury: ND (<1)	NA	104379
NE Base-45E/3S-2.5'	2.5'	4/20/21	NA	NA	ND (all)	Lead: 3.07	NA	104379
SE Base-44E/8S-2.5'	2.5'	4/20/21	NA	NA	Tetrachloroethene 0.030 ND (all other)	Arsenic: 2.45 Cadmium: ND (<1) Chromium: 15.5 Lead: 13.7 Mercury: ND (<1)	NA	104379
SW Base-31E/9S-2.5	2.5'	4/20/21	NA	NA	ND (all)	Lead: 2.40	NA	104379
W Base-28E/3S-1.5'	1.5'	4/20/21	NA	NA	ND (all)	Lead: 16.6	NA	104379
ESW-51E/6S-1.5'	1.5'	4/20/21	NA	NA	ND (all)	Lead: 5.17	NA	104379
NSW-39E/0S-1.5'	1.5'	4/20/21	NA	NA	ND (all)	Arsenic: 3.39 Cadmium: ND (<1) Chromium: 18.2 Lead: 35.6 Mercury: ND (<1)	NA	104379
SSW-41E/12S-2'	2'	4/20/21	NA	NA	ND (all)	Lead: 5.31	NA	104379
SWSW-30E/12S-1.5'	1.5'	4/20/21	NA	NA	ND (all)	Lead: 25.8	NA	104379
WSW-26E/4S-1.5'	1.5'	4/20/21	NA	NA	ND (all)	Lead: 13.4	NA	104379
<b>Sampling along N.E. Property Line Adjacent to S. Side of Warehouse</b>								
NE4.5-SW-3.5'	3.5'	7/16/21	NA	NA	ND (all)	Arsenic: 3.03 Cadmium: ND (<1) Chromium: 21.1 Lead: 8.10 Mercury: ND (<1)	NA	107400
NE5.5-SW-6'	6'	7/16/21	NA	NA	ND (all)	NA	NA	107400
NE6-SW-5'	5'	7/16/21	NA	NA	ND (all)	Arsenic: 7.29 Cadmium: ND (<1) Chromium: 29.8 Lead: 7.77 Mercury: ND (<1)	NA	107400

**TABLE 1 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)						
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethylbenzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.	
NE6.5-SW-4.5'	4.5'	7/16/21	NA	NA	Tetrachloroethene: 0.10 ND (all other)	NA	NA	107400	
CBS-ORG-4'	4'	7/16/21	NA	NA	NA	NA	Organic Matter: 13.6%	107400	
<b>Additional PCE Soil Area Cleanup Area Sampling</b>									
NSW-46E/0S-4.5'	4.5'	8/24/21	NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	Tetrachloroethene: 0.12 ND (all other)	Arsenic: 2.18 Cadmium: ND (<1) Chromium: 11.3 Lead: 14.7 Mercury: ND (<1)	NA	108382	
NSW-47E/4N-6'	6'	8/24/21	NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA	NA	108382	
SSW-48E/6S-3'	3'	8/24/21	NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA	NA	108382	
ESW-51E/4S-3.5	3.5'	8/24/21	NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA	NA	108382	
WSW-42E/3S-3'	3'	8/24/21	NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA	NA	108382	
40E/2S-4.5'	4.5'	11/15/21	NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA	NA	111281	
48E/2S-4.5'	4.5'	11/15/21	NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA	NA	111281	
60E/2S-4.5'	4.5'	11/15/21	NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA	NA	111281	

**TABLE 1 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)					
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethylbenzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.
62E/5S-4.5	4.5'	12/7/21	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)	NA	NA	112115
65E/8S-6.5'	6.5'	12/7/21	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)	NA	NA	112115
72E/6S-7'	7'	12/7/21	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)	NA	NA	112115
47E/5S-5'	5'	12/12/21	NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Arsenic: 3.41 Cadmium: ND (<1) Lead: 4.09	NA	112341
52E/4S-4.5'	4.5'	12/12/21	NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Arsenic: 4.96 Cadmium: ND (<1) Lead: 10.9	NA	112341
56E/7S-6'	6'	12/12/21	NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Arsenic: 13.2 Cadmium: ND (<1) Lead: 16.6	NA	112341
<b>Main Excavation Samples</b>								
<b>Base Samples - at Final Base Depth, unless otherwise noted. Sample IDs based on a grid using closest shoring Pile Numbers</b>								
E9/S19.5-B	25' (187.9)	7/21/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107345
E10.5/S22-B	25' (187.9)	7/21/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107345
E12/S19-B	25' (187.9)	7/21/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107345

**TABLE 1 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)					
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethylbenzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method. )</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.
E12.5/N17-B	25' (187.9)	7/21/21	NA	NA	NA	Arsenic: 6.69 Cadmium: ND (<1) Chromium: 10.8 Lead: 1.52 Mercury: ND (<1)	NA	107345
E13/N12-B	25' (187.9)	8/24/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	Arsenic: 5.05 Cadmium: ND (<1) Chromium: 24.1 Lead: 3.26 Mercury: ND (<1)	NA	
E14/S20-17' Excavated Additional 8'	17' (196)	7/8/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	106516
E14.5/S22-B	25' (187.9)	7/14/21	NA	NA	NA	Arsenic: 2.01 Cadmium: ND (<1) Chromium: 17.2 Lead: 1.72 Mercury: ND (<1)	NA	107248
E18/N16-B-R6	23' (186.9)	7/14/21	NA	NA	NA	Arsenic: 4.56 Cadmium: ND (<1) Chromium: 26.3 Lead: 2.79 Mercury: ND (<1)	NA	107248
E20/N14-B	20' (186.9)	7/14/21	NA	NA	NA	Arsenic: 6.52 Cadmium: ND (<1) Chromium: 27.7 Lead: 3.11 Mercury: ND (<1)	NA	107248
E22/N15-B-R8	18' (186.9)	7/14/21	NA	NA	NA	Arsenic: 4.52 Cadmium: ND (<1) Chromium: 22.4 Lead: 2.56 Mercury: ND (<1)	NA	107248
S4.5/W3-B	13' (186.9)	8/5/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	108111
S6/W1-B	13.5' (186.9)	8/5/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	108111

**TABLE 1 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)						
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethylbenzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.	
S8/W2-B	14' (186.9)	8/5/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	108111	
S16.5-W3-194 Excavated Additional 9'	9' (194)	6/8/21	Gasoline: 7.2 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	NA	106117	
W1/S16.5-B	16' (187.9)	7/21/21	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)	Arsenic: 5.06 Cadmium: ND (<1) Chromium: 25.0 Lead: 2.78 Mercury: ND (<1)	PCBs: ND (all) cPAHs: ND (all)	107345	
W2/S15.5-B	16' (186.9)	7/13/21	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)	Arsenic: 4.51 Cadmium: ND (<1) Chromium: 31.9 Lead: 3.32 Mercury: ND (<1)	PCBs: ND (all)	107248	
W34/N8.5-B	26.5' (187.5)	7/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107222	
W35/N4.5-B	26.5' (187.5)	7/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107222	
W37.5/N11-B	27' (187.9)	7/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107222	
W38/N4-B	27' (187.9)	7/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107222	
W39/N7-B	27' (187.9)	7/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107222	

**TABLE 1 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)					
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethylbenzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.
W41/N8-B	27' (187.9)	7/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107222
W42.5/N11-B	27.5' (187.9)	7/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107222
W43/N5-B	27.5' (187.9)	7/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107184
W44.5/N3.5-B	28' (187.9)	7/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107184
W45/N10-B	28' (187.9)	7/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107184
W46/N7-B	29' (187.9)	7/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107184
W49/N6-B	29' (187.9)	7/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107184
W50/N2.5-B	29' (187.9)	7/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107184
W51.5/N5-B	30' (187.9)	7/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107184

**TABLE 1 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)						
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>		Benzene Toluene Ethylbenzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>		Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses
W51/N9.5-B	30' (187.9)	7/21/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107345	
W53/N1.5-B	30' (187.9)	7/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107184	
<b>North Sidewall</b>									
N0.5 SW-13'	13' (205)	5/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105246	
N1.5 SW-8'	8' (210)	5/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105246	
N1.5 SW-17'	17' (201)	5/28/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	106038	
N2.5 SW-15'	15' (203)	5/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105246	
N3.5 SW-11'	11' (207)	5/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105246	
N3.5 SW-18'	18' (200)	5/28/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	106038	
N4.5 SW-14'	14' (204)	5/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105246	

**TABLE 1 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)					
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethylbenzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.
N5.5 SW-17'	17' (200)	6/24/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	106516
N6-14'	14' (203)	4/7/21	Gasoline: NA Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA	NA	104118
N6.5 SW-10'	10' (207)	5/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105246
N7.5-SW-18'	18' (199)	6/24/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	106516
<b>South Sidewall</b>								
S2.5-SW-8'	7' (193)	9/14/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.079) Xylenes: ND (<0.076)	NA	NA	NA	109328
S3.5-SW-8'	7' (193)	9/14/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.079) Xylenes: ND (<0.076)	NA	NA	NA	109328
S4.5-SW-8'	8' (192)	7/14/21	<b>Gasoline: 53</b> Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.079) Xylenes: ND (<0.076)	NA	NA	NA	107248
S7.5-SW-11'	11' (190)	7/14/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107248
S8.5-SW-6'	6' (193)	5/13/21	Gasoline: 15 Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: 0.36 Xylenes: ND (<0.06)	NA	NA	Organic Matter: 6.8%	105246 106360 (Organic Matter)

**TABLE 1 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)					
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethylbenzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.
S8.5-SW-7'	7' (192)	5/25/21	Gasoline: 10 Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105467
S9.5-SW-9'	9' (192)	7/14/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107248
S11-SW-7'	7' (195)	5/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105246
S11.5-SW-10'	10' (192)	7/14/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107248
S12.5-SW-11'	11' (191')	5/18/21	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)	Arsenic: 2.34 Cadmium: ND (<1) Chromium: 15.3 Lead: 1.50 Mercury: ND (<1)	PCBs: ND (all)	105390
S13.5-SW-7'	7' (195)	5/6/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105080
S14.5-SW-8'	8' (194)	5/6/21	Gasoline: 25 Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: 0.028 Xylenes: ND (<0.06)	NA	NA	NA	105080
S15.5 SW-8'	8' (195)	5/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105246
S15.5-SW-11	11' (192)	5/18/21	Gasoline: 9.6 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)	Arsenic: 2.58 Cadmium: ND (<1) Chromium: 17.8 Lead: 2.09 Mercury: ND (<1)	PCBs: ND (all)	105390

**TABLE 1 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)					
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethylbenzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method. )</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.
S16.5-SW-9'	9' (194.5)	5/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105246
<b>East Sidewall</b>								
E14.5-SW-9'	9' (204)	5/6/21	Gasoline: NA Diesel: 290 <sup>x</sup> Motor Oil: 1,800	NA	NA	NA	NA	105080
E14.5-SW-16'	16' (197)	7/8/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107106
E15.5-SW-6'	6' (207)	5/6/21	Gasoline: NA Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA	NA	105080
E15.5-SW-11'	11' (202)	5/24/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105467
E17.5-SW-8'	8' (206)	5/25/21	NA	NA	NA	Lead: 65.6	NA	105467
E18.5-SW-10'	10' (201)	5/25/21, 6/25/21	NA	NA	NA	Arsenic: 5.12 Cadmium: ND (<1) Chromium: 16.9 Lead: 66.3 Mercury: ND (<1)	NA	105467(Lead) 106516 (Other metals)
E19.5-SW-10.5-1' (1' cut into wall for shoring)	10.5' (198.5)	7/8/21	NA	NA	NA	Lead: 111	NA	107106
E19.5-SW-10.5-1.5 (1.5' cut into wall for cleanup)	10.5' (198.5)	7/8/21	NA	NA	NA	Lead: 31.0	NA	107106
E20.5-SW-12'	12' (196)	6/24/21	NA	NA	NA	Arsenic: 6.52 Cadmium: ND (<1) Chromium: 26.8 Lead: 8.77 Mercury: ND (<1)	NA	106516

**TABLE 1 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)					
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethylbenzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.
E20.5-SW-17'	17' (191)	7/14/21	NA	NA	NA	Arsenic: 2.52 Cadmium: ND (<1) Chromium: 18.8 Lead: 1.47 Mercury: ND (<1)	NA	107248
E22.5-SW-7'	7' (197)	5/25/21	NA	NA	NA	Arsenic: 4.78 Cadmium: ND (<1) Chromium: 20.7 Lead: 35.9 Mercury: ND (<1)	NA	105467
E22.5-SW-15'	15' (189)	7/14/21	NA	NA	NA	Arsenic: 1.58 Cadmium: ND (<1) Chromium: 31.9 Lead: 2.31 Mercury: ND (<1)	NA	107248
E23.5-SW-9'	9' (195)	6/24/21	NA	NA	NA	Arsenic: 12.8 Cadmium: ND (<1) Chromium: 32.0 Lead: 3.03 Mercury: ND (<1)	NA	106516
<b>East Sidewall N. of Warehouse (Shoring piles along north side of warehouse range from S19 to S23) See Figure 6</b>								
S19.5-SW-8'	8' (205)	5/6/21	Gasoline: NA Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA	NA	105080
S19.5-SW-14'	14' (199)	5/24/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	Arsenic: 2.77 Cadmium: ND (<1) Chromium: 16.0 Lead: 12.8 Mercury: ND (<1)	NA	105467
S19.5-SW-17'	17' (196)	7/8/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107106
S20.5-SW-17'	17' (196)	6/29/21	NA	NA	NA	Arsenic: 6.22 Cadmium: ND (<1) Chromium: 26.2 Lead: 6.67 Mercury: ND (<1)	NA	106516

**TABLE 1 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)							
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethylbenzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.		
S21.5-SW-12'	12' (201)	5/24/21	NA		NA		NA	Arsenic: 4.53 Cadmium: ND (<1) Chromium: 25.5 <b>Lead: 383</b> Mercury: ND (<1)	NA	105467
S21.5-SW-16'	16' (197)	5/24/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA		Arsenic: 1.89 Cadmium: ND (<1) Chromium: 16.7 Lead: 15.2 Mercury: ND (<1)	NA	105467	
S22.5-SW-14'	14' (199)	5/24/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA		Arsenic: 2.98 Cadmium: ND (<1) Chromium: 16.0 Lead: 14.8 Mercury: ND (<1)	NA	105467	
S22.5-SW-18'	18' (195)	6/29/21	NA		NA		NA	Arsenic: 7.41 Cadmium: ND (<1) Chromium: 30.4 Lead: 3.71 Mercury: ND (<1)	NA	106516
<b>West Sidewall</b>										
W34.5-SW-10'	10' (204)	5/7/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA		NA	NA	NA	105144
W 34.5-SW-13'	13' (201)	5/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: 0.026 Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA		NA	NA	NA	105246
W36.5-SW-12'	12' (203)	5/7/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA		NA	NA	NA	105144
W37.5-SW-16'	16' (199)	5/18/21	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA		NA	NA	NA	105390

**TABLE 1 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)					
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethylbenzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.
W38.5-SW-7'	7' (208)	5/7/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105144
W39.5-SW-10'	10' (205)	5/7/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105144
W40.5-SW-14'	14' (201)	5/18/21	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105390
W41.5-SW-9'	9' (207)	5/7/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105144
W42.5-SW-11'	11' (205)	5/7/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105144
W43.5-SW-15'	15' (201)	5/18/21	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105390
W44.5-SW-17'	17' (199)	6/24/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	106516
W45.5-SW-10'	10' (207)	5/7/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105144
W46.5 SW-15'	15' (202)	5/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105246

**TABLE 1 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)					
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethylbenzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.
W48.5-SW-14'	14' (203)	5/7/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105144
W49.5-SW-12'	12' (205)	5/7/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105144
W49.5-SW-18'	18' (199)	6/24/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	106516
W50.5-SW-15'	15' (202)	5/7/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105144
W52.5-SW-9	9' (209)	5/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105246
W52.5-SW-15'	15' (203)	5/13/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105246
<b>Washington State Model Toxics Control Act (MTCA) Soil Cleanup Criteria (mg/kg)</b>			<b>Gasoline: 100<sup>A</sup></b> <b>No benzene present in any sample</b>  <b>Diesel or Motor Oil: 2,000<sup>A</sup></b>	<b>Benzene: 0.03<sup>A</sup></b> <b>Toluene: 7<sup>A</sup></b> <b>Ethylbenzene: 6<sup>A</sup></b> <b>Xylenes: 9<sup>A</sup></b>	<b>Tetrachloroethene 0.05<sup>A</sup></b>	<b>Arsenic: 20<sup>A</sup></b> <b>Cadmium 2<sup>A</sup></b> <b>Chromium 2,000<sup>A</sup></b> <b>Cr VI 19<sup>*A</sup></b> <b>Lead 250<sup>A</sup></b> <b>Mercury 2<sup>A</sup></b>	<b>PCBs: 1.0</b> <b>cPAHs: TEQ<sub>≤</sub> 0.1</b>	

Table 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).

\* Sample Chromatogram does not resemble fuel standard used for analysis. Most likely carry over from gasoline range hydrocarbons or organic material.

BTEX compounds by EPA Method 8021B, or as part of volatile organic analysis by EPA Method 8260C.

Volatile organic compounds by EPA Method 8260C for a list of volatile parameters. Detection limits vary.

Metals analyses by EPA Method 6020B.

PCBs by EPA Method 8082A.

Carcinogenic PAHs by EPA Method 8270E.

Organic Matter by SM 2540G.

MTCA Soil cleanup criteria per Chapter 173-340-740 WAC. Method A criteria presented where available. Sample results exceeding applicable cleanup criteria are noted in **Bold Italic**.

**TABLE 2**  
**Summary of Performance and Soil Stockpile Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)					
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethyl benzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.
<b>Main Excavation Samples</b>								
S15-W2-194 Performance Sample Excavated Additional 7'	9' (194)	6/8/21	<b>Gasoline:</b> 120 <b>Diesel:</b> 330 <sup>x</sup> <b>Motor Oil:</b> ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: 0.15 Xylenes: 0.20	ND (all)	NA	NA	106117
S16.5-W3-194 Performance Sample Excavated Additional 9'	9' (194)	6/8/21	Gasoline: 7.2 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	NA	106117
E9-12'W Performance Sample Excavated Additional 20'	5' (208)	4/14/21	<b>Gasoline:</b> 250 <b>Diesel:</b> 2,100 <sup>x</sup> <b>Motor Oil:</b> 9,300	NA	NA	Arsenic: 4.65 Cadmium: 1.46 Chromium: 26.0 Lead: 170 Mercury: ND (<1)	NA	104259
E10-S23 -12' Performance Sample Excavated Additional 15'	12' (203)	5/24/21	<b>Gasoline:</b> 240 <b>Diesel:</b> 410 <b>Motor Oil:</b> 3,400	Benzene: ND (<0.02) Toluene: 0.31 Ethylbenzene: 0.52 Xylenes: 1.3	NA	NA	NA	105467
E14/S20-17' Performance Sample Excavated Additional 8'	17' (196)	7/8/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107106
<b>Excavation Sidewall Performance Sample</b>								
E19.5-SW-10.5' Performance Sample Excavated 1.5' further into sidewall	10.5' (198.5)	6/24/21	NA	NA	NA	Arsenic: 13.2 <b>Cadmium:</b> 2.31 Chromium: 51.7 <b>Lead:</b> 543 Mercury: ND (<1)	NA	106516
<b>Stockpiled Soil Screening - Waste Characterization Samples</b>								
STK-1-N	--	5/7/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	104118
STK-1-E	--	4/7/21	Gasoline: NA Diesel: 63 <sup>x</sup> Motor Oil: 430	NA	NA	Lead: 166	NA	104118

**TABLE 2 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)						
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethyl benzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.	
STK-1-W	--	4/7/21	Gasoline: NA Diesel: ND (<50) Motor Oil: 650	NA	NA	NA	NA	NA	104118
STK-2-E	--	4/7/21	Gasoline: NA Diesel: ND (<50) Motor Oil: 390	NA	NA	Lead: 32.3	NA	NA	104118
STK-2-W	--	4/7/21	Gasoline: NA Diesel: ND (<50) Motor Oil: 310	NA	NA	NA	NA	NA	104118
STK-2-S	--	4/7/21	Gasoline: NA Diesel: 63 <sup>x</sup> Motor Oil: 550	NA	NA	Lead: 178	NA	NA	104118
STK-1-N & STK-2-S Composite	--	4/7/21	NA	NA	NA	TCLP Lead: ND (<1.0) mg/l	NA	NA	104118
STK-2D-E	--	4/14/21	Gasoline: NA Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	NA	104259
STK-2D-W	--	4/14/21	Gasoline: NA Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	NA	104259
STK-2T-E	--	4/14/21	NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	NA	104259
STK-2T-W	--	4/14/21	Gasoline: NA Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	NA	104259
N-Stockpile-1	--	4/19/21	NA	NA	NA	Lead: 159	NA	NA	104325
N-Stockpile-2	--	4/19/21	NA	NA	NA	Lead: 160	NA	NA	104325
N-Stockpile-3	--	4/19/21	NA	NA	NA	Lead: 131	NA	NA	104325
NW-STK-N	--	5/6/21	<b>Gasoline: 40</b> Diesel: 360 <sup>x</sup> <b>Motor Oil: 2,600</b>	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: 0.032 Xylenes: ND (<0.06)	NA	NA	NA	NA	105080

**TABLE 2 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)					
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethyl benzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.
NW-STK-S	--	5/6/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105080
NW-STK-E	--	5/6/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105080
NW-STK-TOP	--	5/6/21	Gasoline: 6.1 Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105080
Main STK-E	--	5/7/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105135
Main STK-E2	--	5/7/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105135
Main STK-S	--	5/7/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105135
Main STK-S2	--	5/7/21	Gasoline: 6.2 Diesel: ND (<50) Motor Oil: 560	Benzene: ND (<0.02) Toluene: 0.027 Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105135
Main STK-N	--	5/7/21	Gasoline: 9.6 Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: 0.091 Ethylbenzene: ND (<0.02) Xylenes: 0.073	NA	NA	NA	105135
STK-2-S	--	5/7/21	Gasoline: 9.0 Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: 0.11 Ethylbenzene: 0.029 Xylenes: 0.10	NA	NA	NA	105135

**TABLE 2 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)					
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethyl benzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.
STK-2-W	--	5/7/21	Gasoline: 13 Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: 0.21 Ethylbenzene: 0.051 Xylenes: 0.15	NA	NA	NA	105135
STK-3-S	--	5/10/21	Gasoline: 11 Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: 0.10 Ethylbenzene: 0.035 Xylenes: 0.12	NA	NA	NA	105143
STK-3-NE	--	5/10/21	Gasoline: 14 Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: 0.097 Ethylbenzene: 0.036 Xylenes: 0.11	NA	NA	NA	105143
STK-3-W	--	5/10/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105143
S-STK-N	--	5/12/21	<b>Gasoline: 310</b> Diesel: 250 <sup>x</sup> Motor Oil: ND (<250)	Benzene: ND (<0.2) Toluene: 0.25 Ethylbenzene: ND (<0.2) Xylenes: 2.5	NA	NA	NA	105244
S-STK-E	--	5/12/21	<b>Gasoline: 580</b> Diesel: 870 <sup>x</sup> Motor Oil: 1,100	Benzene: ND (<0.02) Toluene: 0.24 Ethylbenzene: 3.9 Xylenes: 3.5	NA	NA	NA	105244
S-STK-W	--	5/12/21	Gasoline: 100 Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: 0.04 Xylenes: 0.38	NA	NA	NA	105244
Main STK-NE	--	5/21/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA	NA	105418
Main STK-SE	--	5/21/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA	NA	105418
Main STK-SW	--	5/21/21	Gasoline: 6.7 Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	105418

**TABLE 2 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)					
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethyl benzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.
SEG STK-NW	--	5/21/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA	NA	105418
SEG STK-SE	--	5/21/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA	NA	105418
SEG STK-SW	--	5/21/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA	NA	105418
SW-STK-N	--	5/21/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA	NA	105418
SW-STK-S	--	5/21/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA	NA	105418
C2STK-NE	--	6/4/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: 0.095 Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	106104
C2STK-SW	--	6/4/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	106104
Main STK-E	--	6/8/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	106117
Main STK-TOP	--	6/8/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	106117
C2STK-NE	--	6/8/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	106117

**TABLE 2 (Continued)**  
**Summary of Soil Sample Analytical Results**  
**104 - 124 12<sup>th</sup> Avenue & 1209 E. Fir Street, Seattle, Washington**

Sample I.D.	Depth (Elevation)	Sample Date	Laboratory Analytical Results (mg/kg)					
			Total Petroleum Hydrocarbons <i>(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))</i>	Benzene Toluene Ethyl benzene Xylenes <i>(by EPA Methods 8021B or 8260C)</i>	Other Volatile Organic Compounds <i>(List of 58 Additional Compounds Detectable by the Laboratory Method.)</i>	Regulated Metals <i>(By EPA Method 6020B)</i>	Other Analyses	Laboratory Report No.
C2STK-W	--	6/8/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	106117
C2STK-S	--	6/8/21	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	106117
ORG-1	--	6/21/21	NA	NA	NA	NA	Organic Matter: 9.3%	106360
ORG-2	--	6/21/21	NA	NA	NA	NA	Organic Matter: 7.6%	106360
ORG-3	--	6/21/21	NA	NA	NA	NA	Organic Matter: 12.5%	106360
NESTK-NE	--	7/8/21	Gasoline: 17 Diesel: ND (<50) Motor Oil: 350	Benzene: ND (<0.02) Toluene: 0.032 Ethylbenzene: 0.040 Xylenes: 0.14	NA	NA	NA	107105
NESTK-CTR	--	7/8/21	<b>Gasoline: 51</b> Diesel: ND (<50) Motor Oil: 360	Benzene: ND (<0.02) Toluene: 0.046 Ethylbenzene: 0.10 Xylenes: 0.3	NA	NA	NA	107105
NESTK-S	--	7/8/21	Gasoline: 14 Diesel: ND (<50) Motor Oil: 300	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	NA	NA	107105
<b>Washington State Model Toxics Control Act (MTCA) Soil Cleanup Criteria (mg/kg)</b>			<b>Gasoline: 100<sup>A</sup></b> <b>If benzene present 30<sup>A</sup></b> <b>Diesel or Motor Oil: 2,000<sup>A</sup></b>	<b>Benzene: 0.03<sup>A</sup></b> <b>Toluene: 7<sup>A</sup></b> <b>Ethylbenzene: 6<sup>A</sup></b> <b>Xylenes: 9<sup>A</sup></b>	<b>Tetrachloroethene 0.05<sup>A</sup></b>	<b>Arsenic: 20<sup>A</sup></b> <b>Cadmium 2<sup>A</sup></b> <b>Chromium 2,000<sup>A</sup></b> <b>Cr VI 19<sup>*A</sup></b> <b>Lead 250<sup>A</sup></b> <b>Mercury 2<sup>A</sup></b>		

Table 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).

\*- Sample Chromatogram does not resemble fuel standard used for analysis. Most likely organic material or carry over from gasoline range hydrocarbons.

BTEX compounds by EPA Method 8021B, or as part of volatile organic analysis by EPA Method 8260C.

Volatile organic compounds by EPA Method 8260C for a list of volatile parameters. Detection limits vary.

Metals analyses by EPA Method 6020B.

MTCA Soil cleanup criteria per Chapter 173-340-740 WAC. Method A criteria presented where available. Sample results exceeding applicable cleanup criteria are noted in **Bold Italic**.

**Table 3**  
**Summary Statistics for Soil Sample Analyses**  
**12<sup>th</sup> & Yesler Development Property**  
**104-124 12<sup>th</sup> Avenue & 1209 E. Fir Street**  
**Seattle, Washington**

<i>Parameter</i>	<i>Number of Confirmation Samples</i>	<i>Number of Confirmation Samples Exceeding MTCA Cleanup Level</i>	<i>Percent of Samples Exceeding MTCA Cleanup Level</i>	<i>Number of Samples Exceeding 2x Cleanup Level</i>
Gasoline Range Organics	77	1	1.2%	0
Diesel Range Organics	83	0	0%	0
Motor Oil Range Organics	83	0	0%	0
Benzene	91	0	0%	0
Toluene	91	0	0%	0
Ethylbenzene	91	0	0%	0
Xylenes	91	0	0%	0
Tetrachloroethene	33	2	6.6%	1*
Arsenic	31	0	0%	0
Cadmium	31	0	0%	0
Lead	41	1	2.4%	0
PCBs	1	0	0%	0
cPAHs	1	0	0%	0

Table Notes:

\* - Sidewall sample NSW-46E/0S-4.5' from property line at King County Warehouse. Indication of upgradient off-site contamination extending onto the Subject Property from the adjacent site.

MTCA Cleanup Regulation allows 10% of confirmation samples to exceed cleanup level, but no sample may exceed two times the cleanup level. (WAC 173-340-740-7(e)(i) & (ii))

# ***FIGURES***



North



Scale 1 : 24,000

From USGS

Figure 1 - Site Map

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

Project No. WES - 1591

Date June 11, 2017

File ID. 1591F1

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**Legend**

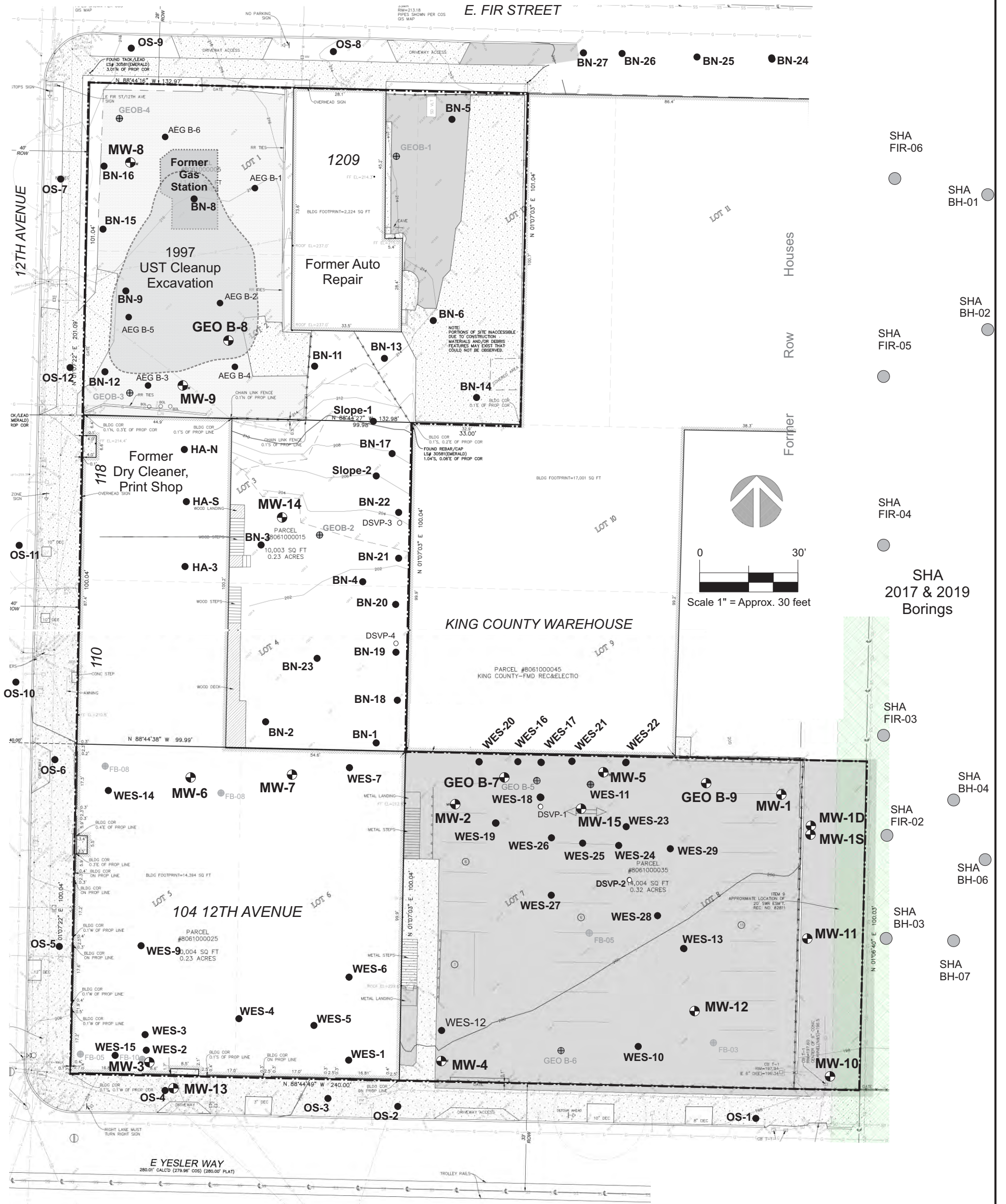
- ⊕ Approximate Location of Monitoring Well
- Approximate Location of Soil Borings (2016 -2020)
- Approximate Location of Soil Vapor Probe
- ⊕ Approximate Location of Geotechnical Soil Borings (Soil Descriptions Only)
- Approximate Location of 2016 Farallon Soil Borings (No Data or Soil Descriptions, Locations Estimated)

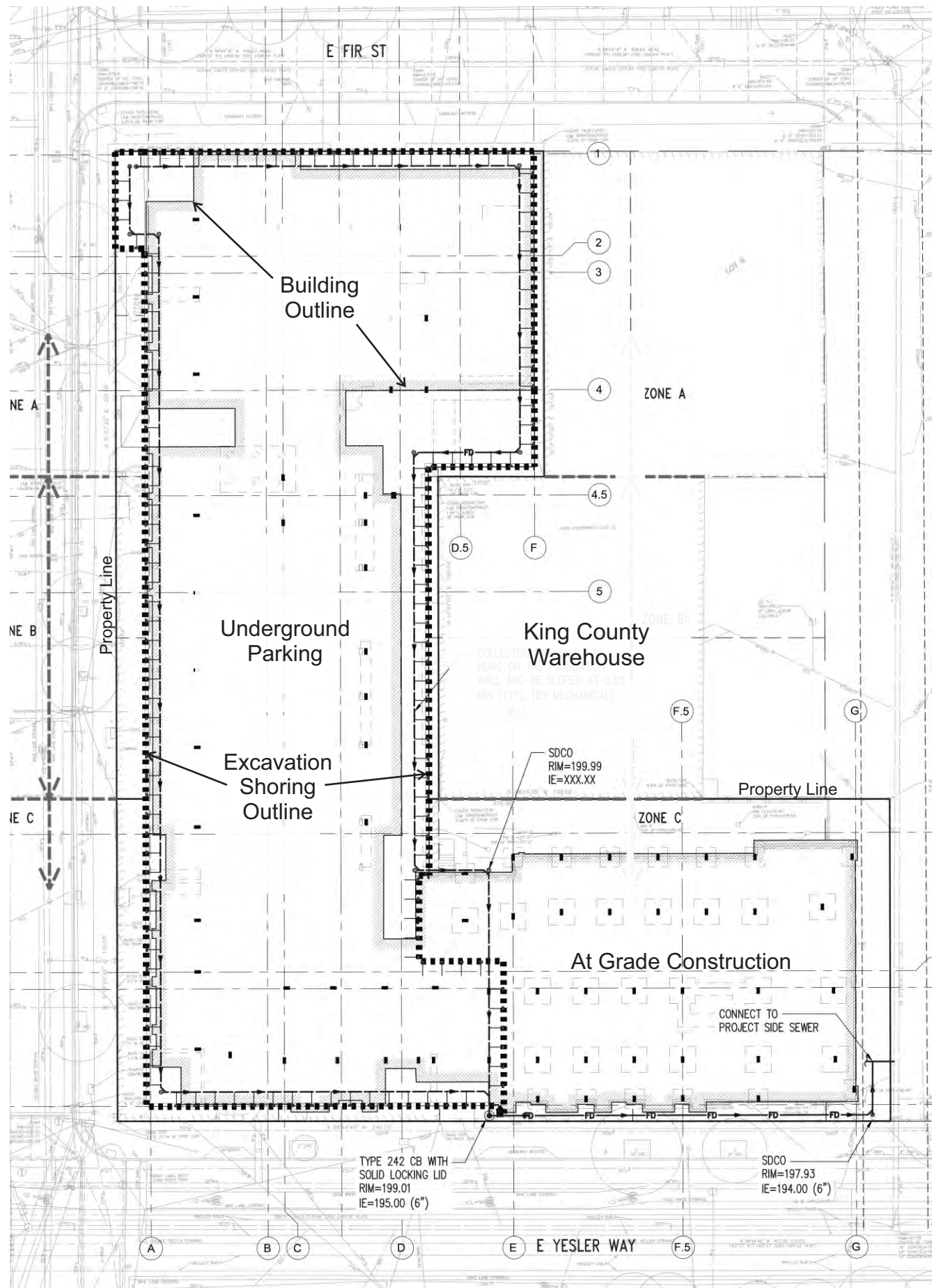
Figure 2 - Site Plan

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

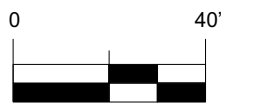
Project No.	WES - 1591A
Date	Mar 20, 2020
File ID.	1591F2

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North



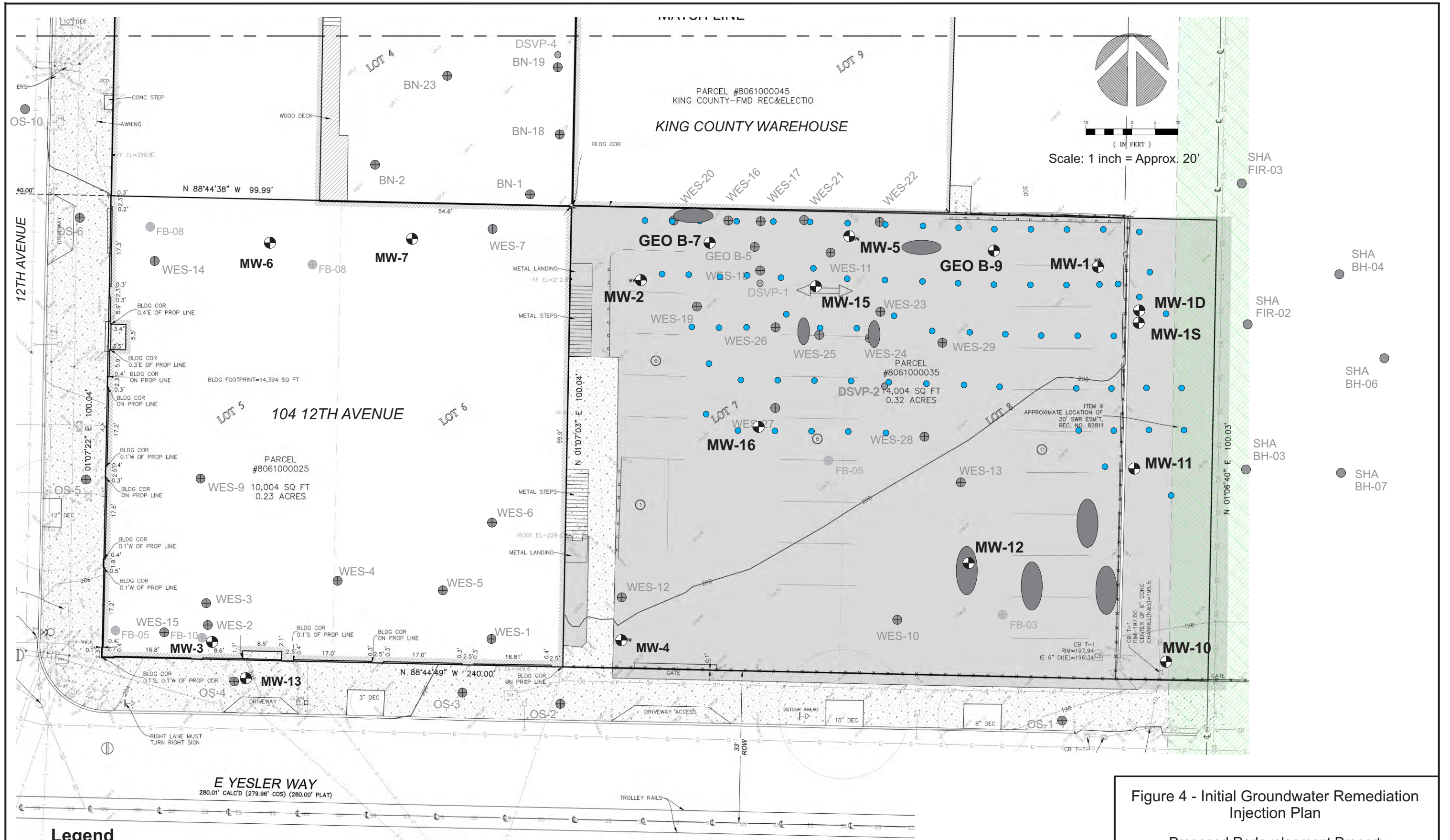
Scale 1" = Approx. 40 feet

Figure 3 - Proposed Redevelopment Plan




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

Project No.	WES - 1591
Date	Mar 30, 2020
File ID.	1591IRASRF3

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**Legend**

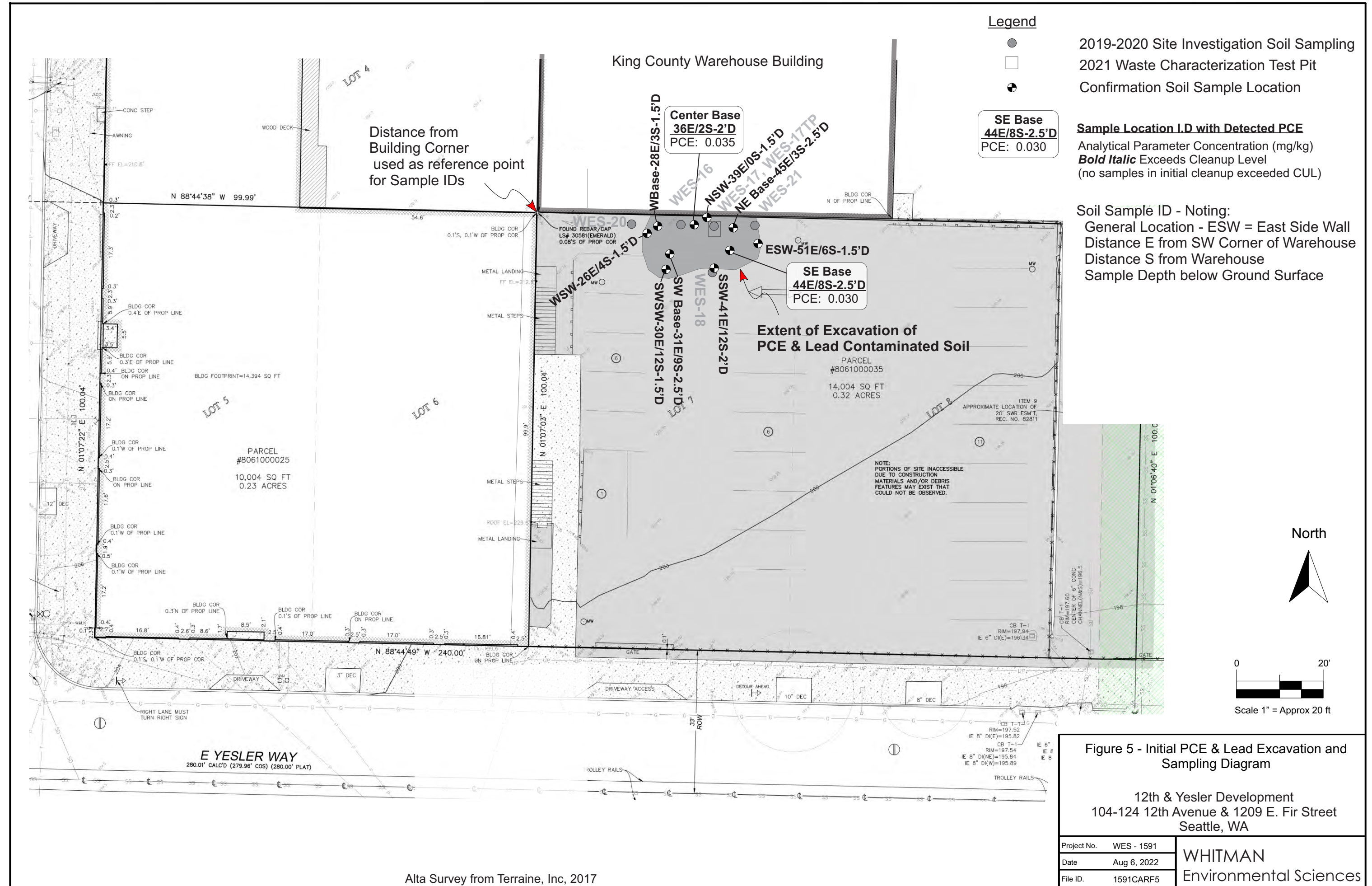
-  Approximate Location of Monitoring Well
-  Regenesis Groundwater Remediation Injection Point
-  Area of "Daylighting", where injected products flowed to the ground surface.

**Figure 4 - Initial Groundwater Remediation Injection Plan**

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

Project No.	WES - 1591A
Date	Sept 14, 2022
File ID.	1591CARF4

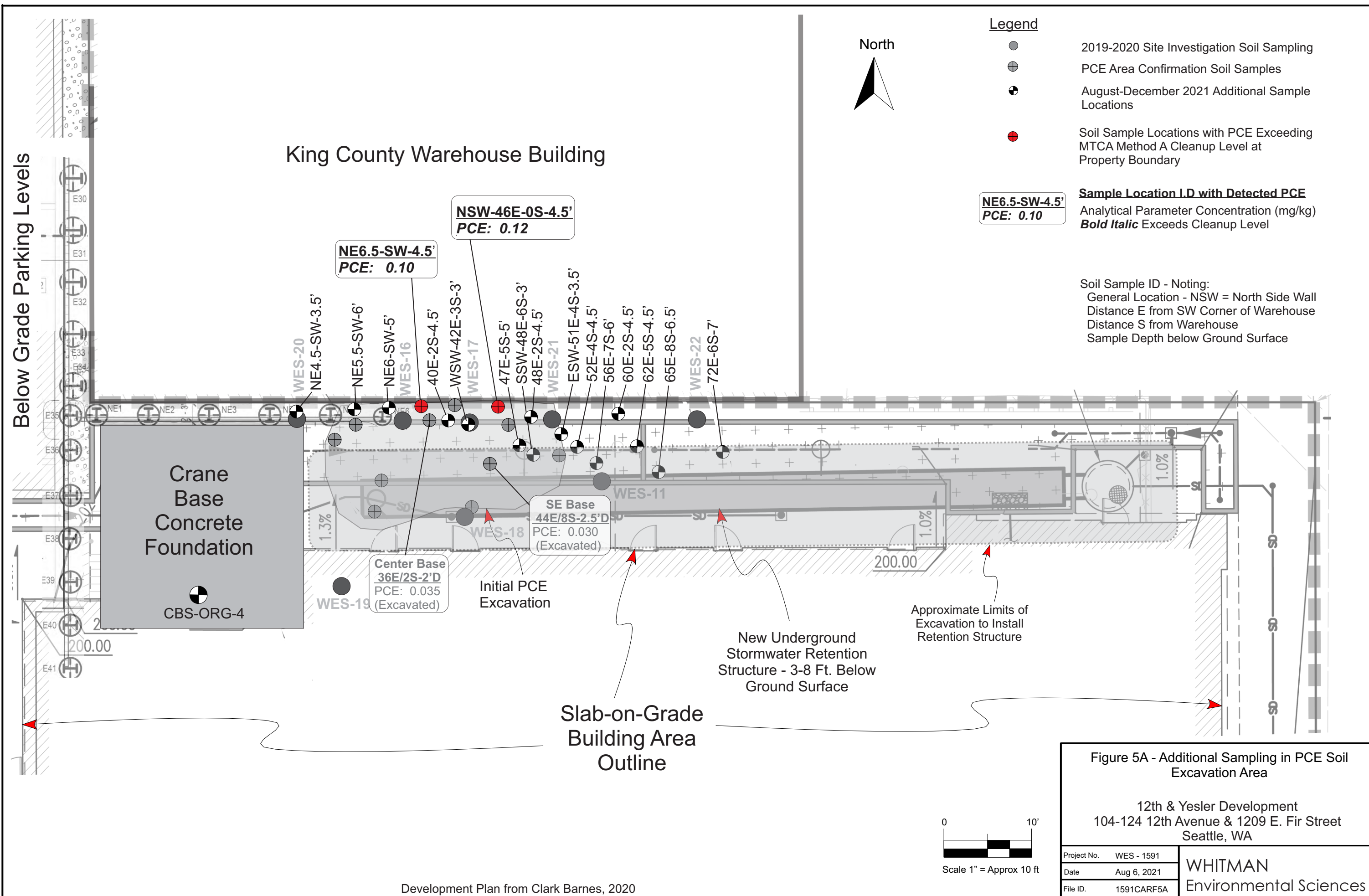
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**Figure 5 - Initial PCE & Lead Excavation and Sampling Diagram**

12th & Yesler Development  
104-124 12th Avenue & 1209 E. Fir Street  
Seattle, WA

Project No.	WES - 1591	<b>WHITMAN</b> Environmental Sciences
Date	Aug 6, 2022	
File ID.	1591CARF5	



**Figure 5A - Additional Sampling in PCE Soil Excavation Area**

12th & Yesler Development  
 104-124 12th Avenue & 1209 E. Fir Street  
 Seattle, WA

Project No.	WES - 1591	<b>WHITMAN</b> Environmental Sciences
Date	Aug 6, 2021	
File ID.	1591CARF5A	

12TH AVENUE

West Sidewall Samples - See Figure 12

Excavated Area

East Sidewall Samples - See Figure 11

King County Warehouse Building

PCE & Lead Excavation Area

Slab-on-Grade Area

See Figures 5 & 5A for Sampling Details

South Sidewall Samples - See Figure 10

North Sidewall Samples - See Figure 10

YESLER WAY

E. FIR STREET

Legend

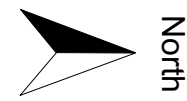
Approximate Soil Sample Location

W34.5/N3.5' Excavation Base Sample ID - IDs based on grid system using shoring pile IDs  
Samples at Final Base Elevation unless otherwise noted.

Approximate Extent of Petroleum Contaminated Soil Encountered During Main Excavation

Approximate Extent of PCE Contaminated Soil Excavation See Figures 5 & 5A for Sampling Details

Approximate Extent of Lead Contaminated Soil Excavation See Figures 5 & 5A for Sampling Details



North



Scale 1" = Approx. 20 feet

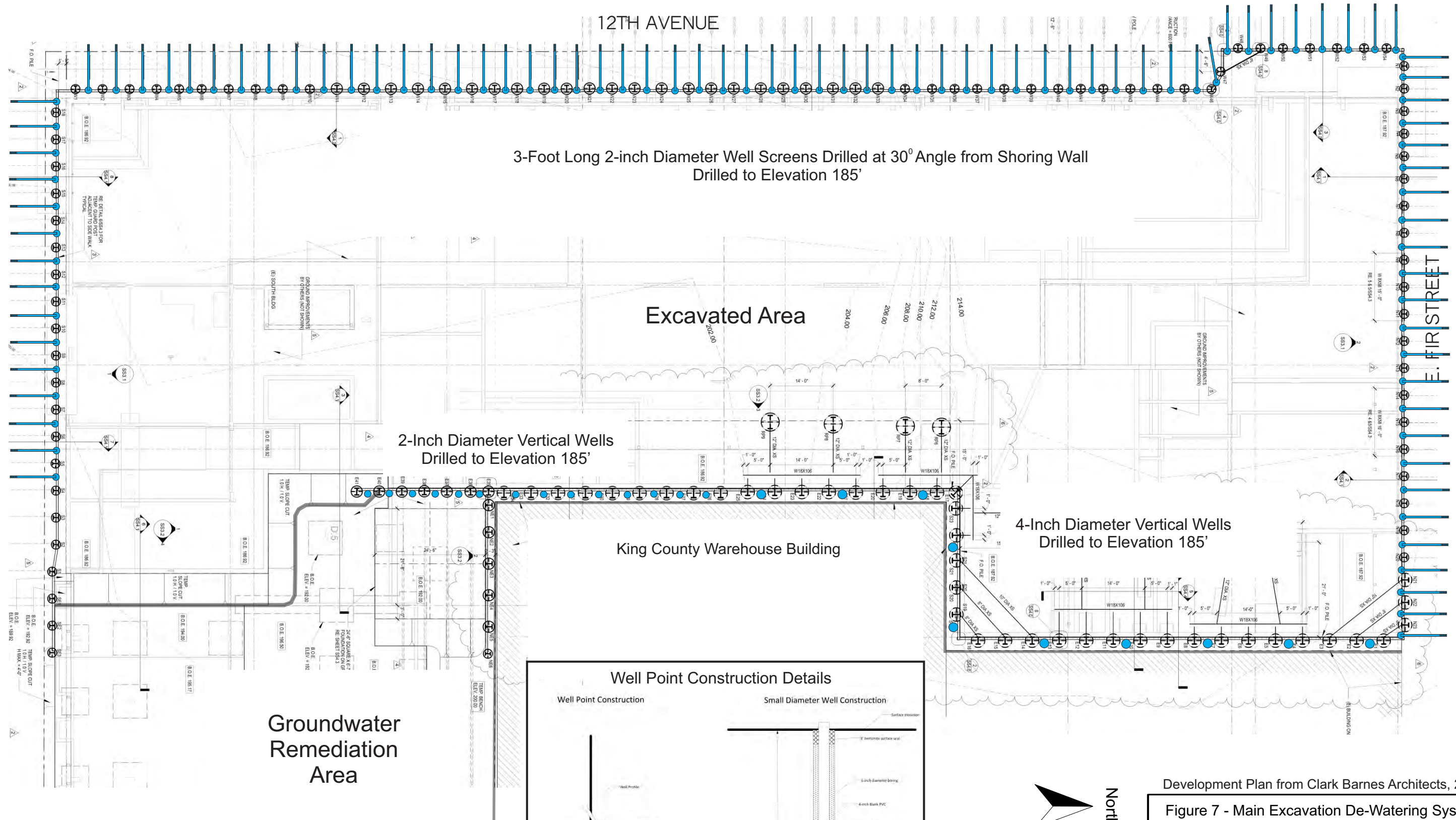
Development Plan from Clark Barnes Architects, 2019

Figure 6 - Main Excavation Base Confirmation Sample Locations

12th & Yesler Development  
104-124 12th Avenue & 1209 E. Fir Street  
Seattle, WA

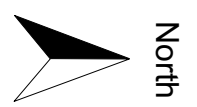
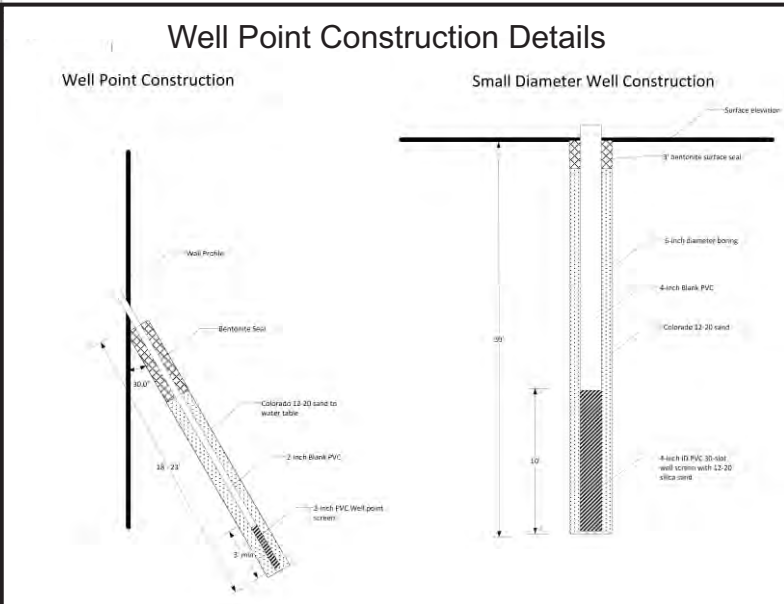
Project No.	WES - 1591
Date	Aug 30, 2022
File ID.	1591CARF6

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**Legend**

- 2-Inch Diameter Angle Drilled Well Point
- 2-Inch Diameter Vertical Well Point
- 4-Inch Diameter Vertical Well Point



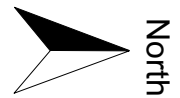
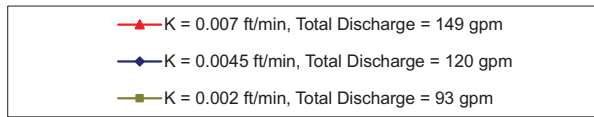
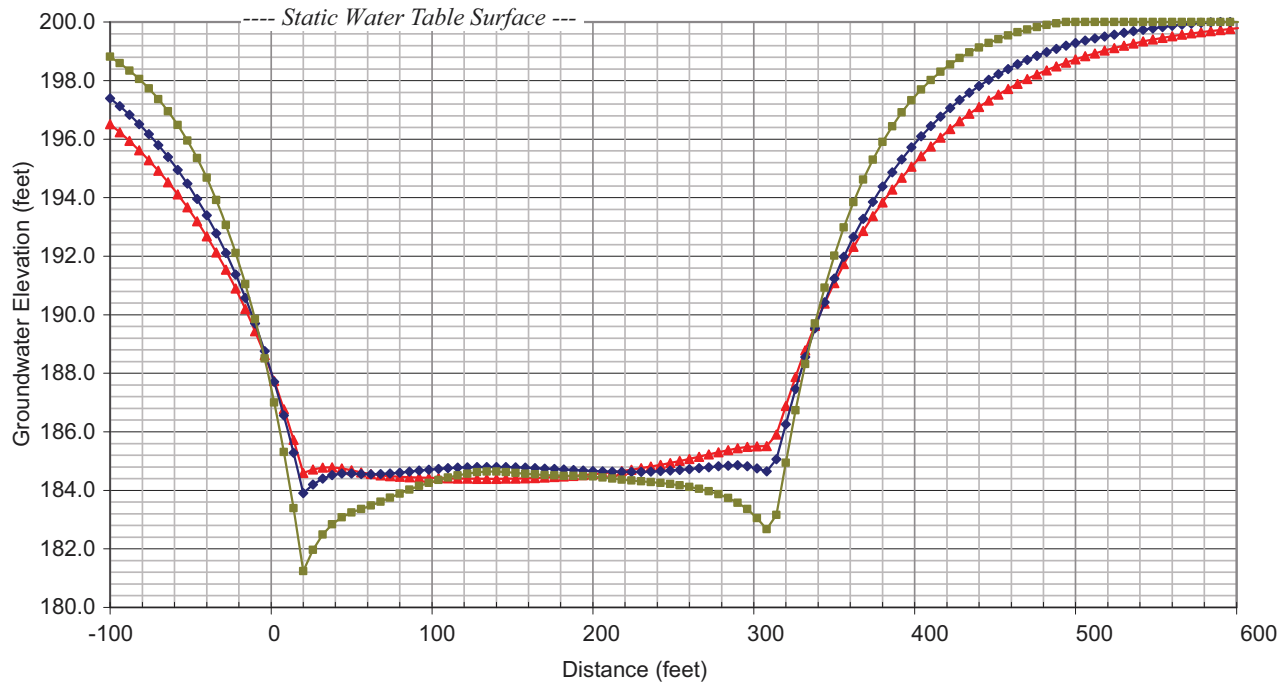
Development Plan from Clark Barnes Architects, 2019

**Figure 7 - Main Excavation De-Watering System Layout**

12th & Yesler Development  
104-124 12th Avenue & 1209 E. Fir Street  
Seattle, WA

Project No.	WES - 1591
Date	Mar 30, 2020
File ID.	1591CARF7

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From Bender Consulting, LLC, 2019

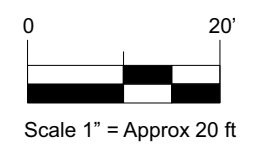
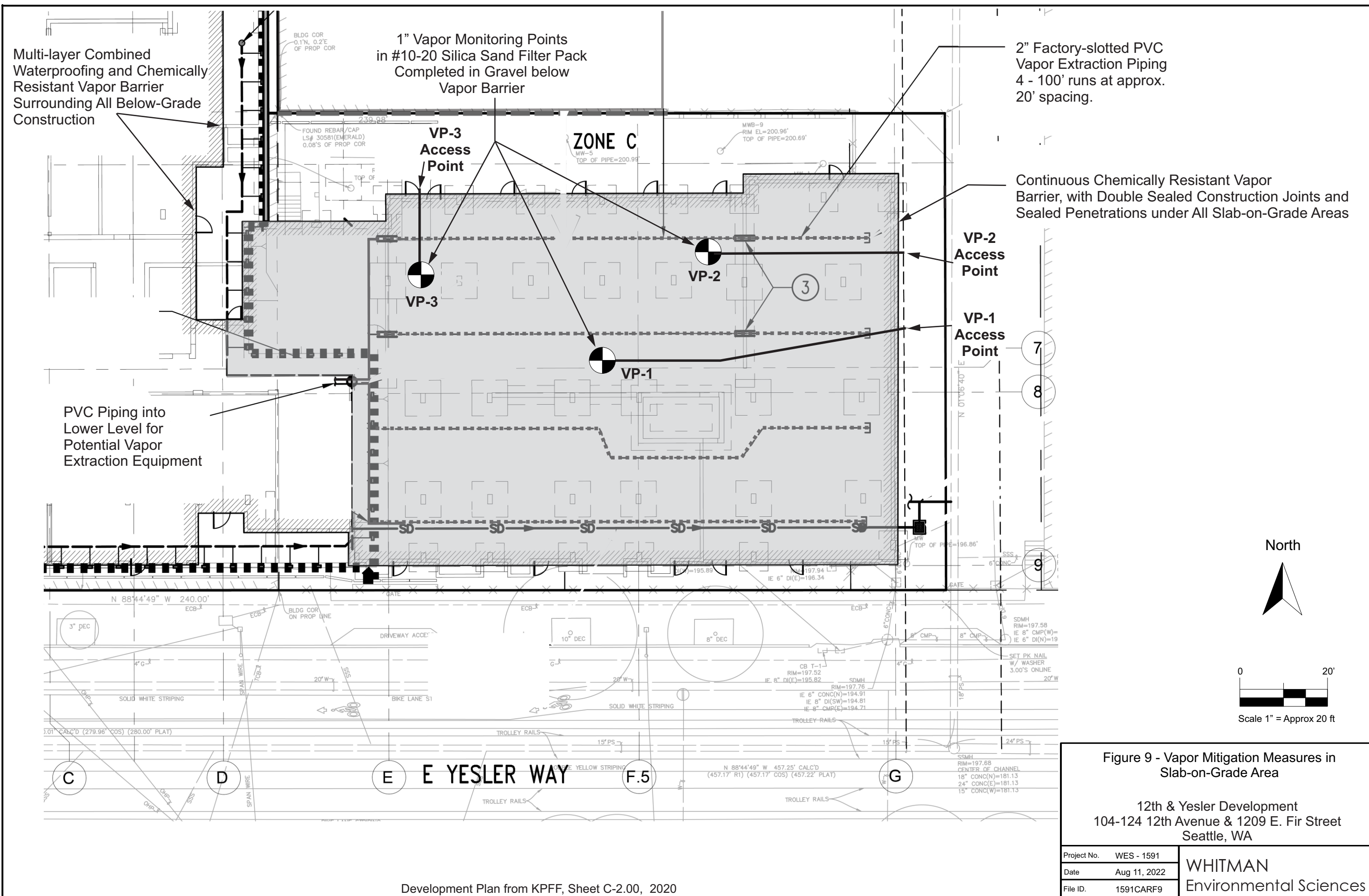


12<sup>th</sup> and Yesler  
 Dewatering Design Recommendations  
 The Seattle Land Use Co.

Calculated Dewatering Groundwater  
 Elevation Profile along Center of  
 Excavation

Project Number  
 1910-01

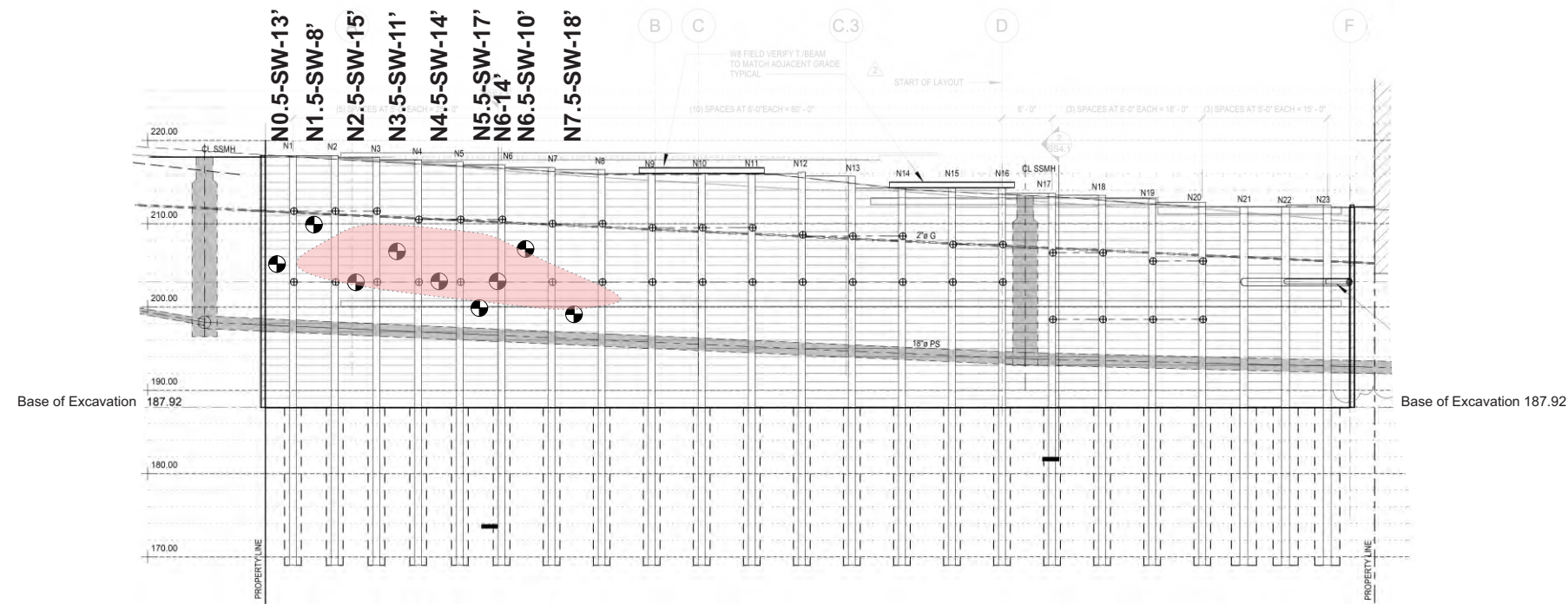
Figure 8



**Figure 9 - Vapor Mitigation Measures in Slab-on-Grade Area**

12th & Yesler Development  
 104-124 12th Avenue & 1209 E. Fir Street  
 Seattle, WA

Project No.	WES - 1591	<b>WHITMAN</b> Environmental Sciences
Date	Aug 11, 2022	
File ID.	1591CARF9	

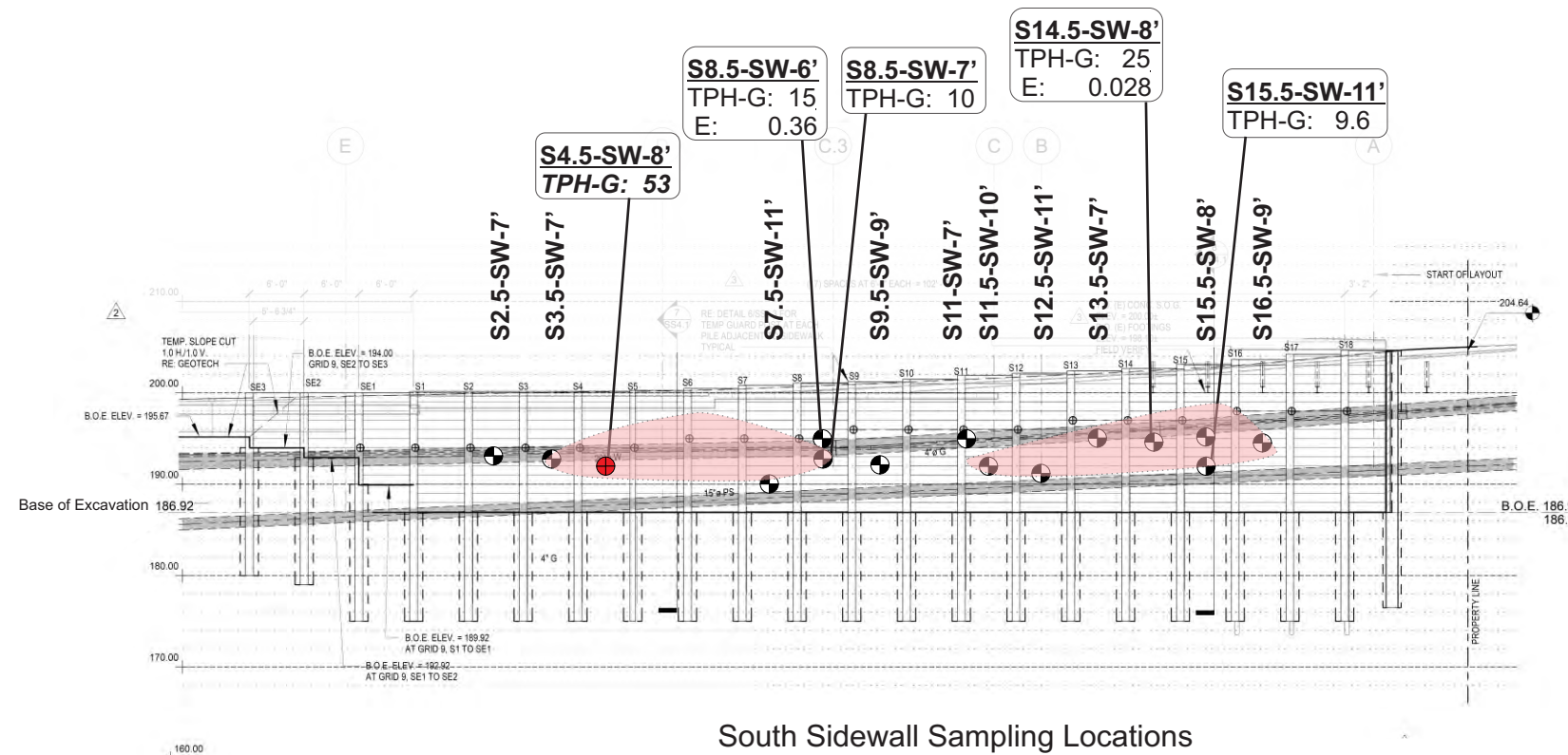


North Sidewall Sampling Locations

**Legend**

- W34.5-SW-10'** Sidewall Sample ID
  - Sidewall sample IDs are based on shoring pile number and the sample depth below original ground surface.
  - ⊙ Approximate Soil Sample Location
  - ⊙ Soil Sample Locations with TPH-G Exceeding MTCA Method A Cleanup Level at Property Boundary (No other parameter exceeds MTCA cleanup Levels)
- S4.5-SW-8'**  
***TPH-G: 53***
- Sample Location I.D with Detected Contaminant of Concern**  
Analytical Parameter Concentration (mg/kg)  
***Bold Italic*** Exceeds Cleanup Level

- ▨ Approximate Areas of Known Buried Utilities beyond the Excavation Wall
- ⬭ Approximate Extent of Petroleum Contaminated Soil Encountered During Excavation (Projected to Walls)



South Sidewall Sampling Locations

**Vertical and Horizontal Scale**

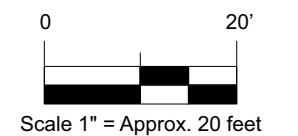
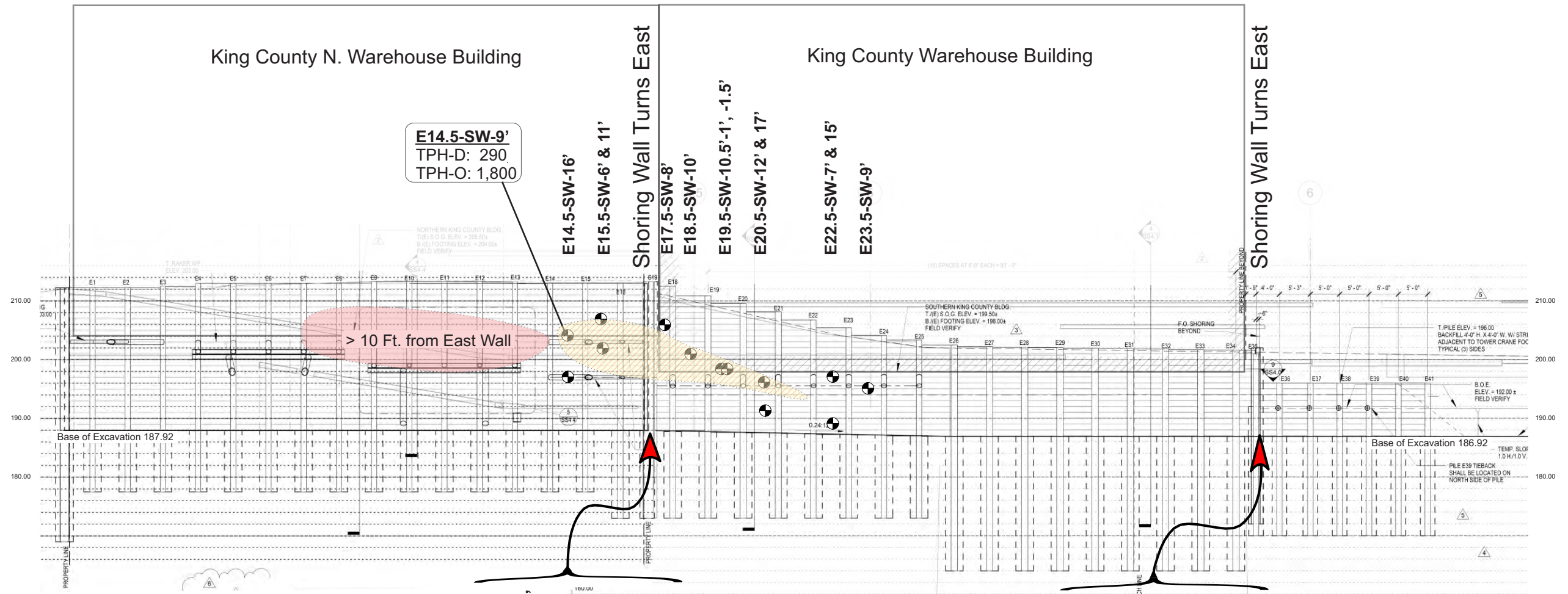


Figure 10 - Excavation North & South Sidewall Confirmation Sample Locations

12th & Yesler Development  
104-124 12th Avenue & 1209 E. Fir Street  
Seattle, WA

Project No.	WES - 1591
Date	Aug 16, 2022
File ID.	1591CARF10

**WHITMAN**  
Environmental Sciences



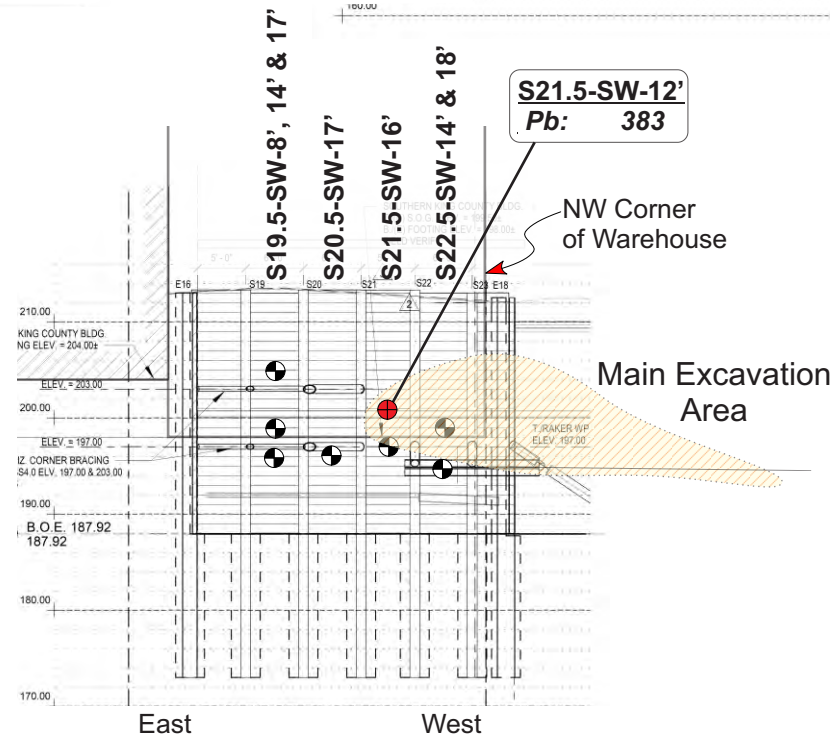
**Legend**

- W34.5-SW-10'** Sidewall Sample ID  
Sidewall sample IDs are based on shoring pile number and the sample depth below original ground surface.
- Approximate Soil Sample Location

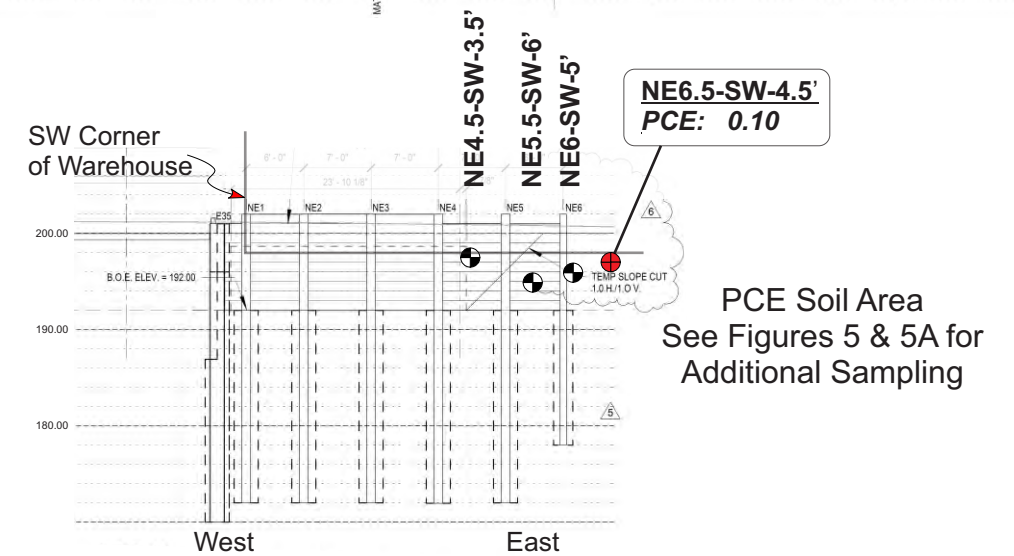
**S21.5-SW-12'**  
**Pb: 383**

**Sample Location ID with Detected Contaminant**  
Analytical Parameter Concentration (mg/kg)  
**Bold Italic** Exceeds Cleanup Level  
No other sample contained Lead in excess of 50%

- Approximate Extent of Petroleum Contaminated Soil Encountered During Excavation
- Approximate Extent of Lead Contaminated Soil Encountered During Excavation



Sidewall Sampling Locations North of Warehouse



Sidewall Sampling Locations South of Warehouse

**Vertical and Horizontal Scale**

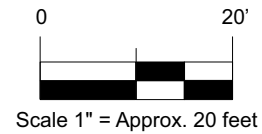
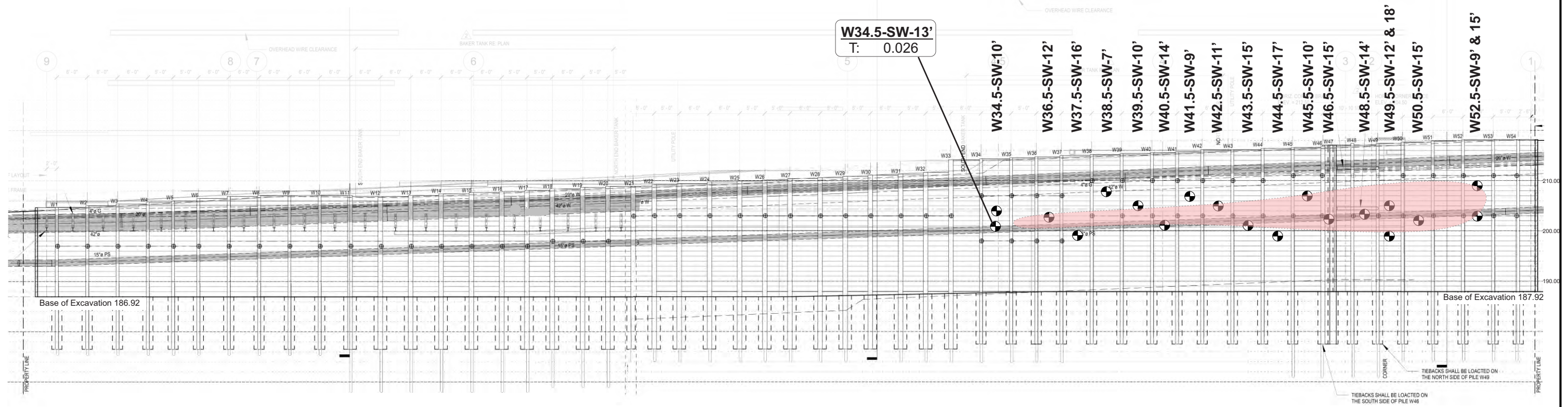


Figure 11 - Excavation East Sidewall Confirmation Sample Locations

12th & Yesler Development  
104-124 12th Avenue & 1209 E. Fir Street  
Seattle, WA


Project No.	WES - 1591
Date	Aug 17, 2022
File ID.	1591CARF11

**WHITMAN**  
Environmental Sciences





**Legend**

**W34.5-SW-10'**  
 Sidewall Sample ID  
 Sidewall sample IDs are based on shoring pile number and the sample depth below original ground surface.

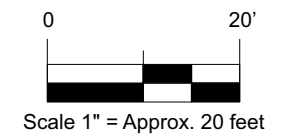
 Approximate Soil Sample Location

**W34.5-SW-13'**  
 T: 0.026  
**Sample Location I.D with Detected Contaminant of Concern**  
 Analytical Parameter Concentration (mg/kg)  
***Bold Italic*** Exceeds Cleanup Level

 Approximate Areas of Known Buried Utilities beyond the Excavation Wall

 Approximate Extent of Petroleum Contaminated Soil Encountered During Excavation (Projected to West Wall - No Contaminated Soil Encountered at the Wall Face)

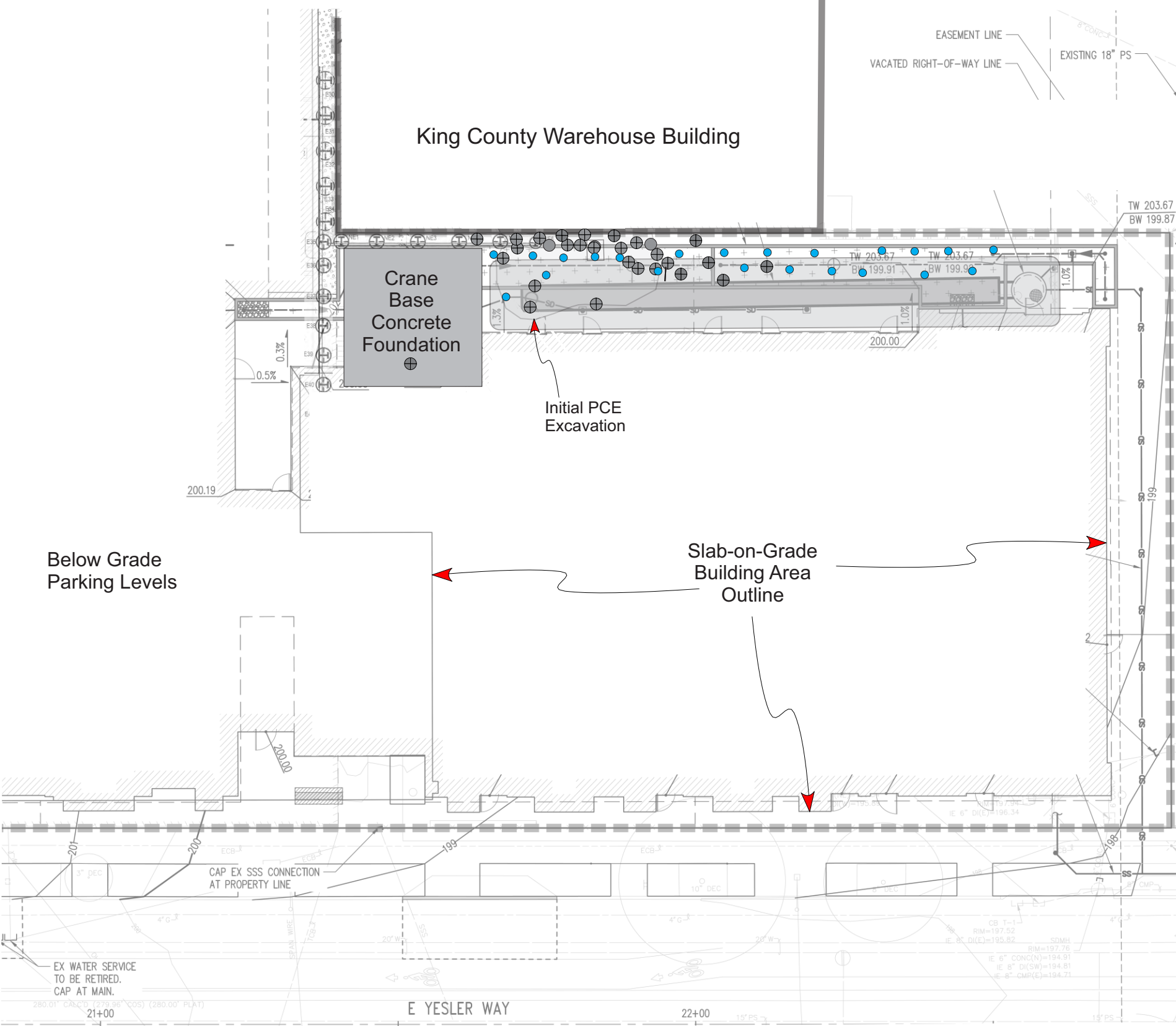
**Vertical and Horizontal Scale**



**Figure 12 - Excavation West Sidewall Confirmation Sample Locations**

12th & Yesler Development  
 104-124 12th Avenue & 1209 E. Fir Street  
 Seattle, WA

Project No.	WES - 1591	<b>WHITMAN</b> Environmental Sciences
Date	Aug 16, 2022	
File ID.	1591CARF12	



**Legend**

- Regenesis Groundwater Remediation Injection Point
- 2019-2020 Site Investigation Soil Sampling
- ⊕ PCE Area Confirmation Soil Samples



**Figure 13 - 2022 Additional Groundwater Remediation Injection Layout**

12th & Yesler Development  
104-124 12th Avenue & 1209 E. Fir Street  
Seattle, WA

Project No.	WES - 1591	<b>WHITMAN</b> Environmental Sciences
Date	Sept 6, 2022	
File ID.	1591CAP13	

# **APPENDIX A**

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***Regenesis Inc.,  
Groundwater Treatment Application Summary Reports***

August 10, 2020

**REGENESIS Proposal No. ChL62516**

Dan Whitman  
Whitman Environmental Sciences  
6812 16th Avenue NE  
Seattle, WA 98115

**SUBJECT: Application Summary Report for the Yesler Way/King County Archives Warehouse Site**

Dear Mr. Dan Whitman,

REGENESIS Remediation Services (RRS) has recently completed an in-situ injection application of PlumeStop® Liquid Activated Carbon® (PlumeStop) and Sulfidated MicroZVI™ (S-MircoZVI) at the Yesler Way/King County Archives Warehouse Site. The subject site was located at 104 Yesler Way, Seattle, WA. The goal of the application was to treat dissolved-phase chlorinated solvents in the groundwater of the site. RRS employed in-situ sorption and in-situ chemical reduction technologies to meet remediation goals.

RRS mobilized product, support equipment truck, injection trailer, and personnel to the site to begin work over nine (9) days at the subject site. On-site operations started June 9, 2020 and finished June 18, 2020. RRS staffed this project with an experienced Project Supervisor who ensured a safe, successful injection application.

RRS applied remedial technologies PlumeStop and S-MicroZVI to seventy-one (71) direct push technology (DPT) injection locations over the event duration. The target treatment zone for the contaminants ranges in depth but is approximately 7 to 16 feet below ground surface (ft. bgs) in a fine silty sand and clayey sand unit.

Please review the attached application summary page, injection log, and photo log for more detail on the application.

RRS appreciates the opportunity to work at this site with Whitman Environmental Sciences. RRS will be available to interpret the field data as it is collected or answer any questions. If you need additional information regarding the application process or attached field notes, please contact Andrea Maben at 949.899.0729 or Andrew Punsoni at 503.504.1399.

Sincerely,



Andrea Maben  
West Region Project Manager  
REGENESIS Remediation Services



Andrew Punsoni  
Northwest District Technical Manager  
REGENESIS Remediation Solutions

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## Application Summary Page



### 1. Overview

**Client:** Whitman Environmental Sciences

**Project Name:** Yesler Way/King County Archives Warehouse Site

**Client Project Manager:** Dan Whitman

**Site Address:** 104 Yesler Way, Seattle, WA

**RRS Project Manager:** Andrea Maben

**RRS Project Supervisor:** Dominic Forlini

**Project Dates:** June 9, 2020 - June 18, 2020

### 2. Treatment Technology

RRS used the following products to remediate the treatment area: PlumeStop and S-MicroZVI. Application of these products are designed to sorb and degrade chlorinated volatile organic compounds through in-situ chemical reduction.

**PlumeStop** is an innovative groundwater remediation technology designed to rapidly remove and degrade groundwater contaminants. PlumeStop is composed of very fine particles of activated carbon (1-2 $\mu$ m) suspended in water through the use of unique organic polymer dispersion chemistry. Once in the subsurface, the material behaves as a colloidal biomatrix, binding to the aquifer matrix, rapidly removing contaminants from groundwater, and promoting permanent contaminant biodegradation.

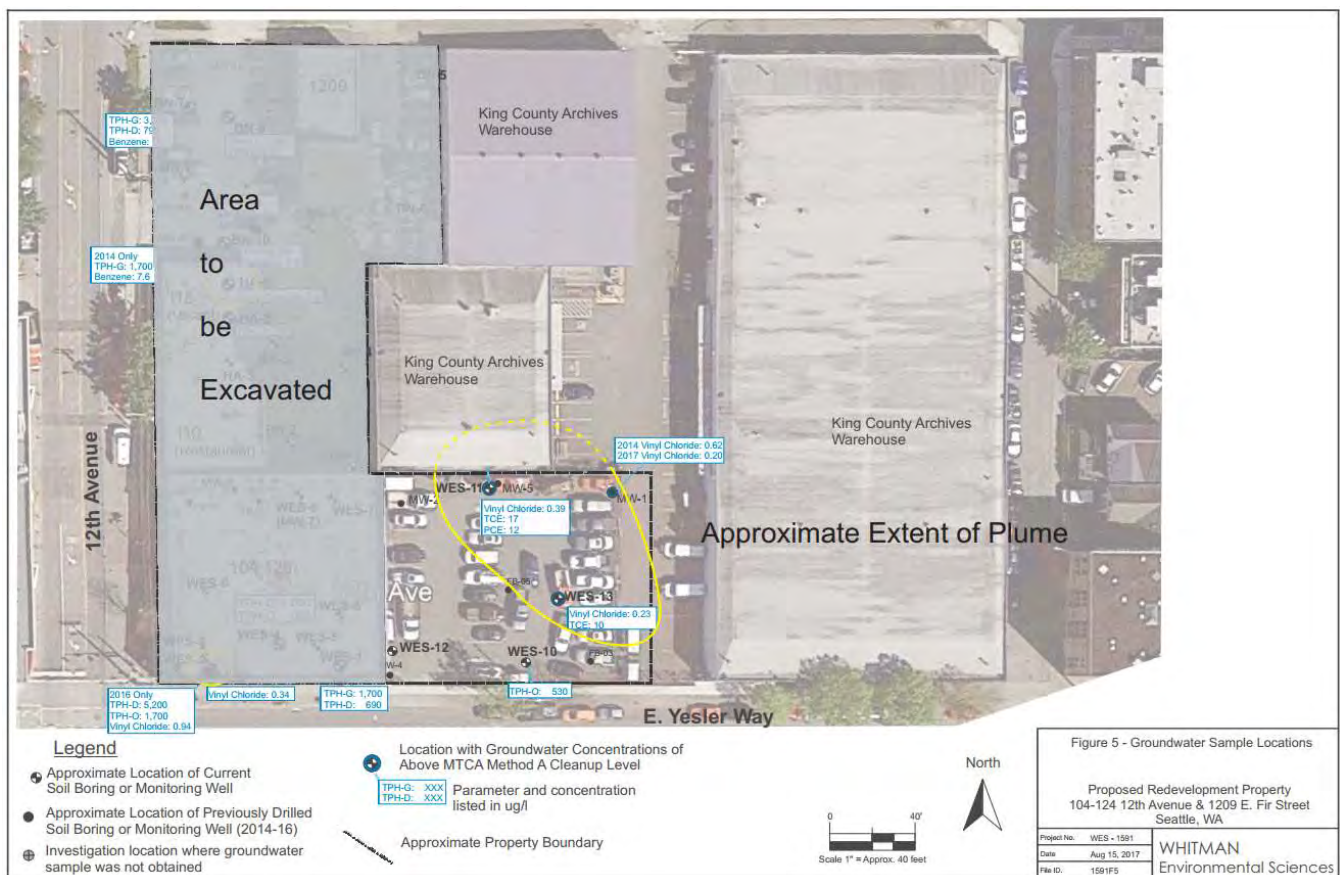
**S-MicroZVI** is a suspension of sulfidated, colloidal zero-valent iron (ZVI) that promotes the destruction of many organic pollutants, including chlorinated solvents, pesticides, haloalkanes and energetics. The passivation technique of sulfidation, completed through proprietary processing methods, provides unparalleled reactivity with chlorinated hydrocarbons like PCE and TCE, and increases its stability and longevity in situ by minimizing undesirable side-reactions. It is engineered to promote multiple pathways for contaminant degradation which leads to faster cleanup while minimizing daughter product formation. In addition, S-MicroZVI is easy to handle and simple to inject leading to significantly better reagent distribution.

### 3. Design

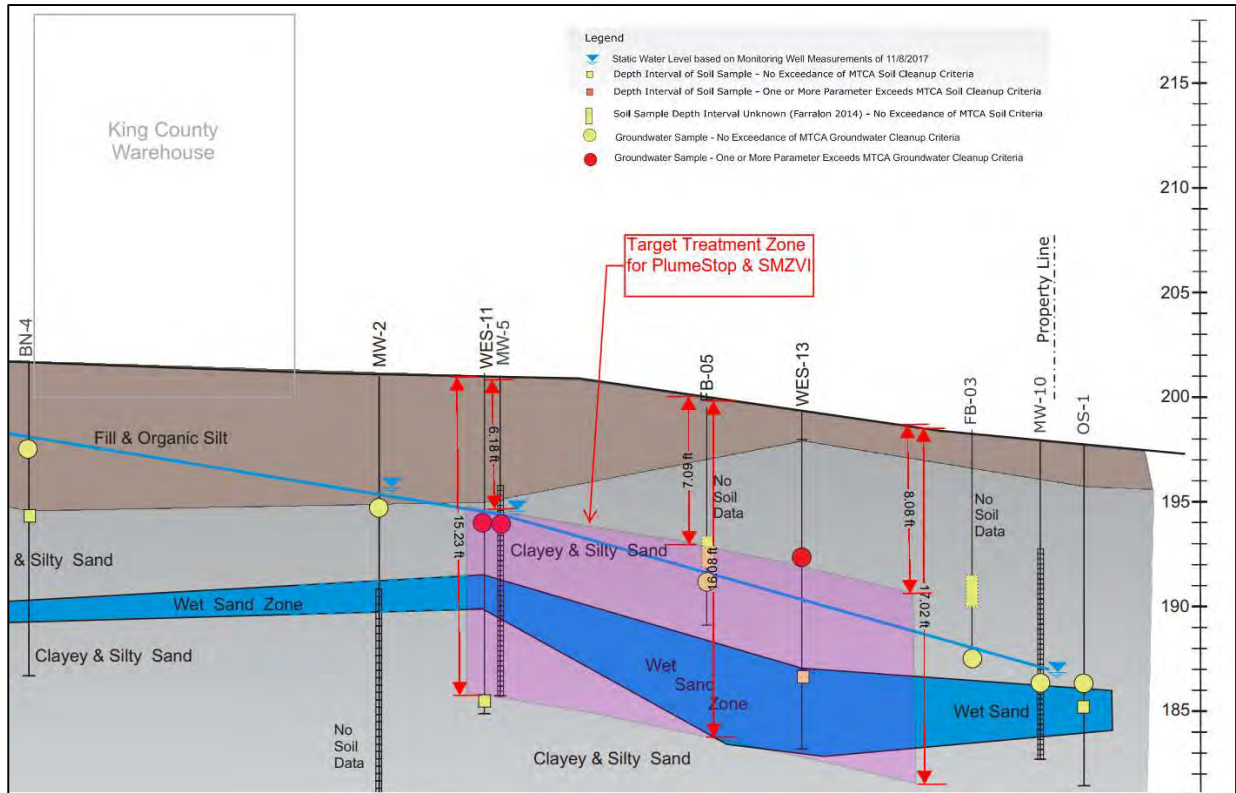
The PlumeStop and S-MicroZVI application treatment area is shown in Figure 1. The treatment area measures approximately 5,420 feet with a treatment thickness of up to 9 feet. The PlumeStop and S-MicroZVI product was mixed together in batches and co-injected. The product application targeted an injection interval approximately 6 to 15 ft. bgs near the King County Achieves Warehouse and transitioned to an injection interval of approximately 8 to 17 feet bgs near the mid to distal portions the plume. The actual target depths was confirmed with two (2)

design verification boreholes DVT-1 and DVT-2 (Figure 3) on the first day of site operations. The borehole sampling results did not result in any modifications from the original design.

A total of 71 injection point locations were installed using a direct push Geoprobe rig with a retractable screen tool for injection. The solution was originally applied at 33.33 gallons per vertical foot. After multiple indicators of subsurface saturation, the applied gallons per vertical foot was altered accordingly. Spacing between injection points parallel to flow was 6.75 feet. The formation is capable to be injected into at a rate of 2 to 4 gallons per minute and at pressures between 30 to 50 pounds per square inch. Additional design details are provided on the PlumeStop and S-MicroZVI application area map (Figure 1), the cross-section through the centerline of the plume (Figure 2), the Original PlumeStop Application Summary (Table 1), and injection locations map (Figure 3) below.



**Figure 1: PlumeStop and S-MicroZVI application area map.**



**Figure 2:** Cross-section through the centerline of the plume.

**Table 1:** Original PlumeStop Application Design Summary.

<b>PlumeStop® Application Design Summary</b>		
<i>Dissolved Plume Treatment</i>		
<b>PlumeStop + S-MZVI</b>		<b>Technical Notes</b>
<b>Treatment Type</b>	<b>Grid</b>	<u>Injection Radius for Soil Coverage (ft-est.avg.)</u>
Treatment Areal Extent (sq ft)	5420	3.9
Spacing Within Rows (ft)	6.75	
Spacing Between Rows (ft)	11.50	<u>PlumeStop Injection Concentration</u>
<b>DPT Injection Points</b>	<b>70</b>	(mg/L)
Top Application Depth (ft bgs)	7	<b>5,094</b>
Bottom Application Depth (ft bgs)	16	
<b>PlumeStop to be Applied (lbs)</b>	<b>4,400</b>	
PlumeStop to be Applied (gals)	488	
<b>In Situ Chemical Reduction - S-MZVI</b>		<b>Special Instructions:</b>
<b>S-MZVI to be added to PlumeStop (lbs)</b>	<b>4,000</b>	<b>Gallons Per Foot</b>
S-MZVI to be added to PlumeStop (gals)	265	<b>33.33</b>
<b>PlumeStop + S-MZVI Volume Totals</b>		
Mixing Water (gal)	20,212	
<b>Total Application Volume (gals)</b>	<b>21,000</b>	
Injection Volume per Point (gals)	300	

## 4. Application

### A. Job Site Inspection

RegenesiS Remediation Services (RRS) and the Whitman Environmental Sciences staff arrived on-site on June 9, 2020. A health and safety tailgate meeting was performed with all field staff present. RRS performed site reconnaissance, becoming familiar with the project site, storage area, water source, and completed a jobsite safety inspection. Notable site hazards included: Direct contaminant exposure from design verification soil cores, vehicle and pedestrian traffic through exclusion zones, proximity of well locations to storm drains, and slip/trip potential on site hosing. Once completed, the injection trailer was staged and prepared for product transfer and mixing.

### B. Product Delivery

Whitman Environmental Sciences personnel accepted the deliveries of RegenesiS products prior to the start of on-site injection operations.

All shipments were offloaded from the delivery trucks via a forklift and stored secure at the subject site. All product totes and drums were shuttled to work areas via a pallet jack and accessible to RRS personnel and injection trailer.

#### **Product Delivery Schedule:**

##### **June 4, 2020:**

- 4,400 lb. (11 drums) PlumeStop-S
- 4,000 lb. (2 totes) S-MicroZVI

### C. Injection Sequence

RRS applied the RegenesiS technologies by mixing the products in the RRS injection trailer and injecting through 1.5" DPT injection tool string fitted for 3/4-inch injection hosing. The injection trailer is fully enclosed and contains mixing tanks, pumps, and delivery system equipped for direct connection to the injection wells. The application pump is a multiple diaphragm positive displacement pump designed to prevent pulsation of the remediation chemistry while being applied. The application pump can deliver the remediation chemistry at up to 250 pounds per square inch (psi) at up to 20 gallons per minute (gpm) to overcome potential hydraulic limitations. Safety bypass mechanisms are also installed to release back pressure buildup in the event injection pressures exceed commonly accepted application ranges. We delivered the remediation chemistry at up to four (4) separate delivery lines simultaneously, each having the capability of monitoring injection pressures and injection flowrates/totals at any given time. Each delivery line can reach beyond the injection trailer of at least 100 linear feet, limiting the need to move the injection trailer from point to point or in this case limiting the need to move the trailer several times each day. Additional line extensions were utilized when necessary to increase the trailer range without being moved.

The remedial solutions were prepared in two (2) 350-gallon conical tanks that are configured with chemically resistant materials. Mixing water was provided by a property owned water source and fitted for a 1.5-inch MNHT

output as a direct source to the RRS injection trailer. Once water was filled to the appropriate volume per the design concentration, each product was transferred from their respective container via an air-driven diaphragm pump. Product containers were measured and marked to track volumetric batch amount to ensure accurate product dosing.

#### D. Deviations from Design

PlumeStop injection concentration was increased to reduced overall applied volume after the target treatment zone displayed signs of saturation. PlumeStop was applied at 5,094 mg/L, 5,570 mg/L, 7,325 mg/L, 14,965 mg/L, and 21,160 mg/L across the site to reduce product surfacing and to achieve adequate radius of influence. This application change resulted in injection locations receiving ~35% less water or ~50% less water than the original design; these injection points are marked in Figure 3. Several injection locations were off-set or moved to reduce common areas of surfacing. A 71<sup>st</sup> injection location was added to confirm radius of influence upgradient of MW-11.

### 5. On-Site Work Summary

Injections were performed in a single mobilization event from June 9, 2020 to June 18, 2020. Each workday began with a safety tailgate meeting where safety topics were discussed including but not limited to stop work authority, personal protective equipment (PPE), chemical handling, inclement weather, near misses, and the plan for the day's tasks.

#### A. Treatment Area: 104 Yesler Way

A total of 12,860 gallons was injected into seventy-one (71) wells at the subject site. 4,400 lb. of PlumeStop and 4,000 lb. of S-MicroZVI was distributed across the target treatment zone. The injection interval ranged from 6-17 ft bgs. Flow rates were observed between 1.0 to 5.7 gallons per minute (GPM) and averaged 2.3 GPM. Injection pressures were observed between 5 to 40 pressure per square inch (PSI) and averaged 16 PSI. RRS measured for PlumeStop regularly in groundwater monitoring wells on-site to document the radius of influence during the injection. PlumeStop appeared to attain good distribution throughout the entire treatment area.

Locations of the wells on site are shown in *Figure 3*. See *Appendix A, Table 2* for a detailed injection log of the remediation application.



## 6. Conclusion

A total of **4,400 lb. of PlumeStop** and **4,000 lb. of S-MicroZVI** was mixed with a 12,105 gallons of water. Total applied volume was **12,860 gallons of solution** at an average applied concentration of 8,375 mg/L. PlumeStop was applied, on average, at 4.4% solution by weight. S-MicroZVI was applied, on average at 4.0% solution by weight.

# Appendix A: Injection Log



Whitman Environmental Sciences - Trent Dev Center  
 Injection Summary Log  
 Yesler Way / King County Archives Warehouse Site  
 Table 2



Injection Point	Date	Time	Injection Depth (ft. bgs)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of PlumeStop/S-MicroZVI Injected			Gallons Per Location	PlumeStop Per Location (lb.)	S-MicroZVI Per Location (lb.)	PlumeStop Concentration (mg C/L)	Comments
						Beginning Flow Meter (gal.)	Ending Flow Meter (gal.)	Gallons Per Interval					
1	6/10/2020	9:02	12-15	15	2.3	0.0	100.0	100.0	300	63	57	5094	
	6/10/2020	10:17	9-12	35	1.6	100.0	200.0	100.0					
	6/10/2020	12:12	6-9	5	2.6	200.0	300.0	100.0					
2	6/10/2020	14:05	12-15	20	3.0	0.0	100.0	100.0	300	63	57	5094	
	6/10/2020	14:38	9-12	20	1.7	100.0	200.0	100.0					
	6/10/2020	16:35	6-9	10	2.5	200.0	300.0	100.0					
3	6/11/2020	8:33	12-15	20	2.9	0.0	100.0	100.0	275	63	57	5570	
	6/11/2020	11:54	9-12	15	2.4	100.0	200.0	100.0					
	6/11/2020	13:16	6-9	10	2.4	200.0	275.0	75.0					
4	6/10/2020	9:02	12-15	15	2.6	0.0	100.0	100.0	300	63	57	5094	
	6/10/2020	10:17	9-12	18	3.0	100.0	200.0	100.0					
	6/10/2020	12:12	6-9	5	3.0	200.0	300.0	100.0					
5	6/10/2020	14:05	12-15	10	1.0	0.0	100.0	100.0	300	63	57	5094	
	6/10/2020	14:38	9-12	10	2.3	100.0	200.0	100.0					
	6/10/2020	16:35	6-9	7	2.1	200.0	300.0	100.0					
6	6/11/2020	8:34	12-15	15	2.5	0.0	100.0	100.0	275	63	57	5570	
	6/11/2020	11:54	9-12	25	1.8	100.0	200.0	100.0					
	6/11/2020	13:16	6-9	10	2.1	200.0	275.0	75.0					
7	6/10/2020	9:02	12-15	20	2.0	0.0	100.0	100.0	300	63	57	5094	
	6/10/2020	10:17	9-12	40	1.3	100.0	200.0	100.0					
	6/10/2020	12:12	6-9	10	2.4	200.0	300.0	100.0					
8	6/10/2020	14:05	12-15	30	2.1	0.0	100.0	100.0	300	63	57	5094	
	6/10/2020	14:39	9-12	18	2.6	100.0	200.0	100.0					
	6/10/2020	16:36	6-9	5	2.5	200.0	300.0	100.0					
9	6/11/2020	8:34	12-15	20	2.6	0.0	100.0	100.0	275	63	57	5570	
	6/11/2020	11:54	9-12	15	2.4	100.0	200.0	100.0					
	6/11/2020	13:16	6-9	10	2.5	200.0	275.0	75.0					
10	6/10/2020	9:03	12-15	35	1.2	0.0	100.0	100.0	300	63	57	5094	
	6/10/2020	10:17	9-12	18	3.0	100.0	200.0	100.0					
	6/10/2020	12:12	6-9	20	2.0	200.0	300.0	100.0					
11	6/10/2020	14:05	12-15	15	2.9	0.0	100.0	100.0	300	63	57	5094	
	6/10/2020	14:39	9-12	15	2.9	100.0	200.0	100.0					
	6/10/2020	16:36	6-9	10	2.8	200.0	300.0	100.0					
12	6/11/2020	8:35	12-15	23	2.0	0.0	100.0	100.0	275	63	57	5570	
	6/11/2020	11:54	9-12	15	2.4	100.0	200.0	100.0					
	6/11/2020	13:16	6-9	12	2.0	200.0	275.0	75.0					
13	6/12/2020	13:09	13-16	10	2.8	0.0	70.0	70.0	210	63	57	7325	
	6/12/2020	13:09	10-13	10	2.5	70.0	140.0	70.0					
	6/12/2020	13:08	7-10	5	1.9	140.0	210.0	70.0					
14	6/12/2020	8:45	13-16	18	2.2	0.0	70.0	70.0	225	67	61	7325	
	6/12/2020	9:10	10-13	10	2.5	70.0	140.0	70.0					
	6/12/2020	9:55	7-10	7	2.4	140.0	225.0	85.0					
15	6/11/2020	14:56	13-16	15	2.5	0.0	70.0	70.0	210	63	57	7325	
	6/11/2020	15:14	10-13	20	2.5	70.0	140.0	70.0					
	6/11/2020	16:00	7-10	10	2.5	140.0	210.0	70.0					
16	6/12/2020	13:09	13-16	15	2.9	0.0	70.0	70.0	210	63	57	7325	
	6/12/2020	13:09	10-13	15	2.4	70.0	140.0	70.0					
	6/12/2020	13:08	7-10	20	2.4	140.0	210.0	70.0					
17	6/12/2020	8:46	13-16	18	2.2	0.0	70.0	70.0	165	49	45	7325	
	6/12/2020	9:10	10-13	7	1.8	70.0	140.0	70.0					
	6/12/2020	9:55	7-10	7	1.0	140.0	165.0	25.0					
18	6/11/2020	14:56	13-16	7	2.5	0.0	70.0	70.0	210	63	57	7325	
	6/11/2020	15:14	13-16	7	1.0	70.0	140.0	70.0					
	6/11/2020	8:24	13-16	7	1.0	140.0	210.0	70.0					
19	6/12/2020	13:09	13-16	18	2.3	0.0	70.0	70.0	210	63	57	7325	
	6/12/2020	13:09	10-13	15	2.0	70.0	140.0	70.0					
	6/12/2020	13:08	7-10	15	1.3	140.0	210.0	70.0					



Whitman Environmental Sciences - Trent Dev Center  
 Injection Summary Log  
 Yesler Way / King County Archives Warehouse Site  
 Table 2



Injection Point	Date	Time	Injection Depth (ft. bgs)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of PlumeStop/S-MicroZVI Injected			Gallons Per Location	PlumeStop Per Location (lb.)	S-MicroZVI Per Location (lb.)	PlumeStop Concentration (mg C/L)	Comments
						Beginning Flow Meter (gal.)	Ending Flow Meter (gal.)	Gallons Per Interval					
20	6/12/2020	8:46	13-16	18	2.4	0.0	70.0	70.0	225	67	61	7325	
	6/12/2020	9:10	10-13	7	2.3	70.0	140.0	70.0					
	6/12/2020	9:56	7-10	7	2.3	140.0	225.0	85.0					
21	6/11/2020	14:56	13-16	12	2.3	0.0	70.0	70.0	210	63	57	7325	
	6/11/2020	15:15	10-13	15	2.3	70.0	140.0	70.0					
	6/11/2020	16:00	7-10	10	2.3	140.0	210.0	70.0					
22	6/12/2020	10:45	13-16	15	2.7	0.0	70.0	70.0	210	63	57	7325	
	6/12/2020	12:00	10-13	15	2.5	70.0	140.0	70.0					
	6/12/2020	13:09	7-10	10	1.6	140.0	210.0	70.0					
23	6/12/2020	8:46	13-16	20	2.5	0.0	70.0	70.0	225	67	61	7325	
	6/12/2020	9:10	10-13	15	2.2	70.0	140.0	70.0					
	6/12/2020	9:56	7-10	15	2.6	140.0	225.0	85.0					
24	6/11/2020	14:56	13-16	15	2.3	0.0	70.0	70.0	210	63	57	7325	
	6/11/2020	15:15	10-13	10	2.3	70.0	140.0	70.0					
	6/11/2020	16:00	7-10	10	2.3	140.0	210.0	70.0					
25	6/13/2020	8:13	13-16	18	2.8	0.0	70.0	70.0	210	63	57	7325	
	6/13/2020	9:49	10-13	15	2.2	70.0	140.0	70.0					
	6/13/2020	10:01	7-10	15	2.2	140.0	210.0	70.0					
26	6/13/2020	11:51	13-16	18	2.8	0.0	120.0	120.0	260	78	71	7325	
	6/13/2020	12:30	10-13	7	1.2	120.0	190.0	70.0					
	6/13/2020	13:30	7-10	7	1.2	190.0	260.0	70.0					
27	6/15/2020	9:02	13-16	18	2.0	0.0	100.0	100.0	120	36	33	7325	
	6/15/2020	10:50	10-13	10	2.0	100.0	120.0	20.0					
	6/15/2020	10:50	7-10	-	-	120.0	120.0	0.0					
28	6/13/2020	8:20	13-16	22	2.4	0.0	70.0	70.0	210	63	57	7325	
	6/13/2020	9:49	10-13	10	2.3	70.0	140.0	70.0					
	6/13/2020	10:01	7-10	10	2.3	140.0	210.0	70.0					
29	6/13/2020	11:50	13-16	18	2.5	0.0	120.0	120.0	140	42	38	7325	
	6/13/2020	12:30	10-13	10	2.2	120.0	140.0	20.0					
	6/13/2020	13:20	7-10	-	-	140.0	140.0	0.0					
30	6/17/2020	10:06	13-16	20	2.5	0.0	25.0	25.0	75	63	57	21160	
	6/17/2020	10:23	10-13	18	2.6	25.0	50.0	25.0					
	6/17/2020	11:00	7-10	18	2.3	50.0	75.0	25.0					
31	6/13/2020	8:56	13-16	20	2.4	0.0	70.0	70.0	210	63	57	7325	
	6/13/2020	9:49	10-13	15	2.3	70.0	140.0	70.0					
	6/13/2020	10:01	7-10	15	2.5	140.0	210.0	70.0					
32	6/13/2020	11:50	13-16	18	3.1	0.0	70.0	70.0	80	48	44	14965	
	6/13/2020	14:07	10-13	5	1.0	70.0	80.0	10.0					
	6/13/2020	14:07	7-10	-	-	80.0	80.0	0.0					
33	6/15/2020	12:54	13-16	15	1.3	0.0	70.0	70.0	210	63	57	7325	
	6/15/2020	13:48	10-13	18	1.5	70.0	140.0	70.0					
	6/15/2020	15:37	7-10	10	1.0	140.0	210.0	70.0					
34	6/12/2020	14:00	13-16	40	5.7	0.0	70.0	70.0	210	63	57	7325	
	6/12/2020	14:30	10-13	40	5.5	70.0	140.0	70.0					
	6/12/2020	15:00	7-10	20	4.9	140.0	210.0	70.0					
35	6/13/2020	8:57	13-16	18	3.1	0.0	70.0	70.0	210	63	57	7325	
	6/13/2020	9:49	10-13	15	2.0	70.0	140.0	70.0					
	6/13/2020	10:02	7-10	15	2.4	140.0	210.0	70.0					
36	6/13/2020	11:50	13-16	18	2.4	0.0	70.0	70.0	80	24	22	7325	
	6/13/2020	14:07	10-13	5	1.0	70.0	80.0	10.0					
	6/13/2020	14:07	7-10	-	-	80.0	80.0	0.0					
37	6/15/2020	12:54	13-16	20	1.5	0.0	70.0	70.0	90	27	24	7325	
	6/15/2020	15:45	10-13	10	1.5	70.0	90.0	20.0					
	6/15/2020	15:45	7-10	-	-	90.0	90.0	0.0					



**Whitman Environmental Sciences - Trent Dev Center**  
**Injection Summary Log**  
**Yesler Way / King County Archives Warehouse Site**  
**Table 2**



Injection Point	Date	Time	Injection Depth (ft. bgs)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of PlumeStop/S-MicroZVI Injected			Gallons Per Location	PlumeStop Per Location (lb.)	S-MicroZVI Per Location (lb.)	PlumeStop Concentration (mg C/L)	Comments
						Beginning Flow Meter (gal.)	Ending Flow Meter (gal.)	Gallons Per Interval					
38	6/18/2020	8:30	13-16	20	2.5	0.0	40.0	40.0	105	63	57	14965	
	6/18/2020	9:15	10-13	18	2.5	40.0	80.0	40.0					
	6/18/2020	10:00	7-10	15	2.5	80.0	105.0	25.0					
39	6/18/2020	10:30	13-16	20	2.0	0.0	40.0	40.0	105	63	57	14965	
	6/18/2020	11:00	10-13	18	2.6	40.0	80.0	40.0					
	6/18/2020	11:30	7-10	15	2.4	80.0	105.0	25.0					
40	6/9/2020	12:55	13-16	20	2.3	0.0	100.0	100.0	300	63	57	5094	
	6/9/2020	15:26	10-13	15	1.3	100.0	200.0	100.0					
	6/9/2020	15:40	7-10	20	1.2	200.0	300.0	100.0					
41	6/9/2020	12:55	13-16	20	2.5	0.0	100.0	100.0	300	63	57	5094	
	6/9/2020	15:26	10-13	10	1.3	100.0	200.0	100.0					
	6/9/2020	15:40	7-10	20	1.4	200.0	300.0	100.0					
42	6/9/2020	12:55	13-16	18	2.4	0.0	100.0	100.0	300	63	57	5094	
	6/9/2020	15:26	10-13	14	1.9	100.0	200.0	100.0					
	6/9/2020	15:40	7-10	20	1.5	200.0	300.0	100.0					
43	6/9/2020	12:55	13-16	16	2.4	0.0	100.0	100.0	300	63	57	5094	
	6/9/2020	15:26	10-13	15	1.7	100.0	200.0	100.0					
	6/9/2020	15:40	7-10	20	1.3	200.0	300.0	100.0					
44	6/15/2020	15:46	13-16	20	3.5	0.0	30.0	30.0	100	84	76	21160	
	6/15/2020	15:58	10-13	20	3.6	30.0	55.0	25.0					
	6/15/2020	16:00	7-10	20	3.0	55.0	100.0	45.0					
45	6/18/2020	9:00	13-16	18	2.3	0.0	25.0	25.0	50	42	38	21160	
	6/18/2020	9:38	10-13	18	2.3	25.0	50.0	25.0					
	6/18/2020	9:39	7-10	-	-	50.0	50.0	0.0					
46	6/17/2020	9:07	13-16	20	2.0	0.0	25.0	25.0	75	63	57	21160	
	6/17/2020	10:05	10-13	25	3.0	25.0	50.0	25.0					
	6/17/2020	10:05	7-10	25	3.0	50.0	75.0	25.0					
47	6/17/2020	14:00	13-16	20	1.8	0.0	25.0	25.0	25	21	19	21160	
	6/17/2020	14:58	10-13	-	-	25.0	25.0	0.0					
	6/17/2020	14:58	7-10	-	-	25.0	25.0	0.0					
48	6/13/2020	14:04	14-17	30	4.4	0.0	100.0	100.0	240	72	65	7325	
	6/13/2020	12:00	11-14	30	4.0	100.0	170.0	70.0					
	6/13/2020	13:00	8-11	20	4.0	170.0	240.0	70.0					
49	6/15/2020	9:02	13-16	18	2.3	0.0	100.0	100.0	240	72	65	7325	
	6/15/2020	10:46	10-13	15	3.0	100.0	170.0	70.0					
	6/15/2020	11:30	7-10	10	3.0	170.0	240.0	70.0					
50	6/15/2020	12:54	13-16	20	2.7	0.0	70.0	70.0	90	54	49	14965	
	6/15/2020	15:35	10-13	15	2.0	70.0	90.0	20.0					
	6/15/2020	15:35	7-10	-	-	90.0	90.0	0.0					
51	6/17/2020	11:38	14-17	15	2.0	0.0	25.0	25.0	75	60	55	21160	
	6/17/2020	11:56	11-14	18	2.6	25.0	50.0	25.0					
	6/17/2020	12:30	8-11	18	2.5	50.0	75.0	25.0					
52	6/18/2020	8:30	14-17	20	2.5	0.0	40.0	40.0	105	63	57	14965	
	6/18/2020	9:15	11-14	18	2.5	40.0	80.0	40.0					
	6/18/2020	10:00	8-11	15	2.5	80.0	105.0	25.0					
53	6/18/2020	10:30	14-17	15	3.0	0.0	40.0	40.0	105	63	57	14965	
	6/18/2020	11:00	11-14	10	2.5	40.0	80.0	40.0					
	6/18/2020	12:00	8-11	10	2.4	80.0	105.0	25.0					
54	6/18/2020	8:30	14-17	18	3.0	0.0	40.0	40.0	105	63	57	14965	
	6/18/2020	9:15	11-14	15	2.5	40.0	80.0	40.0					
	6/18/2020	10:00	8-11	15	2.5	80.0	105.0	25.0					
55	6/17/2020	14:15	14-17	18	1.7	0.0	20.0	20.0	20	12	11	14965	
	6/17/2020	15:02	11-14	-	-	20.0	20.0	0.0					
	6/17/2020	15:02	8-11	-	-	20.0	20.0	0.0					
56	6/17/2020	8:30	14-17	18	2.7	0.0	25.0	25.0	75	63	57	21160	
	6/17/2020	8:48	11-14	18	2.8	25.0	50.0	25.0					
	6/17/2020	9:06	8-11	18	2.8	50.0	75.0	25.0					



Whitman Environmental Sciences - Trent Dev Center  
 Injection Summary Log  
 Yesler Way / King County Archives Warehouse Site  
 Table 2



Injection Point	Date	Time	Injection Depth (ft. bgs)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of PlumeStop/S-MicroZVI Injected			Gallons Per Location	PlumeStop Per Location (lb.)	S-MicroZVI Per Location (lb.)	PlumeStop Concentration (mg C/L)	Comments
						Beginning Flow Meter (gal.)	Ending Flow Meter (gal.)	Gallons Per Interval					
57	6/18/2020	8:30	14-17	15	2.8	0.0	40.0	40.0	105	63	57	14965	
	6/18/2020	9:15	11-14	15	2.9	40.0	80.0	40.0					
	6/18/2020	10:00	8-11	10	2.4	80.0	105.0	25.0					
58	6/17/2020	12:37	13-16	22	2.2	0.0	25.0	25.0	100	84	76	21160	
	6/17/2020	13:00	10-13	18	2.2	25.0	50.0	25.0					
	6/17/2020	13:31	7-10	18	2.2	50.0	100.0	50.0					
59	6/15/2020	9:03	13-16	18	2.4	0.0	100.0	100.0	300	90	82	7325	
	6/15/2020	10:46	10-13	15	3.0	100.0	200.0	100.0					
	6/15/2020	11:29	7-10	15	3.0	200.0	300.0	100.0					
60	6/15/2020	12:55	13-16	20	1.9	0.0	100.0	100.0	300	90	82	7325	
	6/15/2020	13:48	10-13	18	2.9	100.0	200.0	100.0					
	6/15/2020	15:31	7-10	18	3.0	200.0	300.0	100.0					
61	6/17/2020	14:15	13-16	22	2.3	0.0	75.0	75.0	125	105	95	21160	
	6/17/2020	14:45	10-13	20	2.3	75.0	100.0	25.0					
	6/17/2020	15:01	7-10	18	2.0	100.0	125.0	25.0					
62	6/15/2020	9:03	13-16	18	2.1	0.0	100.0	100.0	170	102	93	14965	
	6/15/2020	10:46	10-13	10	1.9	100.0	170.0	70.0					
	6/15/2020	10:47	7-10	-	-	170.0	170.0	0.0					
63	6/16/2020	9:18	12-16	20	2.5	0.0	40.0	40.0	105	63	57	14965	
	6/16/2020	10:00	10-13	18	2.3	40.0	80.0	40.0					
	6/16/2020	10:26	7-10	18	2.3	80.0	105.0	25.0					
64	6/16/2020	10:43	13-16	20	2.3	0.0	40.0	40.0	105	63	57	14965	
	6/16/2020	11:00	10-13	20	2.3	40.0	80.0	40.0					
	6/16/2020	11:45	7-10	20	2.3	80.0	105.0	25.0					
65	6/16/2020	14:21	13-16	18	2.5	0.0	40.0	40.0	105	63	57	14965	
	6/16/2020	15:00	10-13	18	2.4	40.0	80.0	40.0					
	6/16/2020	15:30	7-10	10	2.3	80.0	105.0	25.0					
66	6/16/2020	12:32	12-16	18	2.4	0.0	40.0	40.0	105	63	57	14965	
	6/16/2020	12:47	10-13	15	2.2	40.0	80.0	40.0					
	6/16/2020	13:05	7-10	15	2.2	80.0	105.0	25.0					
67	6/16/2020	9:18	13-16	18	2.3	0.0	40.0	40.0	105	63	57	14965	
	6/16/2020	9:25	10-13	18	2.3	40.0	80.0	40.0					
	6/16/2020	10:23	7-10	18	2.3	80.0	105.0	25.0					
68	6/16/2020	10:43	13-16	20	2.3	0.0	40.0	40.0	105	63	57	14965	
	6/16/2020	11:00	10-13	20	2.3	40.0	80.0	40.0					
	6/16/2020	11:46	7-10	20	2.3	80.0	105.0	25.0					
69	6/16/2020	12:32	13-16	12	2.2	0.0	40.0	40.0	105	63	57	14965	
	6/16/2020	12:47	10-13	10	2.2	40.0	80.0	40.0					
	6/16/2020	13:04	7-10	10	2.2	80.0	105.0	25.0					
70	6/16/2020	14:21	13-16	18	2.2	0.0	40.0	40.0	105	63	57	14965	
	6/16/2020	15:00	10-13	18	2.3	40.0	80.0	40.0					
	6/16/2020	15:30	7-10	10	2.3	80.0	105.0	25.0					
71	6/18/2020	12:15	14-17	20	2.0	0.0	40.0	40.0	80	48	44	14965	
	6/18/2020	13:00	11-14	18	2.0	40.0	80.0	40.0					
									Total Gallons	Total PlumeStop (lb.)	Total S-MicroZVI (lb.)		
									12860	4400	4000		

## **Appendix B: Photo Log**

**Photo Log: Yesler Way/King County Archives Warehouse Site**



**Photo 1:** Product storage on-site.



**Photo 2:** Injection trailer location.



**Photo 3:** DPT injection wells.



**Photo 4:** PlumeStop MW influence.



**Photo 5:** Surfacing from asphalt cracks.



**Photo 6:** Post operation site.

August 10, 2022

**REGENESIS Proposal No. ChL62516 - 2**

Daniel Whitman  
Whitman Environmental Sciences  
6812 16th Avenue NE  
Seattle, WA 98115

**SUBJECT: Application Summary Report for the Yesler Way/King County Archives Warehouse Site**

Dan,

REGENESIS Remediation Services (RRS) has recently completed an in-situ injection application PlumeStop® Liquid Activated Carbon® (PlumeStop) at the Yesler Way/King County Archives Warehouse Site in Seattle, WA.

This application is meant to be a heavy dose of PlumeStop in barrier form. The site has relatively low levels of dissolved phase contaminants which include: PCE, TCE, Cis DCE and VC. RRS applied REGENESIS technology, PlumeStop, utilizing in-situ sorption of contaminants.

RRS mobilized a support equipment truck, injection trailer and personnel to the site to on August 1<sup>st</sup>, 2022. On-site operations were completed over five (5) days and was completed on August 5<sup>th</sup>, 2022. RRS staffed this project with experienced Project Supervisors who ensured a safe injection application. Injection locations were drilled to depth via Direct Push Technology (DPT).

Please review the attached application summary page, injection log, and photo log for more detail on the application. RRS appreciates the opportunity to work at this site with Arcadis. RRS will be available to interpret the field data as it is collected or answer any questions. If you need additional information regarding the application process or attached field notes, please contact Isaac Gregg (IGregg@regenesiS.com) or Will Mohan (WMohan@regenesiS.com).

Sincerely,



Isaac Gregg  
West Region Project Manager



Will Mohan  
Senior Project Supervisor

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## Application Summary Page



### 1. Overview

**Client:** 12<sup>th</sup> and Yesler Owner LLC

**Project Name:** Yesler Way/King County Archives Warehouse Site

**Client Project Manager:** Dan Whitman

**RRS Project Manager:** Isaac Gregg

**RRS Project Supervisors:** Will Mohan/ Aaron Treston

**Project Dates:** August 1<sup>st</sup>, 2022 – August 5<sup>th</sup>, 2022

**Site Address:** 12<sup>th</sup> Ave. and Yesler Way, Seattle, WA

### 2. Treatment Technology

#### PlumeStop® Liquid Activated Carbon®

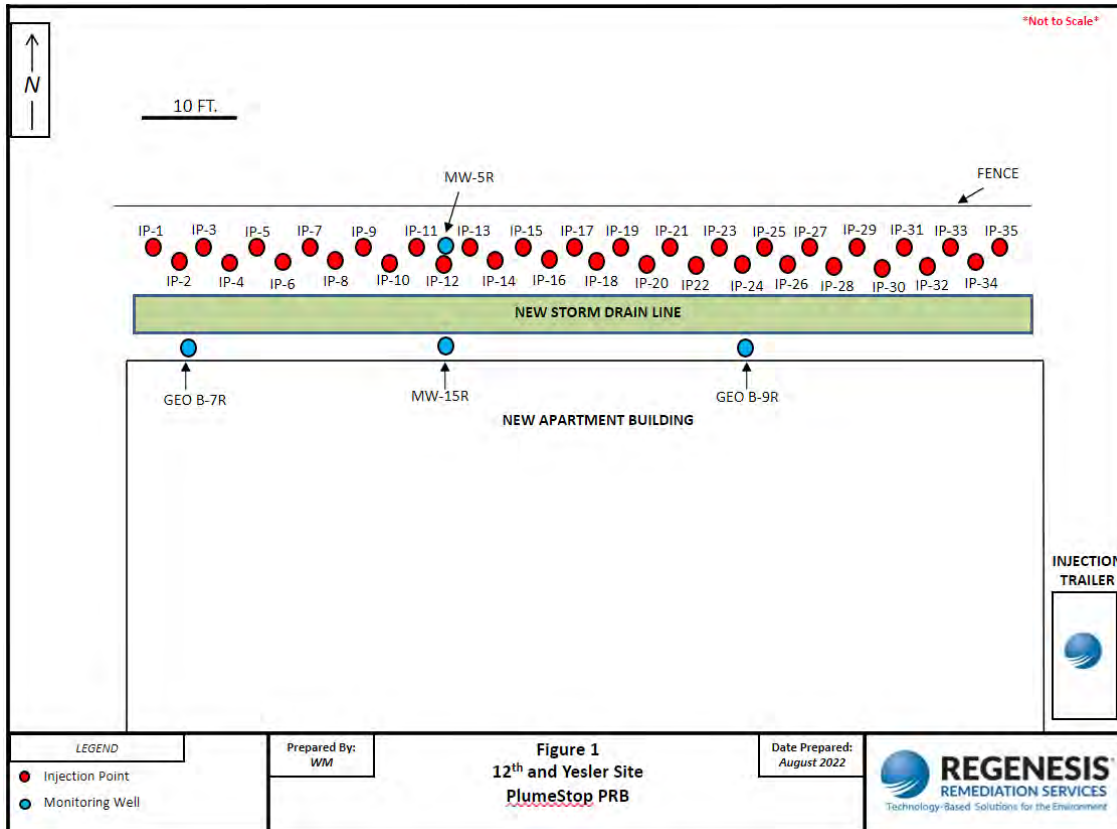
**PlumeStop** liquid activated carbon consists of carbon particles milled to 1 to 2 micrometers in size – in comparison an E.coli bacteria is approximately the same size as a PlumeStop particle. The particle size and the proprietary surface chemistry allow the carbon particles to be suspended as a colloid. The material was formulated to not only flow as a colloidal liquid without fracturing (i.e. through well networks and aquifers), but also allow the PlumeStop carbon to attach to soil particles once contacted. The physical appearance of PlumeStop is similar to that of “ink”. PlumeStop begins working quickly by allowing sorption of contaminants from the dissolved phase to the thin layer of carbon resulting in rapid reductions of contaminant concentrations from groundwater.

Additional information about this product can be found at [regenesiS.com](https://www.regenesis.com).

### 3. Design

PlumeStop® Application Design Summary		
Dissolved Phase cVOC Plume		
PlumeStop		Technical Notes
<b>Treatment Type</b>	<b>Barrier</b>	<u>Injection Radius for Soil Coverage (ft-est.avg.)</u> <b>3.8</b>  <u>PlumeStop Inject. Conc. (mg/L)</u> <b>10,535</b> <b>Injected at 30 gallons per vertical ft</b>  <b>Special Instructions:</b>
Distance Perpendicular to Flow (ft)	105	
Spacing Within Rows (ft)	6	
Number of Rows	2	
<b>DPT Injection Points</b>	<b>35</b>	
Top Application Depth (ft bgs)	7	
Bottom Application Depth (ft bgs)	20	
<b>PlumeStop to be Applied (lbs)</b>	<b>6,000</b>	
PlumeStop to be Applied (gals)	666	
<b>PlumeStop Volume Totals</b>		
Mixing Water (gal)	12,984	
<b>Total Application Volume (gals)</b>	<b>13,650</b>	
Injection Volume per Point (gals)	390	

**Figure 1: Injection Locations Map**



## 4. Application

### A. Job Site Inspection

RRS, Holocene and Whitman personnel arrived on-site on August 1<sup>st</sup>, 2022. A health and safety tailgate meeting was performed with all field staff present. RRS performed site reconnaissance, becoming familiar with the project site, water source, and completed a jobsite safety inspection. Notable site hazards included: Being aware of other construction operations, heavy machinery, slip/trip potential on site hosing, and high-pressure injection lines and uneven terrain. Once completed, the injection trailer was staged and prepared for product transfer and mixing.

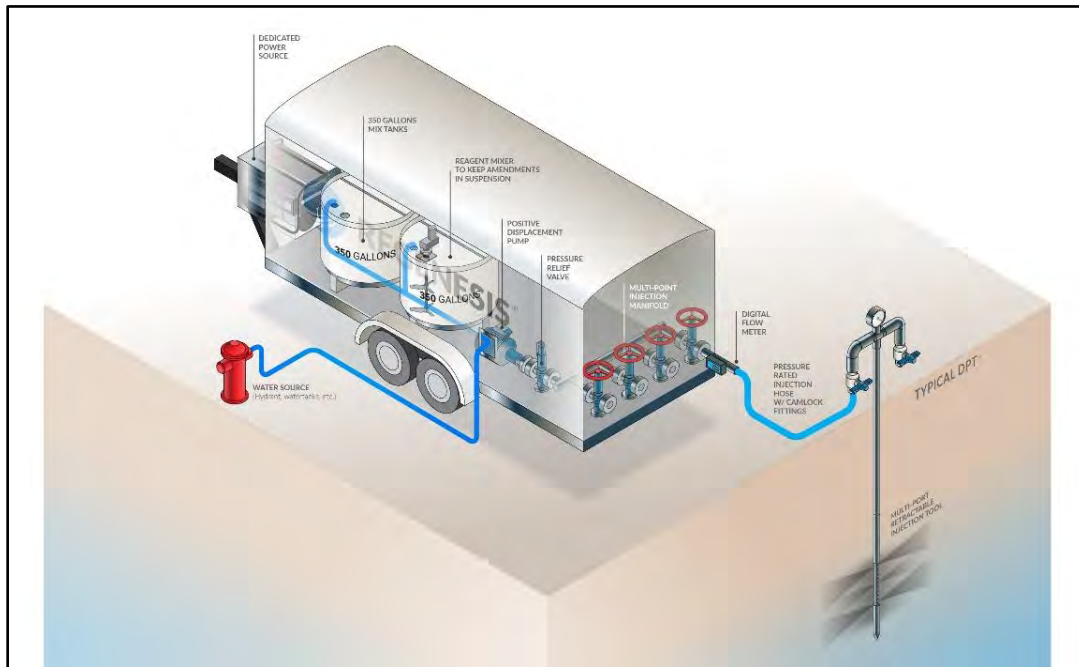
### B. Injection Sequence

RRS applied the RegenesiS technologies by mixing the products in the RRS injection trailer and injecting through 1.5-inch DPT injection tool string fitted for 0.75-inch diameter injection hosing Figure 2. The injection trailer is fully enclosed and contains mixing tanks, pumps, and delivery system equipped for direct connection to the injection wells. The application pump is a multiple diaphragm positive displacement pump designed to prevent pulsation of the remediation chemistry while being applied. The application pump can deliver the remediation chemistry at up to 250 pounds per square inch (PSI) at up to 20 gallons per minute (GPM).

Safety bypass mechanisms are installed to release back pressure buildup in the event injection pressures exceed commonly accepted application ranges. We delivered the remediation chemistry at up to four (4) separate delivery lines simultaneously, each having the capability of monitoring injection pressures and injection flowrates/totals at any given time. Each delivery line can reach beyond the injection trailer of at least 100 linear feet, limiting the need to move the injection trailer from point to point or in this case limiting the need to move the trailer several times each day. Additional line extensions were utilized when necessary to increase the trailer range without being moved.

The remedial solution was prepared in two (2) 350-gallon conical tanks that are configured with chemically resistant materials. Mixing water was provided by an on-site water line manifold fitted for a 1.5-inch MNHT output as a direct source to the RRS injection trailer. Once water was filled to the appropriate volume per the design concentration, each product was transferred from their respective container via an air-driven diaphragm pump. Product containers were measured and marked to track volumetric batch amount to ensure accurate product dosing.

**Figure 2: RRS Trailer Schematic.**



## 5. On-Site Work Summary

- **Main Area**

A total of **6,000 lbs. of PlumeStop**, was mixed and applied to the subject site through 27 bore hole injection point locations totaling **6,611 gallons** of reagent mix and water applied.

- **Project Challenges**

- A busy and tight construction site with a small working area made it difficult to move the drilling rig around quickly.
- Challenging site conditions including fill material, subsurface preferential pathways, and newly installed storm drain caused for difficulty in applying remediation reagent in the target treatment zone.

- **Deviations from Proposal**

- Injection concentrations of the remediation fluids were adjusted throughout the course of project in the attempt to find a viable solution to inject the total prescribed amount of remediation reagent.
- Remediation concentrations decreased from 30 gallons per foot to 20 gallons per foot. On the last day or work the remaining 1709 lbs. of PlumeStop was applied without mix water to mitigate carbon from traveling outside of the target treatment area and into potential sensitive receptors.

-To help reduce surfacing, the upper injection interval was adjusted. The total thickness of the interval was reduced, thus injecting product deeper into the subsurface.

- **Distribution Monitoring**

-The four monitoring wells in the treatment area we monitored throughout the course of the application event. MW-5R, MW-15R, GEO B-7R and GEO B-9R all had rises in ground water level that typically resulted in the wells requiring compression fitting to keep liquid from overflowing onto the surface. All wells recorded visual confirmation of PlumeStop in them.

Well ID	Maximum Recorded PlumeStop Concentration (mg/L)
MW-5R	500
MW-15R	50
GEO B-7R	1400
GEO B-9R	400

## Appendix A: Photo Log



**Photo 1:** Holocene Drilling using a Geoprobe track mounted rig to advance injection rods. (East View)



**Photo 2:** Injection Area. (West View)



**Photo 3:** RRS Injection Trailer and staged PlumeStop totes (South View)



**Photo 4:** Construction materials being rearranged to allow access for drilling rig. (Northwest View)

## **Appendix B: Injection Log and Soil Core**



12 and Yesler Owner LLC  
 PlumeStop Injection Summary Log  
 Permeable Reactive Barrier



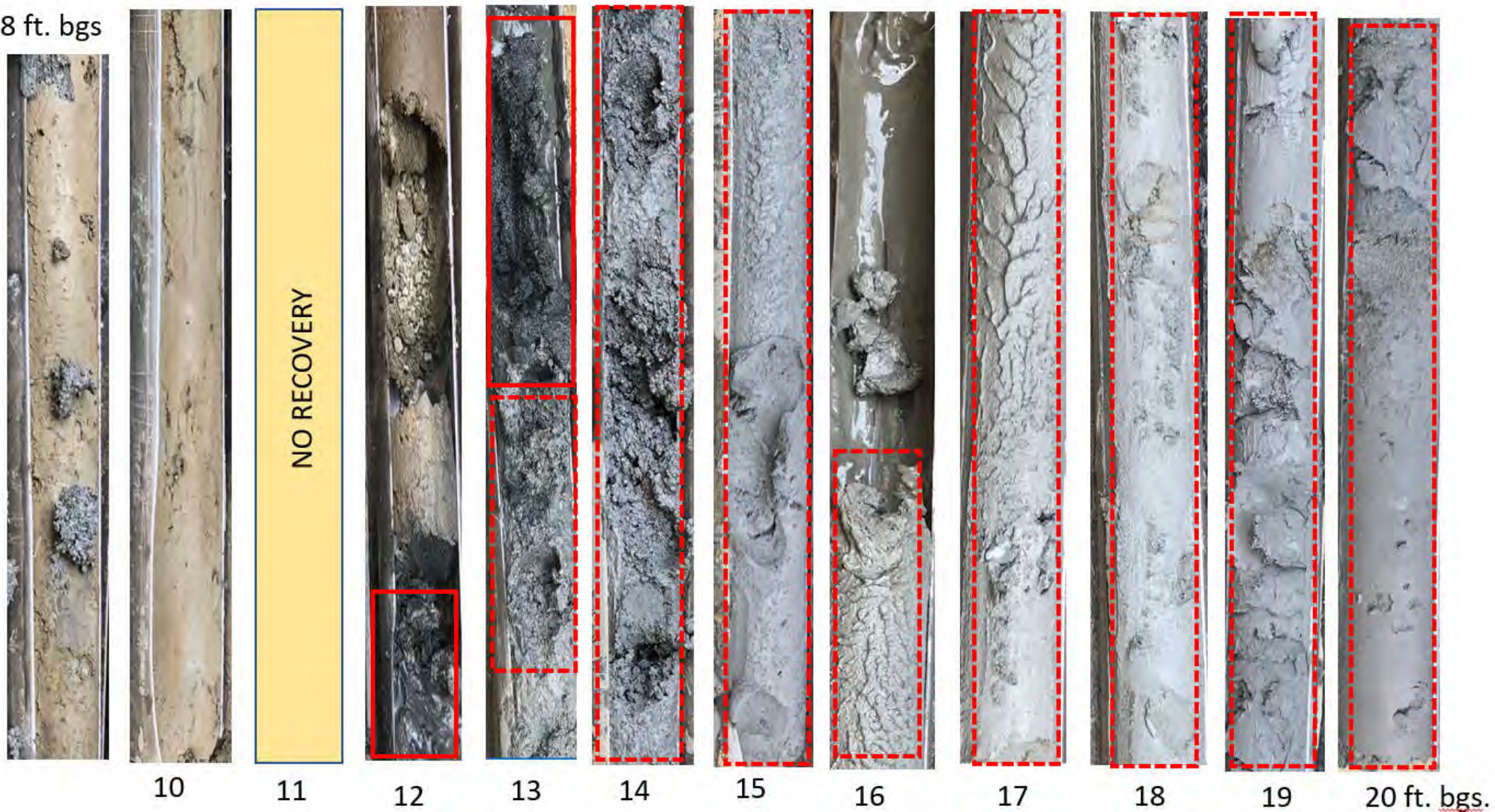
Table 1

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of PlumeStop Injected			Total Gallons Per Location	Pounds of PlumeStop Injected Per Location	Comments	Injection Tooling
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval				
1	8/1/2022	13:00	19-20	70	2.70	0.0	30.0	30.0	390.0	171		3-Foot Screen
	8/1/2022	13:45	16-19	67	3.30	30.0	120.0	90.0				
	8/1/2022	14:32	13-16	78	3.70	120.0	210.0	90.0				
	8/1/2022	15:30	10-13	69	3.00	210.0	300.0	90.0				
	8/1/2022	16:08	7-10	70	3.50	300.0	390.0	90.0				
2	8/3/2022	10:07	17-20	18	2.90	0.0	60.0	60.0	450.0	342		3-Foot Screen
	8/3/2022	10:40	14-17	15	3.20	60.0	120.0	60.0				
	8/3/2022	11:29	11-14	14	2.90	120.0	220.0	100.0				
3	8/3/2022	12:00	8-12	17	3.00	220.0	450.0	230.0	50.0	38	Stop due to surfacing in surrounding gravel	3-Foot Screen
	8/4/2022	8:30	17-20	19	2.50	0.0	50.0	50.0				
4	8/2/2022	8:10	19-20	22	3.00	0.0	30.0	30.0	390.0	171		3-Foot Screen
	8/2/2022	8:24	16-19	20	3.40	30.0	120.0	90.0				
	8/2/2022	9:00	13-16	19	3.50	120.0	210.0	90.0				
	8/2/2022	10:10	10-13	23	3.30	210.0	300.0	90.0				
5	8/2/2022	10:55	7-10	20	3.20	300.0	390.0	90.0				
6	REMOVE POINT											
7	8/3/2022	13:29	17-20	20	2.60	0.0	60.0	60.0	240.0	182		3-Foot Screen
	8/3/2022	14:00	14-17	17	2.40	60.0	120.0	60.0				
	8/3/2022	14:30	11-14	10	2.40	120.0	180.0	60.0				
	8/3/2022	15:01	8-12	13	2.00	180.0	240.0	60.0				
	8/3/2022	15:01	8-12	13	2.00	180.0	240.0	60.0				
8	REMOVE POINT											
9	8/1/2022	13:00	19-20	27	3.00	0.0	30.0	30.0	390.0	296		3-Foot Screen
	8/1/2022	13:45	16-19	32	3.40	30.0	120.0	90.0				
	8/1/2022	14:32	13-16	34	3.60	120.0	210.0	90.0				
	8/1/2022	15:30	10-13	31	3.10	210.0	300.0	90.0				
	8/1/2022	15:59	7-10	35	3.50	300.0	390.0	90.0				
10	REMOVE POINT											
11	8/2/2022	12:19	19-20	8	3.00	0.0	30.0	30.0	310.0	136		3-Foot Screen
	8/2/2022	12:30	16-19	11	4.00	30.0	120.0	90.0				
	8/2/2022	13:14	13-16	12	3.30	120.0	210.0	90.0				
	8/2/2022	13:50	10-13	14	2.90	210.0	300.0	90.0				
	8/2/2022	14:20	7-10	18	2.70	300.0	310.0	10.0				
12	8/2/2022	9:00	19-20	17	3.20	0.0	30.0	30.0	390.0	171	500 mg/L C in MW5 (2.5' away) after 250 gallons injected. Water level rose to TOC Excessive surfacing around MW5 annulus.310.	3-Foot Screen
	8/2/2022	9:13	16-19	17	3.80	30.0	120.0	90.0				
	8/2/2022	9:51	13-16	16	4.00	120.0	210.0	90.0				
	8/2/2022	10:16	10-13	15	3.80	210.0	300.0	90.0				
	8/2/2022	10:40	7-10	17	3.60	300.0	390.0	90.0				
13	REMOVE POINT											
14	8/2/2022	12:29	19-20	8	3.30	0.0	30.0	30.0	70.0	31	surfacing 2 ft west in gravel. Abandon point	3-Foot Screen
	8/2/2022	0:00	16-19	10	3.60	30.0	70.0	40.0				
15	8/3/2022	11:42	17-20	15	2.00	0.0	60.0	60.0	141.0	62		3-Foot Screen
	8/3/2022	12:24	14-17	12	1.30	60.0	120.0	60.0				
16	8/3/2022	13:22	11-14	10	1.00	120.0	141.0	21.0	300.0	171		3-Foot Screen
	8/2/2022	9:30	19-20	21	3.20	0.0	30.0	30.0				
	8/2/2022	9:51	16-19	20	3.20	30.0	120.0	90.0				
	8/2/2022	10:40	13-16	17	4.00	120.0	210.0	90.0				
	8/2/2022	11:05	10-13	22	4.00	210.0	300.0	90.0				
17	8/3/2022	14:51	17-20	18	2.40	0.0	10.0	10.0	10.0	4		3-Foot Screen
	8/2/2022	13:10	19-20	22	2.70	0.0	30.0	30.0				
	8/2/2022	13:27	16-19	18	2.90	30.0	120.0	90.0				
	8/2/2022	14:22	13-16	17	3.60	120.0	210.0	90.0				
	8/2/2022	15:51	10-13	17	3.40	210.0	270.0	60.0				
18	8/3/2022	12:04	17-20	10	1.80	0.0	60.0	60.0	127.0	56		3-Foot Screen
	8/3/2022	13:44	14-17	14	2.10	60.0	120.0	60.0				
	8/3/2022	14:32	11-14	8	1.50	120.0	127.0	7.0				
	8/2/2022	9:55	19-20	33	3.40	0.0	30.0	30.0				
	8/2/2022	10:15	16-19	30	4.40	30.0	120.0	90.0				
19	8/2/2022	10:47	13-16	27	4.20	120.0	210.0	90.0	300.0	228		3-Foot Screen
	8/2/2022	11:19	10-13	17	4.30	210.0	300.0	90.0				
	8/2/2022	11:40	7-10	15	4.00	300.0	390.0	90.0				
	8/2/2022	11:40	7-10	15	4.00	300.0	390.0	0.0				
	8/4/2022	10:17	14-17	23	3.40	0.0	180.0	180.0				
20	8/4/2022	11:01	11-14	22	3.20	180.0	270.0	90.0	384.0	291	receive extra volume	3-Foot Screen
	8/4/2022	11:58	8-12	17	3.10	270.0	384.0	114.0				
	8/4/2022	12:02	8-12	19	3.00	300.0	388.0	88.0				
21	REMOVE POINT											
22	8/4/2022	12:52	17-20	25	2.70	0.0	100.0	100.0	420.0	319	receive extra volume	3-Foot Screen
	8/4/2022	13:30	14-17	26	3.00	100.0	200.0	100.0				
	8/4/2022	13:59	11-14	21	2.80	200.0	300.0	100.0				
	8/4/2022	14:41	8-12	20	2.90	300.0	420.0	120.0				
	8/2/2022	12:42	19-20	21	4.00	0.0	30.0	30.0				
23	8/2/2022	12:50	16-19	22	4.20	30.0	120.0	90.0	300.0	132		3-Foot Screen
	8/2/2022	13:28	13-16	16	3.00	120.0	210.0	90.0				
	8/2/2022	14:29	10-13	19	3.00	210.0	300.0	90.0				
24	REMOVE POINT											
25	8/4/2022	12:33	-	-	-	-	-	-	0.0	0	Refusal at 10 ft.	3-Foot Screen
	8/4/2022	9:37	17-20	26	2.70	0.0	100.0	100.0				
	8/4/2022	10:20	14-17	17	3.30	100.0	200.0	100.0				
	8/4/2022	11:10	11-14	16	3.10	200.0	300.0	100.0				
26	8/4/2022	12:02	8-12	19	3.00	300.0	388.0	88.0	388.0	294	receive extra volume	3-Foot Screen
	8/4/2022	12:02	8-12	19	3.00	300.0	388.0	88.0				
27	REMOVE POINT											
28	8/4/2022	13:03	17-20	24	3.00	0.0	60.0	60.0	240.0	182		Expendable Tip
	8/4/2022	13:27	14-17	22	2.90	60.0	120.0	60.0				
	8/4/2022	13:58	11-14	19	3.20	120.0	180.0	60.0				
	8/4/2022	14:38	8-12	20	3.30	180.0	240.0	60.0				
29	8/5/2022	8:49	17-20	0.0	0.0	33.0	33.0	33.0	297		3-Foot Screen	
	8/4/2022	12:30	17-20	17	2.90	0.0	80.0					80.0
30	8/4/2022	13:15	14-17	1	3.30	80.0	160.0	80.0	330.0	250	receive extra volume	Expendable Tip
	8/4/2022	13:54	11-14	16	3.30	160.0	240.0	80.0				
	8/4/2022	14:35	8-12	14	3.20	240.0	330.0	90.0				
	8/5/2022	9:05	17-20	0.0	0.0	236.0	233.0	233.0				
31	8/4/2022	8:50	17-20	18	2.20	0.0	100.0	100.0	455.0	345	Receive remaining PlumeStop. Injected neat. Flush with water.	Expendable Tip
	8/4/2022	9:57	14-17	22	3.40	100.0	200.0	100.0				
	8/4/2022	10:48	11-14	24	3.50	200.0	300.0	100.0				
	8/4/2022	11:44	8-12	17	2.90	300.0	455.0	155.0				
32	REMOVE POINT											
33	REMOVE POINT											
34	8/4/2022	11:59	-	-	-	-	-	-	0.0	0	Refusal at 8 ft	3-Foot Screen
35	NOT ACCESSIBLE											

<b>Total Gallons:</b>	<b>Total Lbs. PlumeStop</b>
8611	6000

CC-1; (8 – 20 ft. bgs); Post-Core 3 ft. ROI; (IP-12/IP-13)

8 ft. bgs



## ***APPENDIX B***

---

### ***Site Photographs***



1. View of Regenesis remediation products delivered to the site for injection in the groundwater treatment area in the SE parking lot.



2. View of injection points used to pump Plumestop activated carbon and S-Micro ZVI zero valent iron into the groundwater treatment area.



3. View of the Regenesis mixing trailer, product and injection points during the initial groundwater remediation.



4. View of the SE parking lot during injections, from the second floor of the 104 12<sup>th</sup> Avenue building. King County warehouse is on the left.



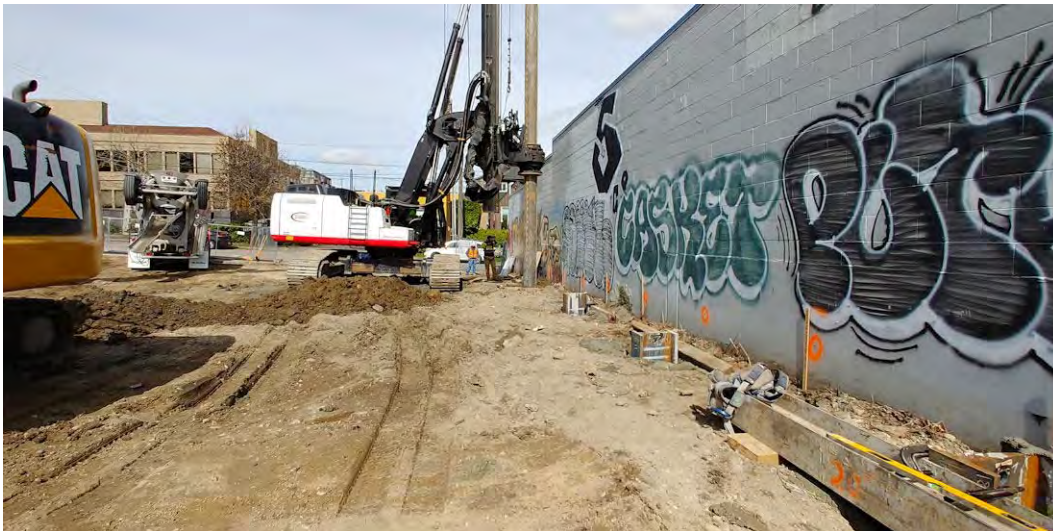
5. View of black groundwater bailed from monitoring well GEO B-7 immediately after the injections, June 17, 2020.



6. View of groundwater removed from GEO B-7 on July 15, 2020. The water was much clearer, but still mildly discolored.



7. View of the initial excavation into the area of lead contaminated soil, near the northwestern corner of the King County warehouse.



8. View of installation of shoring piles along the eastern property line adjacent to the King County warehouse in the northeastern part of the subject site.



9. View of the pile drilling auger during soil field screening along the north edge of the King County warehouse.



10. View of pile installation along the western building line. The monument over abandoned monitoring well MW-8 is in the foreground.



11. View of the initial excavation of the sump in the lower level of the 104 12<sup>th</sup> Avenue building, near the south property line.



12. View of soil excavated from the sump area for disposal.



13. View of the initial excavations along the north foundation wall of the former 104 12<sup>th</sup> Avenue building, facing east, toward the King County warehouse.



14. View of the initial excavations in the northern part of the property. The flat platform adjacent to the warehouse is lead contaminated soil pending disposal. Other stockpiles are clean fill for export.



15. View of one of the de-watering well points to be installed along the perimeter of the site.



16. View of the west wall of the site excavation, along 12th Avenue, with the initial lift of lagging installed between the shoring piles.



17. View of one of the waste containers delivered to the site to manage PCE contaminated soil disposal.



18. View of the initial excavation of the PCE contaminated soil area along the south wall of the King County warehouse.



19. View of the PCE contaminated soil excavation and waste soil containers. Monitoring well GEO B-7 is visible in the excavation. The well was damaged but remained usable for one additional monitoring event.



20. View of one of the PCE waste soil containers being transported off-site for disposal by Waste Management, Inc.



21. View of excavations in the lead contaminated soil area near the northwestern corner of the King County warehouse.



22. View of the lead contaminated soil area and a segregated stockpile of waste soil north of the King County warehouse.



23. View of petroleum contaminated soil encountered in the northeastern part of the property. This soil had not been found by site investigations prior to the excavation.



24. View of shoring and tie-backs installed along the northern edge of the property, facing west, toward the northwestern corner.



25. View of additional excavation near the former sump in the southwestern part of the site.



26. View of the discolored soil during field screening of the excavation of the former sump area.



27. View of the discoloration near the south wall of the excavation near the former sump. The soil discoloration did not extend into the sidewall.



28. View of the initial excavation of petroleum contaminated soil (PCS) in the northwestern part of the property. PCS was not encountered until a depth of about eight feet below the surface.



29. View of segregated stockpiles of PCS and the extent of excavation in the northwestern part of the property.



30. View of digging along the south wall of the site, where PCS was encountered, near the former southeastern corner of the 104 12<sup>th</sup> Avenue building.



31. View of the south end of the excavation from near the southwestern corner, facing east.



32. View of additional segregated PCS waiting to be loaded and transported off-site for treatment.



33. View of the western shoring line facing north, at about the full extent of PCS removal. One de-watering well point is visible on the left, but not yet operational.



34. View of the shoring wall along the north side of the King County warehouse after removal of the lead contaminated soil. Lagging not yet in place to support the sidewall, leaving clean soil visible.



35. View of the northwestern corner of the King County warehouse during the final removal of lead contaminated soil.



36. View of the de-watering manifold along the western wall of the excavation. Well points at about 6-foot intervals were attached to a vacuum system.



37. View of the de-watering equipment, well points and manifold in the southwestern corner of the property.



38. View of the installation of rakers supporting the northwestern corner of the King County warehouse.



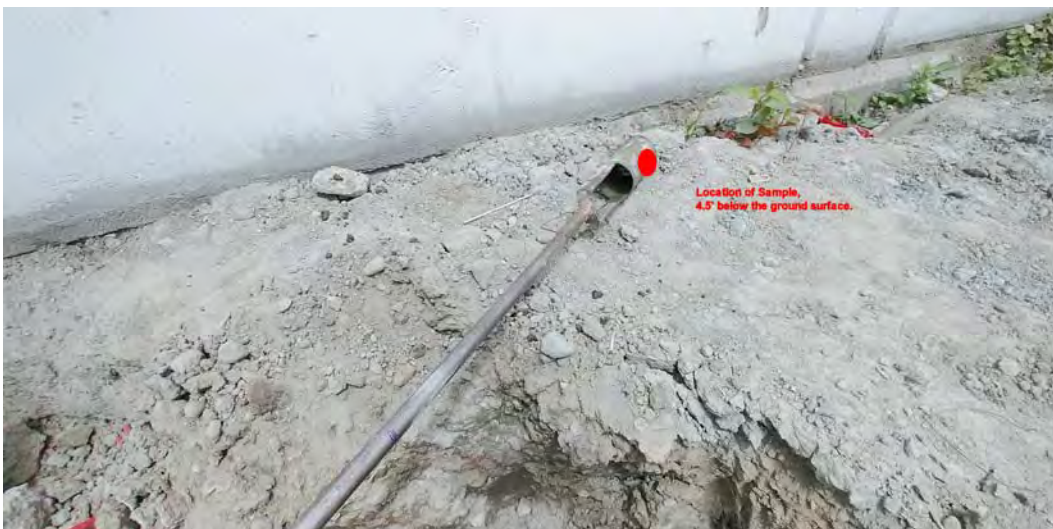
39. View of sidewall supports in the corner adjacent to the King County warehouse.



40. View of excavation near the southwestern corner of the King County warehouse for a tower crane foundation.



41. View of the sidewall of the tower crane excavation, which extended eastward to the previously excavated PCE soil area. A soil sample from the sidewall at the property line contained PCE.



42. View of the sidewall sample location projected to the ground surface along the south wall of the King County warehouse.



43. View of the main excavation at final depth, with a base layer of gravel installed.



44. View of the main excavation with a gravel base layer installed.



45. View of the north end of the excavation, with elevator pit dug below the main base elevation.



46. View of the elevator pit being dug at the south end of the excavation.



47. View of the tower crane installed and slab-on-grade portion of the construction, in the SE parking lot area. King County warehouse in the background.



48. View of a vacuum truck excavating holes for pin pile installations along the property line next to the King County warehouse.



49. View of the installation of a stormwater retention pipe parallel to the south wall of the King County warehouse, from near the crane base, facing east.



50. View of the west end of the stormwater retention pipe installation, south of the warehouse.



51. View of slab-on-grade foundation excavations and utility piping in the area south of the warehouse.



52. View of the installation of a chemical resistant vapor barrier beneath the entire slab-on-grade portion of the building.



53. View of the vapor barrier and steel rebar in place for the floor slabs of the slab-on-grade part of the building.



54. View of monitoring well MW-12R with a protective sleeve, built to extend through the floor slab into the stairwell of the new building.



55. View of waterproofing and chemical resistant barrier installed on the base and walls of the main excavation.



56. View of rebar being installed for the 3-foot thick concrete mat slab at the base of the main excavation. The slab will resist up-lift hydraulic pressure, since the building has a bathtub design, with no exterior foundation drains.



57. View of the preparations for additional groundwater treatment injections in August 2020. Plumestop activated carbon delivered to the Regenesis mixing trailer using the tower crane.



58. View of the injection area along the north edge of the property, adjacent to the King County warehouse, facing west.



59. View of the Regenesis mixing trailer and product tote during reinjections.



60. View of the driller installing injection points along the north edge of the property adjacent to the warehouse.

## **APPENDIX C**

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***Laboratory Analytical Reports  
Friedman & Bruya, Inc.***

***Waste Characterization Samples  
Lead Impacted Area***

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

April 1, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on March 30, 2021 from the 12th & Yesler WES 1591, F&BI 103556 project. There are 13 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  
WES0401R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 30, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th & Yesler WES 1591, F&BI 103556 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
103556 -01	PBTP-2'
103556 -02	PBTP-4'
103556 -03	PBTP-6'
103556 -04	PBTP-8'
103556 -05	PBTP-10'
103556 -06	PBTP-12'A
103556 -07	PBTP-12'B
103556 -08	PBTP-12'C
103556 -09	PBTP-12'D

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	PBTP-2'	Client:	Whitman Environmental Sciences
Date Received:	03/30/21	Project:	12th & Yesler WES 1591
Date Extracted:	03/31/21	Lab ID:	103556-01
Date Analyzed:	03/31/21	Data File:	103556-01.035
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Lead	12.5
------	------

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	PBTP-4'	Client:	Whitman Environmental Sciences
Date Received:	03/30/21	Project:	12th & Yesler WES 1591
Date Extracted:	03/31/21	Lab ID:	103556-02
Date Analyzed:	03/31/21	Data File:	103556-02.036
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	23.6
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	PBTP-6'	Client:	Whitman Environmental Sciences
Date Received:	03/30/21	Project:	12th & Yesler WES 1591
Date Extracted:	03/31/21	Lab ID:	103556-03
Date Analyzed:	03/31/21	Data File:	103556-03.037
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Lead	67.5
------	------

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	PBTP-8'	Client:	Whitman Environmental Sciences
Date Received:	03/30/21	Project:	12th & Yesler WES 1591
Date Extracted:	03/31/21	Lab ID:	103556-04
Date Analyzed:	03/31/21	Data File:	103556-04.038
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	8.13
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	PBTP-10'	Client:	Whitman Environmental Sciences
Date Received:	03/30/21	Project:	12th & Yesler WES 1591
Date Extracted:	03/31/21	Lab ID:	103556-05
Date Analyzed:	03/31/21	Data File:	103556-05.041
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	6.83
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	PBTP-12'A	Client:	Whitman Environmental Sciences
Date Received:	03/30/21	Project:	12th & Yesler WES 1591
Date Extracted:	03/31/21	Lab ID:	103556-06
Date Analyzed:	03/31/21	Data File:	103556-06.042
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	2.99
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	PBTP-12'B	Client:	Whitman Environmental Sciences
Date Received:	03/30/21	Project:	12th & Yesler WES 1591
Date Extracted:	03/31/21	Lab ID:	103556-07
Date Analyzed:	03/31/21	Data File:	103556-07.043
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	8.18
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	PBTP-12'C	Client:	Whitman Environmental Sciences
Date Received:	03/30/21	Project:	12th & Yesler WES 1591
Date Extracted:	03/31/21	Lab ID:	103556-08
Date Analyzed:	03/31/21	Data File:	103556-08.044
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	2.63
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	PBTP-12'D	Client:	Whitman Environmental Sciences
Date Received:	03/30/21	Project:	12th & Yesler WES 1591
Date Extracted:	03/31/21	Lab ID:	103556-09
Date Analyzed:	03/31/21	Data File:	103556-09.045
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	2.34
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th & Yesler WES 1591
Date Extracted:	03/31/21	Lab ID:	I1-204 mb2
Date Analyzed:	03/31/21	Data File:	I1-204 mb2.034
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/01/21

Date Received: 03/30/21

Project: 12th & Yesler WES 1591, F&BI 103556

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

Laboratory Code: 103459-01 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	23.8	88	106	75-125	19

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	105	80-120

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

1035556

SAMPLE CHAIN OF CUSTODY

ME 03-30-21

BR3

Report ID: 1035556

Company: FRIEDMAN & BRUYA INC

Address: 1511 1st Ave NE

City, State, ZIP: Seattle, WA 98119

Phone: 206-285-8282

SAMPLERS (signature) \_\_\_\_\_

PROJECT NAME: 1511 + 1st Ave

REMARKS: \_\_\_\_\_

INVOICE TO: PO # 1035556 / 1511

Protect specific PLS? Yes / No \_\_\_\_\_

Page # \_\_\_\_\_ of \_\_\_\_\_

TURNAROUND TIME: \_\_\_\_\_

Standard turnaround  RUSH  Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL:  Archive samples  Other \_\_\_\_\_

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED										Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	RCRA-8	PCB			
<u>BBP-12'</u>	<u>01</u>	<u>3:30AM</u>	<u>1:30</u>	<u>SOIL</u>	<u>1</u>											<u>✓</u>	<u>1- per DW</u>
<u>BBP-4'</u>	<u>02</u>															<u>✓</u>	<u>4/1</u>
<u>BBP-6'</u>	<u>03</u>															<u>✓</u>	<u>3 DAY TAT</u>
<u>BBP-8'</u>	<u>04</u>															<u>✓</u>	
<u>BBP-10'</u>	<u>05</u>															<u>✓</u>	
<u>BBP-12'A</u>	<u>06</u>															<u>✓</u>	
<u>BBP-12'B</u>	<u>07</u>															<u>✓</u>	
<u>BBP-12'C</u>	<u>08</u>															<u>✓</u>	
<u>BBP-12'D</u>	<u>09</u>															<u>✓</u>	

Signature: \_\_\_\_\_

Print Name: D. W. B.

Company: F28

Date: 3/30/21 Time: 5:30

Received by: D. W. B.

Received at: 20 °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 6, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the additional results from the testing of material submitted on March 30, 2021 from the 12th + Yesler WES 1591, F&BI 103556 project. There are 10 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  
WES0406R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 30, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th + Yesler WES 1591, F&BI 103556 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
103556 -01	PBTP-2'
103556 -02	PBTP-4'
103556 -03	PBTP-6'
103556 -04	PBTP-8'
103556 -05	PBTP-10'
103556 -06	PBTP-12'A
103556 -07	PBTP-12'B
103556 -08	PBTP-12'C
103556 -09	PBTP-12'D

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	PBTP-6'	Client:	Whitman Environmental Sciences
Date Received:	03/30/21	Project:	12th + Yesler WES 1591, F&BI
	103556		
Date Extracted:	03/31/21	Lab ID:	103556-03
Date Analyzed:	03/31/21	Data File:	103556-03.037
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	9.09
Barium	98.6
Cadmium	<1
Lead	67.5
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	PBTP-6'	Client:	Whitman Environmental Sciences
Date Received:	03/30/21	Project:	12th + Yesler WES 1591, F&BI
	103556		
Date Extracted:	03/31/21	Lab ID:	103556-03 x10
Date Analyzed:	04/02/21	Data File:	103556-03 x10.174
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	32.3
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th + Yesler WES 1591, F&BI
103556			
Date Extracted:	03/31/21	Lab ID:	I1-204 mb2
Date Analyzed:	03/31/21	Data File:	I1-204 mb2.034
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	PBTP-2'	Client:	Whitman Environmental Sciences
Date Received:	03/30/21	Project:	12th + Yesler WES 1591, F&BI
	103556		
Date Extracted:	04/01/21	Lab ID:	103556-01 1/6
Date Analyzed:	04/02/21	Data File:	040219.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	83	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	PBTP-6'	Client:	Whitman Environmental Sciences
Date Received:	03/30/21	Project:	12th + Yesler WES 1591, F&BI
	103556		
Date Extracted:	04/01/21	Lab ID:	103556-03 1/6
Date Analyzed:	04/02/21	Data File:	040220.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	85	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	0.052
Aroclor 1260	0.027
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th + Yesler WES 1591, F&BI
103556			
Date Extracted:	04/01/21	Lab ID:	01-751 mb2 1/6
Date Analyzed:	04/02/21	Data File:	040204.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	81	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/06/21

Date Received: 03/30/21

Project: 12th + Yesler WES 1591, F&BI 103556

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

Laboratory Code: 103459-01 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	95	105	75-125	10
Barium	mg/kg (ppm)	50	40.6	88	110	75-125	22 b
Cadmium	mg/kg (ppm)	10	<5	96	105	75-125	9
Chromium	mg/kg (ppm)	50	14.4	90	100	75-125	11
Lead	mg/kg (ppm)	50	23.8	88	106	75-125	19
Mercury	mg/kg (ppm)	5	<5	119	109	75-125	9
Selenium	mg/kg (ppm)	5	<5	94	102	75-125	8
Silver	mg/kg (ppm)	10	<5	96	107	75-125	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	104	80-120
Barium	mg/kg (ppm)	50	104	80-120
Cadmium	mg/kg (ppm)	10	106	80-120
Chromium	mg/kg (ppm)	50	116	80-120
Lead	mg/kg (ppm)	50	105	80-120
Mercury	mg/kg (ppm)	5	108	80-120
Selenium	mg/kg (ppm)	5	106	80-120
Silver	mg/kg (ppm)	10	107	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/06/21

Date Received: 03/30/21

Project: 12th + Yesler WES 1591, F&BI 103556

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES FOR  
POLYCHLORINATED BIPHENYLS AS  
AROCLOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: 103484-01 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	<0.02	108	104	29-125	4
Aroclor 1260	mg/kg (ppm)	0.25	<0.02	332 ip	163 ip	25-137	68 b

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.25	104	55-137
Aroclor 1260	mg/kg (ppm)	0.25	115	51-150

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

1035556

SAMPLE CHAIN OF CUSTODY

ME 03-30-21

BR3

Report ID: 1035556

Company: FRIEDMAN & BRUYA INC

Address: 1511 15th Ave NE

City, State, ZIP: Seattle, WA 98119

Phone: 206-285-8282

PROJECT NAME: 1511 + 15th

PO #: 1035556

INVOICE TO: 1511

REMARKS: Protect specific RLs? Yes / No

TURNAROUND TIME: Standard turnaround

SAMPLE DISPOSAL: RUSH

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED										Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	RCRA-8	PCB			
<u>BBP-12'</u>	<u>01</u>	<u>3:30A</u>	<u>1:30</u>	<u>Soil</u>	<u>1</u>											<u>✓</u>	<u>1- per DAD</u>
<u>BBP-4'</u>	<u>02</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>											<u>✓</u>	<u>4/1</u>
<u>BBP-6'</u>	<u>03</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>											<u>✓</u>	<u>3 DAY TAT</u>
<u>BBP-8'</u>	<u>04</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>											<u>✓</u>	
<u>BBP-10'</u>	<u>05</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>											<u>✓</u>	
<u>BBP-12'A</u>	<u>06</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>											<u>✓</u>	
<u>BBP-12'B</u>	<u>07</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>											<u>✓</u>	
<u>BBP-12'C</u>	<u>08</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>											<u>✓</u>	
<u>BBP-12'D</u>	<u>09</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>											<u>✓</u>	

Signature: [Signature]

Print Name: D. W. B.

Company: F28

Date: 3/30/21 Time: 5:30

Received by: [Signature]

Received at: 20 °C

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

***Waste Characterization Samples  
SE Parking Lot PCE Contaminated Soil  
(Lead TCLP Analysis Required by Waste Management, 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 20, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on April 15, 2021 from the 12th and Yesler WES-1591, F&BI 104281 project. There are 16 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  
WES0420R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 15, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 104281 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
104281 -01	104BF-STK-E
104281 -02	104BF-STK-S
104281 -03	WES-17-TP-0.75
104281 -04	WES-17-TP-1.5
104281 -05	WES-17-TP-2.5

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/20/21  
Date Received: 04/15/21  
Project: 12th and Yesler WES-1591, F&BI 104281  
Date Extracted: 04/16/21  
Date Analyzed: 04/16/21

**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

<u>Sample ID</u> Laboratory ID	<u>Gasoline</u>	<u>Diesel</u>	<u>Heavy Oil</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
104BF-STK-E 104281-01	ND	ND	D	78
104BF-STK-S 104281-02	ND	ND	ND	78
Method Blank 01-923 MB2	ND	ND	ND	87

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/20/21

Date Received: 04/15/21

Project: 12th and Yesler WES-1591, F&BI 104281

Date Extracted: 04/19/21

Date Analyzed: 04/19/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 53-144)
104BF-STK-E 104281-01	33 x	250	76
Method Blank 01-942 MB	<5	<25	101

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	104BF-STK-E	Client:	Whitman Environmental Sciences
Date Received:	04/15/21	Project:	12th and Yesler WES-1591, F&BI 104281
Date Extracted:	04/16/21	Lab ID:	104281-01
Date Analyzed:	04/16/21	Data File:	104281-01.037
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	7.13
Cadmium	<1
Chromium	24.5
Lead	211
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	104BF-STK-S	Client:	Whitman Environmental Sciences
Date Received:	04/15/21	Project:	12th and Yesler WES-1591, F&BI 104281
Date Extracted:	04/16/21	Lab ID:	104281-02
Date Analyzed:	04/16/21	Data File:	104281-02.038
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.65
Cadmium	<1
Lead	155
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	104BF-STK-S	Client:	Whitman Environmental Sciences
Date Received:	04/15/21	Project:	12th and Yesler WES-1591, F&BI 104281
Date Extracted:	04/16/21	Lab ID:	104281-02 x5
Date Analyzed:	04/16/21	Data File:	104281-02 x5.049
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	24.8
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	WES-17-TP-0.75	Client:	Whitman Environmental Sciences
Date Received:	04/15/21	Project:	12th and Yesler WES-1591, F&BI 104281
Date Extracted:	04/16/21	Lab ID:	104281-03 x5
Date Analyzed:	04/16/21	Data File:	104281-03 x5.050
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	486
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	WES-17-TP-1.5	Client:	Whitman Environmental Sciences
Date Received:	04/15/21	Project:	12th and Yesler WES-1591, F&BI 104281
Date Extracted:	04/16/21	Lab ID:	104281-04 x5
Date Analyzed:	04/16/21	Data File:	104281-04 x5.051
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	983
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	WES-17-TP-2.5	Client:	Whitman Environmental Sciences
Date Received:	04/15/21	Project:	12th and Yesler WES-1591, F&BI 104281
Date Extracted:	04/16/21	Lab ID:	104281-05
Date Analyzed:	04/16/21	Data File:	104281-05.041
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	5.59
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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, F&BI 104281
Date Extracted:	04/16/21	Lab ID:	I1-237 mb2
Date Analyzed:	04/16/21	Data File:	I1-237 mb2.036
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 200.8 and 1311

Client ID:	WES-17-TP-0.75, 1.5, 2.5	Client:	Whitman Environmental Sciences
Date Received:	04/15/21	Project:	12th and Yesler WES-1591, F&BI 104281
Date Extracted:	04/15/21	Lab ID:	104281-03,,05
Date Analyzed:	04/16/21	Data File:	104281-03,,05.046
Matrix:	Soil/Solid	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 200.8 and 1311

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	NA	Project:	12th and Yesler WES-1591, F&BI 104281
Date Extracted:	04/15/21	Lab ID:	I1-242 mb
Date Analyzed:	04/16/21	Data File:	I1-242 mb.044
Matrix:	Soil/Solid	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/20/21

Date Received: 04/15/21

Project: 12th and Yesler WES-1591, F&BI 104281

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 104270-02 (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)	500	51	85	86	64-133	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	500	89	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/20/21

Date Received: 04/15/21

Project: 12th and Yesler WES-1591, F&BI 104281

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

Laboratory Code: 104254-01 (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	3.00	77 b	74 b	75-125	4 b
Cadmium	mg/kg (ppm)	10	<1	89	90	75-125	1
Chromium	mg/kg (ppm)	50	2.12	92	93	75-125	1
Lead	mg/kg (ppm)	50	<1	88	89	75-125	1
Mercury	mg/kg (ppm)	5	<1	84	79	75-125	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	95	80-120
Cadmium	mg/kg (ppm)	10	102	80-120
Chromium	mg/kg (ppm)	50	104	80-120
Lead	mg/kg (ppm)	50	101	80-120
Mercury	mg/kg (ppm)	5	103	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/20/21

Date Received: 04/15/21

Project: 12th and Yesler WES-1591, F&BI 104281

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL/SOLID SAMPLES  
FOR TCLP METALS USING  
EPA METHODS 200.8 AND 1311**

Laboratory Code: 104281-03 04 05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/L (ppm)	1.0	<1	85	87	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/L (ppm)	1.0	87	80-120

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

164281

SAMPLE CHAIN OF CUSTODY

me 04-15-21

Page # of

BT2

Report To *[Signature]*

Company *[Signature]*

Address *[Signature]*

City, State, ZIP *[Signature]*

Phone *[Signature]*

Email *[Signature]*

SAMPLERS (signature)	PROJECT NAME	PO #
<i>[Signature]</i>	<i>[Signature]</i>	<i>285-1591</i>
REMARKS	INVOICE TO	

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples

Other \_\_\_\_\_

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED										Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082					
<i>1045E-S7K-E</i>	<i>D1</i>	<i>4-15</i>	<i>PM</i>	<i>SOIL</i>	<i>1</i>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<i>HL 10 Follow up per DW 4/16/21 me</i>
<i>1045E-S7K-5</i>	<i>02</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<i>EDUARD 15</i>
<i>285-17-TP-075</i>	<i>03</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<i>XXX compare 7/15</i>
<i>285-17-TP-15</i>	<i>04</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<i>PHYSIC</i>
<i>285-17-TP-2.5</i>	<i>05</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							

Samples received at 25 °C

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
<i>[Signature]</i>		<i>Liz Weber-Brya</i>		<i>E2B</i>		<i>4/15</i>	<i>5:42</i>
Relinquished by:		Received by:		Relinquished by:		Received by:	
<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>	

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 21, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the additional results from the testing of material submitted on April 15, 2021 from the 12th + Yesler WES-1591, F&BI 104281 project. There are 6 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl  
Project Manager

Enclosures  
WES0421R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 15, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th + Yesler WES-1591, F&BI 104281 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
104281 -01	104BF-STK-E
104281 -02	104BF-STK-S
104281 -03	WES-17-TP-0.75
104281 -04	WES-17-TP-1.5
104281 -05	WES-17-TP-2.5

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 6020B and 1311

Client ID:	WES-17-TP-0.75	Client:	Whitman Environmental Sciences
Date Received:	04/15/21	Project:	12th + Yesler WES-1591
Date Extracted:	04/20/21	Lab ID:	104281-03
Date Analyzed:	04/21/21	Data File:	104281-03.047
Matrix:	Soil/Solid	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 6020B and 1311

Client ID:	WES-17-TP-1.5	Client:	Whitman Environmental Sciences
Date Received:	04/15/21	Project:	12th + Yesler WES-1591
Date Extracted:	04/20/21	Lab ID:	104281-04
Date Analyzed:	04/21/21	Data File:	104281-04.050
Matrix:	Soil/Solid	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 6020B and 1311

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th + Yesler WES-1591
Date Extracted:	04/20/21	Lab ID:	I1-256 mb
Date Analyzed:	04/21/21	Data File:	I1-256 mb.041
Matrix:	Soil/Solid	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/21/21

Date Received: 04/15/21

Project: 12th + Yesler WES-1591, F&BI 104281

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL/SOLID SAMPLES  
FOR TCLP METALS USING  
EPA METHODS 6020B AND 1311**

Laboratory Code: 104281-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/L (ppm)	1.0	<1	93	95	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/L (ppm)	1.0	95	80-120

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

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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.

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lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

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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.

164281

SAMPLE CHAIN OF CUSTODY

ME 01-15-21

BT2

Report To: [Signature]  
 Company: WELSHER-BRYGA  
 Address: 112 WELSHER-BRYGA  
 City, State, ZIP: SEATTLE, WA 98119  
 Phone: [Signature]  
 Email: [Signature]

SAMPLERS (signature) \_\_\_\_\_

PROJECT NAME: 112 WELSHER-BRYGA

PO #: WBS-1591

REMARKS: \_\_\_\_\_

INVOICE TO: \_\_\_\_\_

Project specific RI's? - Yes / No

Page # \_\_\_\_\_ of \_\_\_\_\_

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples

Other

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED										Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	TCLP Pb	PCBs EPA 8082				
WBS-5TK-E	D1	4.15	PM	SOIL	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Hold following per DW 4/16/21 ME
WBS-5TK-S	D2																
WBS-12-TP-016	D3																
WBS-12-TP-15	D4																
WBS-12-TP-25	D5																

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	<u>Liz Welsher-Bryga</u>	<u>WBS</u>	<u>4/15</u>	<u>3:42</u>
Received by: _____				
Relinquished by: _____				

Received by: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Samples received at 25 °C

24/7/21 ME 4/20/21

***Confirmation Samples  
SE Parking Lot PCE Contaminated Soil Area***

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 27, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on April 21, 2021 from the 12th and Yesler WES1591, F&BI 104379 project. There are 26 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  
WES0427R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 21, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES1591, F&BI 104379 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
104379 -01	CenterBase-36E/2S-2'
104379 -02	NEBase-45E/3S-2.5'
104379 -03	SEBase-44E/8S-2.5'
104379 -04	SWBase-31E/9S-2.5'
104379 -05	WBase-28E/3S-1.5'
104379 -06	ESW-51E/6S-1.5'
104379 -07	NSW-39E/9S-1.5'
104379 -08	SSW-41E/12S-2'
104379 -09	SWSW-30E/12S-1.5'
104379 -10	WSW-26E/4S-1.5'

Methylene chloride was detected in the 8260D analysis of sample WSW-26E/4S-1.5'. The data were flagged as due to laboratory contamination.

Methylene chloride exceeded the acceptance criteria in the matrix spike samples. The laboratory control sample met the acceptance criteria, therefore the data were likely due to sample matrix effect.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	CenterBase-36E/2S-2'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-01
Date Analyzed:	04/22/21	Data File:	104379-01.061
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	11.1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	NEBase-45E/3S-2.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-02
Date Analyzed:	04/22/21	Data File:	104379-02.062
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	3.07
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	SEBase-44E/8S-2.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-03
Date Analyzed:	04/22/21	Data File:	104379-03.063
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	13.7
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	SWBase-31E/9S-2.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-04
Date Analyzed:	04/22/21	Data File:	104379-04.064
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	2.40
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	WBase-28E/3S-1.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-05
Date Analyzed:	04/22/21	Data File:	104379-05.067
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	16.6
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	ESW-51E/6S-1.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-06
Date Analyzed:	04/22/21	Data File:	104379-06.082
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	5.17
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	NSW-39E/9S-1.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-07
Date Analyzed:	04/22/21	Data File:	104379-07.083
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	35.6
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	SSW-41E/12S-2'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-08
Date Analyzed:	04/22/21	Data File:	104379-08.084
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	5.31
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	SWSW-30E/12S-1.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-09
Date Analyzed:	04/22/21	Data File:	104379-09.085
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	25.8
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	WSW-26E/4S-1.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-10
Date Analyzed:	04/22/21	Data File:	104379-10.086
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	13.4
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	I1-258 mb2
Date Analyzed:	04/22/21	Data File:	I1-258 mb2.060
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	CenterBase-36E/2S-2'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-01
Date Analyzed:	04/22/21	Data File:	042210.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	90	109
Toluene-d8	98	89	112
4-Bromofluorobenzene	100	84	115

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	0.035

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	NEBase-45E/3S-2.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-02
Date Analyzed:	04/22/21	Data File:	042211.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	90	109
Toluene-d8	96	89	112
4-Bromofluorobenzene	100	84	115

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	SEBase-44E/8S-2.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-03
Date Analyzed:	04/22/21	Data File:	042212.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	90	109
Toluene-d8	96	89	112
4-Bromofluorobenzene	100	84	115

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	0.030

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	SWBase-31E/9S-2.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-04
Date Analyzed:	04/22/21	Data File:	042213.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	90	109
Toluene-d8	99	89	112
4-Bromofluorobenzene	103	84	115

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	WBase-28E/3S-1.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-05
Date Analyzed:	04/22/21	Data File:	042214.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	90	109
Toluene-d8	99	89	112
4-Bromofluorobenzene	100	84	115

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	ESW-51E/6S-1.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-06
Date Analyzed:	04/22/21	Data File:	042215.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	90	109
Toluene-d8	97	89	112
4-Bromofluorobenzene	99	84	115

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	NSW-39E/9S-1.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-07
Date Analyzed:	04/22/21	Data File:	042216.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	90	109
Toluene-d8	96	89	112
4-Bromofluorobenzene	101	84	115

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	SSW-41E/12S-2'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-08
Date Analyzed:	04/22/21	Data File:	042221.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	90	109
Toluene-d8	98	89	112
4-Bromofluorobenzene	104	84	115

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	SWSW-30E/12S-1.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-09
Date Analyzed:	04/22/21	Data File:	042222.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	90	109
Toluene-d8	98	89	112
4-Bromofluorobenzene	101	84	115

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	WSW-26E/4S-1.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-10
Date Analyzed:	04/22/21	Data File:	042223.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	90	109
Toluene-d8	98	89	112
4-Bromofluorobenzene	100	84	115

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.05
Chloroethane	<0.5
1,1-Dichloroethene	<0.05
Methylene chloride	0.59 lc
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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	01-833 mb
Date Analyzed:	04/22/21	Data File:	042209.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	90	109
Toluene-d8	97	89	112
4-Bromofluorobenzene	98	84	115

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/27/21

Date Received: 04/21/21

Project: 12th and Yesler WES1591, F&BI 104379

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

Laboratory Code: 104301-29 (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	5.31	82	90	75-125	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	94	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/27/21

Date Received: 04/21/21

Project: 12th and Yesler WES1591, F&BI 104379

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

Laboratory Code: 104379-01 (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)	1	<0.05	53	49	10-138	8
Chloroethane	mg/kg (ppm)	1	<0.5	60	58	10-176	3
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	65	60	10-160	8
Methylene chloride	mg/kg (ppm)	1	<0.5	195 vo	177 vo	10-156	10
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	74	70	14-137	6
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	76	72	19-140	5
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	80	78	25-135	3
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	80	76	12-160	5
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	80	75	10-156	6
Trichloroethene	mg/kg (ppm)	1	<0.02	79	74	21-139	7
Tetrachloroethene	mg/kg (ppm)	1	0.031	81	77	20-133	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	mg/kg (ppm)	1	90	22-139
Chloroethane	mg/kg (ppm)	1	90	9-163
1,1-Dichloroethene	mg/kg (ppm)	1	91	47-128
Methylene chloride	mg/kg (ppm)	1	101	10-184
trans-1,2-Dichloroethene	mg/kg (ppm)	1	101	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	99	68-115
cis-1,2-Dichloroethene	mg/kg (ppm)	1	103	72-127
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	100	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	103	62-131
Trichloroethene	mg/kg (ppm)	1	101	63-121
Tetrachloroethene	mg/kg (ppm)	1	102	72-114

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

104379

SAMPLE CHAIN OF CUSTODY

ME 04/21/21

Page # 3 of 10 of 15/1

Report To: [Signature]  
 Company: [Signature]  
 Address: 5815 15th Ave NE  
 City, State, ZIP: Seattle, WA 98115  
 Phone: \_\_\_\_\_ Email: [Signature]

SAMPLERS (signature)	PROJECT NAME	PO #
	<u>12th &amp; Foster</u>	<u>065</u>
REMARKS	INVOICE TO	
	<u>15791</u>	

Project specific RI? - Yes / No

ANALYSES REQUESTED

TURNAROUND TIME  
 Standard turnaround  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_  
 SAMPLE DISPOSAL  
 Archive samples  
 Other  
 Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Notes
<u>LESTER BASE - 30E/25R/01A/CY-20</u>			<u>11 AM</u>	<u>SOIL</u>	<u>3</u>					<input checked="" type="checkbox"/>			<u>↓</u>
<u>11E BASE - 45E/33-25' OR</u>													<u>↓</u>
<u>SEWER - 44E/85-2.5' 03</u>													<u>↑ RUSH</u>
<u>SOIL BASE - 31E/85-2.5' 04</u>													<u>↓ PLEASE</u>
<u>10 BASE - 28E/35-1.5' 05</u>													<u>↓</u>
<u>ESD - 51E/65-1.5' 06</u>													<u>↓</u>
<u>N52D - 39E/08-1.5' 07</u>													<u>ABNORMAL</u>
<u>S52D - 41E/128-2' 08</u>													<u>TREN</u>
<u>S25D - 30E/125-1.5' 09</u>													<u>ABNORMAL</u>
<u>W52D - 26E/45-1.5' 10</u>													<u>ABNORMAL</u>

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

Relinquished by:	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Received by:	<u>[Signature]</u>	<u>JOE MOYAWED</u>	<u>F88E</u>	<u>4/20</u>	<u>5:02</u>
Relinquished by:				<u>04/21/21</u>	<u>17:02</u>
Received by:					

Samples received at 10 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

May 14, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the additional results from the testing of material submitted on April 21, 2021 from the 12th and Yesler WES1591, F&BI 104379 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  
WES0514R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 21, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES1591 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
104379 -01	CenterBase-36E/2S-2'
104379 -02	NEBase-45E/3S-2.5'
104379 -03	SEBase-44E/8S-2.5'
104379 -04	SWBase-31E/9S-2.5'
104379 -05	WBase-28E/3S-1.5'
104379 -06	ESW-51E/6S-1.5'
104379 -07	NSW-39E/0S-1.5'
104379 -08	SSW-41E/12S-2'
104379 -09	SWSW-30E/12S-1.5'
104379 -10	WSW-26E/4S-1.5'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	CenterBase-36E/2S-2'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-01
Date Analyzed:	04/22/21	Data File:	104379-01.061
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.25
Cadmium	<1
Chromium	17.2
Lead	11.1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	SEBase-44E/8S-2.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-03
Date Analyzed:	04/22/21	Data File:	104379-03.063
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.45
Cadmium	<1
Chromium	15.5
Lead	13.7
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	NSW-39E/0S-1.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-07
Date Analyzed:	04/22/21	Data File:	104379-07.083
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Cadmium	<1
Chromium	18.2
Lead	35.6
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	NSW-39E/0S-1.5'	Client:	Whitman Environmental Sciences
Date Received:	04/21/21	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	104379-07 x2
Date Analyzed:	05/11/21	Data File:	104379-07 x2.040
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	3.39
---------	------

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES1591
Date Extracted:	04/22/21	Lab ID:	I1-258 mb2
Date Analyzed:	04/22/21	Data File:	I1-258 mb2.060
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/14/21

Date Received: 04/21/21

Project: 12th and Yesler WES1591, F&BI 104379

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

Laboratory Code: 104301-29 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	3.20	68 b	74 b	75-125	8 b
Cadmium	mg/kg (ppm)	10	<1	85	94	75-125	10
Chromium	mg/kg (ppm)	50	17.6	80	86	75-125	7
Lead	mg/kg (ppm)	50	5.31	82	90	75-125	9
Mercury	mg/kg (ppm)	5	<1	75	94	75-125	22 vo

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	87	80-120
Cadmium	mg/kg (ppm)	10	90	80-120
Chromium	mg/kg (ppm)	50	96	80-120
Lead	mg/kg (ppm)	50	94	80-120
Mercury	mg/kg (ppm)	5	93	80-120

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

104379

SAMPLE CHAIN OF CUSTODY ME 04/21/21

Page # 8 of 10  
 of 10  
 VS/

Report To: [Signature]  
 Company: WESTWOOD ENVIRONMENTAL  
 Address: 5115 125th Ave NE  
 City, State, ZIP: SEATTLE, WA 98125  
 Phone: \_\_\_\_\_ Email: WESTWOOD@WESTWOOD-ENV.COM

SAMPLERS (signature)	PROJECT NAME	PO #
<u>[Signature]</u>	<u>ME 1591</u>	<u>065</u>
REMARKS	INVOICE TO	
<u>Project specific RI's? Yes / No</u>		

TURNAROUND TIME

Standard turnaround  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples  
 Other \_\_\_\_\_

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED					Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260		PAHs EPA 8270
LESTER BAKE - 30E/RS-2/01A	41-20	IM	3			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1-per DN SP 5/10 Notes STD TRAT
WE BAKE - 45E/39-25' 02												
SE BAKE - 44E/38-25' 03												
SO BAKE - 31E/38-25' 04												
DO BAKE - 28E/35-15' 05												
ESD - 51E/6S-15' 06												
NSD - 39E/08-15' 07												
SSD - 41E/128-2' 08												
SDSD - 30E/128-15' 09												
CSG - 26E/45-15' 10												

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

Relinquished by:	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Received by:	<u>[Signature]</u>	<u>JOE MOFFAWER</u>	<u>FBBI</u>	<u>4/21/21</u>	<u>5:02</u>
Relinquished by:					
Received by:					

Samples received at 70°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 30, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on July 23, 2021 from the 12th and Yesler WES 1591, F&BI 107400 project. There are 13 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  
WES0730R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 23, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 107400 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
107400 -01	NE4.5-SW-3.5'
107400 -02	NE5.5-SW-6'
107400 -03	NE6-SW-5'
107400 -04	NE6.5-SW-4.5'
107400 -05	CBS-ORG-4

Sample CBS-ORG-4 was sent to Amtest for organic matter analysis. The report will be forwarded upon receipt.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	NE4.5-SW-3.5'	Client:	Whitman Environmental Sciences
Date Received:	07/23/21	Project:	12th and Yesler WES 1591, F&BI 107400
Date Extracted:	07/26/21	Lab ID:	107400-01
Date Analyzed:	07/26/21	Data File:	107400-01.058
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.03
Cadmium	<1
Chromium	21.1
Lead	8.10
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	NE6-SW-5'	Client:	Whitman Environmental Sciences
Date Received:	07/23/21	Project:	12th and Yesler WES 1591, F&BI 107400
Date Extracted:	07/26/21	Lab ID:	107400-03
Date Analyzed:	07/26/21	Data File:	107400-03.061
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	7.29
Cadmium	<1
Chromium	29.8
Lead	7.77
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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, F&BI 107400
Date Extracted:	07/26/21	Lab ID:	I1-449 mb
Date Analyzed:	07/26/21	Data File:	I1-449 mb.056
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	NE4.5-SW-3.5'	Client:	Whitman Environmental Sciences
Date Received:	07/23/21	Project:	12th and Yesler WES 1591, F&BI 107400
Date Extracted:	07/27/21	Lab ID:	107400-01
Date Analyzed:	07/27/21	Data File:	072713.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	90	109
Toluene-d8	97	89	112
4-Bromofluorobenzene	97	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID:	NE5.5-SW-6'	Client:	Whitman Environmental Sciences
Date Received:	07/23/21	Project:	12th and Yesler WES 1591, F&BI 107400
Date Extracted:	07/27/21	Lab ID:	107400-02
Date Analyzed:	07/27/21	Data File:	072714.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	90	109
Toluene-d8	96	89	112
4-Bromofluorobenzene	100	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID: NE6-SW-5'	Client: Whitman Environmental Sciences
Date Received: 07/23/21	Project: 12th and Yesler WES 1591, F&BI 107400
Date Extracted: 07/27/21	Lab ID: 107400-03
Date Analyzed: 07/27/21	Data File: 072715.D
Matrix: Soil	Instrument: GCMS4
Units: mg/kg (ppm) Dry Weight	Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	90	109
Toluene-d8	98	89	112
4-Bromofluorobenzene	98	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID:	NE6.5-SW-4.5'	Client:	Whitman Environmental Sciences
Date Received:	07/23/21	Project:	12th and Yesler WES 1591, F&BI 107400
Date Extracted:	07/27/21	Lab ID:	107400-04
Date Analyzed:	07/27/21	Data File:	072716.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	90	109
Toluene-d8	98	89	112
4-Bromofluorobenzene	97	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.10
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	<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)	<1	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	<1	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 8260D

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591, F&BI 107400
Date Extracted:	07/27/21	Lab ID:	01-1700 mb
Date Analyzed:	07/27/21	Data File:	072709.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	90	109
Toluene-d8	97	89	112
4-Bromofluorobenzene	100	84	115

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	<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)	<1	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	<1	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

Date of Report: 07/30/21

Date Received: 07/23/21

Project: 12th and Yesler WES 1591, F&BI 107400

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

Laboratory Code: 107400-01 (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	2.70	90	91	75-125	1
Cadmium	mg/kg (ppm)	10	<1	107	109	75-125	2
Chromium	mg/kg (ppm)	50	18.8	90	91	75-125	1
Lead	mg/kg (ppm)	50	7.21	85	88	75-125	3
Mercury	mg/kg (ppm)	5	<1	101	103	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	88	80-120
Cadmium	mg/kg (ppm)	10	104	80-120
Chromium	mg/kg (ppm)	50	104	80-120
Lead	mg/kg (ppm)	50	93	80-120
Mercury	mg/kg (ppm)	5	107	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/21

Date Received: 07/23/21

Project: 12th and Yesler WES 1591, F&BI 107400

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

Laboratory Code: 107400-01 (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)	1	<0.5	19	19	10-142	0
Chloromethane	mg/kg (ppm)	1	<0.5	36	36	10-126	0
Vinyl chloride	mg/kg (ppm)	1	<0.05	46	46	10-138	0
Bromomethane	mg/kg (ppm)	1	<0.5	65	65	10-163	0
Chloroethane	mg/kg (ppm)	1	<0.5	64	65	10-176	2
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	60	55	10-176	9
Acetone	mg/kg (ppm)	5	<5	48	46	10-163	4
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	70	65	10-160	7
Hexane	mg/kg (ppm)	1	<0.25	58	50	10-137	15
Methylene chloride	mg/kg (ppm)	1	<0.5	81	91	10-156	12
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	79	79	21-145	0
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	73	72	14-137	1
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	76	75	19-140	1
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	86	88	10-158	2
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	79	80	25-135	1
Chloroform	mg/kg (ppm)	1	<0.05	77	78	21-145	1
2-Butanone (MEK)	mg/kg (ppm)	5	<1	64	61	19-147	5
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	80	79	12-160	1
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	75	77	10-156	3
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	78	77	17-140	1
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	80	80	9-164	0
Benzene	mg/kg (ppm)	1	<0.03	78	77	29-129	1
Trichloroethene	mg/kg (ppm)	1	<0.02	81	80	21-139	1
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	80	78	30-135	3
Bromodichloromethane	mg/kg (ppm)	1	<0.05	80	77	23-155	4
Dibromomethane	mg/kg (ppm)	1	<0.05	82	83	23-145	1
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	83	81	24-155	2
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	79	79	28-144	0
Toluene	mg/kg (ppm)	1	<0.05	81	80	35-130	1
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	78	76	26-149	3
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	82	78	10-205	5
2-Hexanone	mg/kg (ppm)	5	<0.5	71	67	15-166	6
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	82	80	31-137	2
Tetrachloroethene	mg/kg (ppm)	1	<0.025	85	79	20-133	7
Dibromochloromethane	mg/kg (ppm)	1	<0.05	78	77	28-150	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	83	78	28-142	6
Chlorobenzene	mg/kg (ppm)	1	<0.05	84	81	32-129	4
Ethylbenzene	mg/kg (ppm)	1	<0.05	83	81	32-137	2
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	84	82	31-143	2
m,p-Xylene	mg/kg (ppm)	2	<0.1	84	82	34-136	2
o-Xylene	mg/kg (ppm)	1	<0.05	83	81	33-134	2
Styrene	mg/kg (ppm)	1	<0.05	83	80	35-137	4
Isopropylbenzene	mg/kg (ppm)	1	<0.05	83	82	31-142	1
Bromoform	mg/kg (ppm)	1	<0.05	74	74	21-156	0
n-Propylbenzene	mg/kg (ppm)	1	<0.05	84	82	23-146	2
Bromobenzene	mg/kg (ppm)	1	<0.05	85	82	34-130	4
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	84	83	18-149	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	83	81	28-140	2
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	82	82	25-144	0
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	84	82	31-134	2
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	83	82	31-136	1
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	86	85	30-137	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	83	82	10-182	1
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	86	85	23-145	1
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	87	87	21-149	0
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	85	84	30-131	1
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	84	84	29-129	0
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	85	84	31-132	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	76	77	11-161	1
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	83	86	22-142	4
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	88	90	10-142	2
Naphthalene	mg/kg (ppm)	1	<0.05	81	82	14-157	1
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	85	85	20-144	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/21

Date Received: 07/23/21

Project: 12th and Yesler WES 1591, F&BI 107400

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	51	10-146
Chloromethane	mg/kg (ppm)	1	68	27-133
Vinyl chloride	mg/kg (ppm)	1	74	22-139
Bromomethane	mg/kg (ppm)	1	80	38-114
Chloroethane	mg/kg (ppm)	1	88	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	90	10-196
Acetone	mg/kg (ppm)	5	101	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	95	47-128
Hexane	mg/kg (ppm)	1	89	43-142
Methylene chloride	mg/kg (ppm)	1	107	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	97	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	94	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	96	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	118	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	99	72-127
Chloroform	mg/kg (ppm)	1	95	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	93	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	96	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	97	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	97	69-128
Carbon tetrachloride	mg/kg (ppm)	1	102	60-139
Benzene	mg/kg (ppm)	1	94	71-118
Trichloroethene	mg/kg (ppm)	1	96	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	92	72-127
Bromodichloromethane	mg/kg (ppm)	1	93	57-126
Dibromomethane	mg/kg (ppm)	1	98	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	92	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	93	67-122
Toluene	mg/kg (ppm)	1	94	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	93	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	93	64-115
2-Hexanone	mg/kg (ppm)	5	91	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	91	72-130
Tetrachloroethene	mg/kg (ppm)	1	97	72-114
Dibromochloromethane	mg/kg (ppm)	1	96	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	93	74-132
Chlorobenzene	mg/kg (ppm)	1	96	76-111
Ethylbenzene	mg/kg (ppm)	1	97	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	104	64-121
m,p-Xylene	mg/kg (ppm)	2	99	78-122
o-Xylene	mg/kg (ppm)	1	100	77-124
Styrene	mg/kg (ppm)	1	97	74-126
Isopropylbenzene	mg/kg (ppm)	1	99	76-127
Bromoform	mg/kg (ppm)	1	93	56-132
n-Propylbenzene	mg/kg (ppm)	1	96	74-124
Bromobenzene	mg/kg (ppm)	1	97	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	98	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	96	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	92	61-137
2-Chlorotoluene	mg/kg (ppm)	1	97	74-121
4-Chlorotoluene	mg/kg (ppm)	1	95	75-122
tert-Butylbenzene	mg/kg (ppm)	1	99	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	97	76-125
sec-Butylbenzene	mg/kg (ppm)	1	100	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	101	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	100	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	97	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	101	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	94	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	103	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	109	50-153
Naphthalene	mg/kg (ppm)	1	100	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	104	63-138

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.



Am Test Inc.  
13600 NE 126TH PL  
Suite C  
Kirkland, WA 98034  
(425) 885-1664

Professional  
Analytical  
Services

Aug 16 2021  
Friedman & Bruya, Inc.  
3012 16th Avenue West  
Seattle, WA 98119-2029  
Attention: MICHAEL ERDAHL

Dear MICHAEL ERDAHL:

Enclosed please find the analytical data for your project.

The following is a cross correlation of client and laboratory identifications for your convenience.

CLIENT ID	MATRIX	AMTEST ID	TEST
CBS-ORG-4	Soil	21-A010657	OM std mth

Your sample was received on Monday, July 26, 2021. At the time of receipt, the sample was logged in and properly maintained prior to the subsequent analysis.

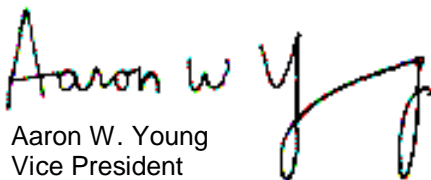
The analytical procedures used at AmTest are well documented and are typically derived from the protocols of the EPA, USDA, FDA or the Army Corps of Engineers.

Following the analytical data you will find the Quality Control (QC) results.

Please note that the detection limits that are listed in the body of the report refer to the Practical Quantitation Limits (PQL's), as opposed to the Method Detection Limits (MDL's).

If you should have any questions pertaining to the data package, please feel free to contact me.

Sincerely,

  
Aaron W. Young  
Vice President

Project #: 107400  
PO Number: B-331

BACT = Bacteriological  
CONV = Conventional

MET = Metals  
ORG = Organics

NUT=Nutrients  
DEM=Demand

MIN=Minerals

**Am Test Inc.**  
13600 NE 126TH PL  
Suite C  
Kirkland, WA 98034  
(425) 885-1664  
www.amtestlab.com



**Professional  
Analytical  
Services**

## ANALYSIS REPORT

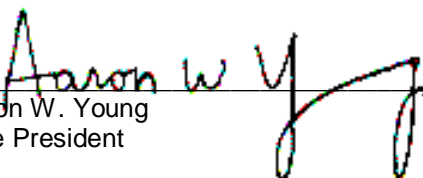
Friedman & Bruya, Inc.  
3012 16th Avenue West  
Seattle, WA 98119-2029  
Attention: MICHAEL ERDAHL  
Project #: 107400  
PO Number: B-331  
All results reported on an as received basis.

Date Received: 07/26/21  
Date Reported: 8/16/21

**AMTEST Identification Number** 21-A010657  
**Client Identification** CBS-ORG-4  
**Sampling Date** 07/16/21

### Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Organic Matter	13.6	%			SM 2540G	MD	08/02/21

  
Aaron W. Young  
Vice President

**Am Test Inc.**  
13600 NE 126th PL  
Suite C  
Kirkland, WA, 98034  
(425) 885-1664  
www.amtestlab.com



*Professional  
Analytical  
Services*

**QC Summary for sample number: 21-A010657**

**DUPLICATES**

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
21-A010716	Organic Matter	%	2.9	3.0	3.4

**SUBCONTRACT SAMPLE CHAIN OF CUSTODY**

Send Report To Michael Erdahl  
 Company Friedman and Bruya, Inc.  
 Address 3012 16th Ave W  
 City, State, ZIP Seattle, WA 98119  
 Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTOR <b>AMTEST</b>	
PROJECT NAME/NO. <b>107400</b>	PO # <b>B-331</b>
REMARKS	

Page # 1 of 1

TURNAROUND TIME 1  Standard (1 Week)  RUSH

Rush charges authorized by: \_\_\_\_\_

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Containers	ANALYSES REQUESTED						
						TOC	Nitrate	Nitrite	Sulfate	Sulfide	Alkalinity	Ferrous Iron
<b>CBS-DRG-14</b>	<b>10657</b>	<b>7-16</b>	<b>PM</b>	<b>SOIL</b>	<b>1</b>							<input checked="" type="checkbox"/> <b>organic matter</b>

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
<i>[Signature]</i>	Ann Weber-Bruya	Friedman & Bruya	<b>7/26/21</b>	<b>1100</b>
Relinquished by:				
Received by:	<b>A STAB</b>	<b>AMTEST</b>	<b>7/26/21</b>	<b>1425</b>
Relinquished by:				
Received by:				

FORMS\COC\Subcontract.DOC

**T=15.2**

**FEDEX**

107400

Report To: *[Signature]*

Company: *Friedman & Bruya, Inc.*

Address: *5812 16th Ave West*

City, State, ZIP: *Seattle, WA 98119*

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

SAMPLERS (signature)

PROJECT NAME

REMARKS: *1774 - 1/5/10*

PO #

Project specific RI's? Yes / No

ME 07/23/21

Page # \_\_\_\_\_ of \_\_\_\_\_

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples

Other

Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED										Notes								
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082												
<i>NE 5-50-3.5' 01 A-E</i>	<i>02</i>	<i>7-16</i>	<i>PM</i>	<i>SOIL</i>	<i>5</i>					<i>X</i>														
<i>NE 5-50-6'</i>	<i>03</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>5</i>					<i>X</i>														
<i>NE 6.5-50-1.5'</i>	<i>04</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>5</i>					<i>X</i>														
<i>CB5-OR2-1</i>	<i>05</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>1</i>										<i>X</i>									

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<i>[Signature]</i>	<i>[Name]</i>	<i>CB5</i>	<i>7/23/21</i>	<i>4:15</i>
<i>[Signature]</i>	<i>VINDA</i>	<i>FBP</i>	<i>7/23/21</i>	<i>4:15</i>
<i>[Signature]</i>				

Received by: \_\_\_\_\_ Samples received at 18 °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 30, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on August 24, 2021 from the 12th and Yesler WES 1591, F&BI 108382 project. There are 16 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  
WES0830R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 24, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 108382 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
108382 -01	NSW-46E/0S-4.5'
108382 -02	NSW-47E/4N-6'
108382 -03	SSW-48E/6S-3'
108382 -04	ESW-51E/4S-3.5'
108382 -05	WSW-42E/3S-3'
108382 -06	E13/N12-B'
108382 -07	NSW-47E/4.5N-6.5'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	NSW-46E/OS-4.5'	Client:	Whitman Environmental Sciences
Date Received:	08/24/21	Project:	12th and Yesler WES 1591
Date Extracted:	08/25/21	Lab ID:	108382-01
Date Analyzed:	08/25/21	Data File:	108382-01.069
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.18
Cadmium	<1
Lead	14.7
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	NSW-46E/0S-4.5'	Client:	Whitman Environmental Sciences
Date Received:	08/24/21	Project:	12th and Yesler WES 1591
Date Extracted:	08/25/21	Lab ID:	108382-01 x5
Date Analyzed:	08/25/21	Data File:	108382-01 x5.085
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	11.3
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E13/N12-B'	Client:	Whitman Environmental Sciences
Date Received:	08/24/21	Project:	12th and Yesler WES 1591
Date Extracted:	08/25/21	Lab ID:	108382-06
Date Analyzed:	08/25/21	Data File:	108382-06.078
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	5.05
Cadmium	<1
Lead	3.26
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E13/N12-B'	Client:	Whitman Environmental Sciences
Date Received:	08/24/21	Project:	12th and Yesler WES 1591
Date Extracted:	08/25/21	Lab ID:	108382-06 x5
Date Analyzed:	08/25/21	Data File:	108382-06 x5.086
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	24.1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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:	08/25/21	Lab ID:	I1-529 mb
Date Analyzed:	08/25/21	Data File:	I1-529 mb.053
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	NSW-46E/0S-4.5'	Client:	Whitman Environmental Sciences
Date Received:	08/24/21	Project:	12th and Yesler WES 1591
Date Extracted:	08/26/21	Lab ID:	108382-01
Date Analyzed:	08/26/21	Data File:	082614.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	90	109
Toluene-d8	98	89	112
4-Bromofluorobenzene	97	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID:	NSW-47E/4N-6'	Client:	Whitman Environmental Sciences
Date Received:	08/24/21	Project:	12th and Yesler WES 1591
Date Extracted:	08/26/21	Lab ID:	108382-02
Date Analyzed:	08/26/21	Data File:	082615.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	90	109
Toluene-d8	97	89	112
4-Bromofluorobenzene	96	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID:	SSW-48E/6S-3'	Client:	Whitman Environmental Sciences
Date Received:	08/24/21	Project:	12th and Yesler WES 1591
Date Extracted:	08/26/21	Lab ID:	108382-03
Date Analyzed:	08/26/21	Data File:	082616.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	90	109
Toluene-d8	98	89	112
4-Bromofluorobenzene	97	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID:	ESW-51E/4S-3.5'	Client:	Whitman Environmental Sciences
Date Received:	08/24/21	Project:	12th and Yesler WES 1591
Date Extracted:	08/26/21	Lab ID:	108382-04
Date Analyzed:	08/26/21	Data File:	082617.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	90	109
Toluene-d8	98	89	112
4-Bromofluorobenzene	95	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID:	WSW-42E/3S-3'	Client:	Whitman Environmental Sciences
Date Received:	08/24/21	Project:	12th and Yesler WES 1591
Date Extracted:	08/26/21	Lab ID:	108382-05
Date Analyzed:	08/26/21	Data File:	082618.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	90	109
Toluene-d8	99	89	112
4-Bromofluorobenzene	97	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591
Date Extracted:	08/26/21	Lab ID:	01-1865 mb
Date Analyzed:	08/26/21	Data File:	082608.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	90	109
Toluene-d8	97	89	112
4-Bromofluorobenzene	96	84	115

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	<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)	<1	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	<1	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

Date of Report: 08/30/21

Date Received: 08/24/21

Project: 12th and Yesler WES 1591, F&BI 108382

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

Laboratory Code: 108380-01 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	89	92	75-125	3
Cadmium	mg/kg (ppm)	10	<5	95	96	75-125	1
Chromium	mg/kg (ppm)	50	14.7	93	92	75-125	1
Lead	mg/kg (ppm)	50	<5	95	96	75-125	1
Mercury	mg/kg (ppm)	5	<5	97	97	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	91	80-120
Cadmium	mg/kg (ppm)	10	99	80-120
Chromium	mg/kg (ppm)	50	103	80-120
Lead	mg/kg (ppm)	50	97	80-120
Mercury	mg/kg (ppm)	5	102	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/30/21

Date Received: 08/24/21

Project: 12th and Yesler WES 1591, F&BI 108382

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

Laboratory Code: 108382-01 (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)	1	<0.5	23	22	10-142	4
Chloromethane	mg/kg (ppm)	1	<0.5	49	50	10-126	2
Vinyl chloride	mg/kg (ppm)	1	<0.05	51	51	10-138	0
Bromomethane	mg/kg (ppm)	1	<0.5	67	69	10-163	3
Chloroethane	mg/kg (ppm)	1	<0.5	66	67	10-176	2
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	61	60	10-176	2
Acetone	mg/kg (ppm)	5	<5	88	90	10-163	2
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	68	68	10-160	0
Hexane	mg/kg (ppm)	1	<0.25	60	61	10-137	2
Methylene chloride	mg/kg (ppm)	1	<0.5	74	67	10-156	10
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	79	82	21-145	4
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	76	78	14-137	3
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	76	77	19-140	1
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	86	86	10-158	0
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	84	86	25-135	2
Chloroform	mg/kg (ppm)	1	<0.05	82	82	21-145	0
2-Butanone (MEK)	mg/kg (ppm)	5	<1	93	92	19-147	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	81	81	12-160	0
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	80	80	10-156	0
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	80	79	17-140	1
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	79	79	9-164	0
Benzene	mg/kg (ppm)	1	<0.03	81	81	29-129	0
Trichloroethene	mg/kg (ppm)	1	<0.02	80	81	21-139	1
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	84	83	30-135	1
Bromodichloromethane	mg/kg (ppm)	1	<0.05	80	80	23-155	0
Dibromomethane	mg/kg (ppm)	1	<0.05	85	84	23-145	1
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	90	91	24-155	1
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	86	87	28-144	1
Toluene	mg/kg (ppm)	1	<0.05	82	83	35-130	1
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	85	85	26-149	0
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	84	84	10-205	0
2-Hexanone	mg/kg (ppm)	5	<0.5	95	91	15-166	4
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	83	83	31-137	0
Tetrachloroethene	mg/kg (ppm)	1	0.18	86	85	20-133	1
Dibromochloromethane	mg/kg (ppm)	1	<0.05	80	81	28-150	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	84	84	28-142	0
Chlorobenzene	mg/kg (ppm)	1	<0.05	83	83	32-129	0
Ethylbenzene	mg/kg (ppm)	1	<0.05	84	83	32-137	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	84	84	31-143	0
m,p-Xylene	mg/kg (ppm)	2	<0.1	84	85	34-136	1
o-Xylene	mg/kg (ppm)	1	<0.05	82	84	33-134	2
Styrene	mg/kg (ppm)	1	<0.05	83	82	35-137	1
Isopropylbenzene	mg/kg (ppm)	1	<0.05	88	87	31-142	1
Bromoform	mg/kg (ppm)	1	<0.05	87	87	21-156	0
n-Propylbenzene	mg/kg (ppm)	1	<0.05	82	84	23-146	2
Bromobenzene	mg/kg (ppm)	1	<0.05	81	84	34-130	4
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	85	88	18-149	3
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	87	86	28-140	1
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	86	87	25-144	1
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	81	83	31-134	2
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	81	82	31-136	1
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	84	87	30-137	4
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	81	83	10-182	2
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	85	87	23-145	2
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	86	89	21-149	3
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	79	82	30-131	4
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	80	82	29-129	2
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	82	85	31-132	4
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	80	83	11-161	4
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	81	86	22-142	6
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	89	95	10-142	7
Naphthalene	mg/kg (ppm)	1	<0.05	75	79	14-157	5
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	83	87	20-144	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/30/21

Date Received: 08/24/21

Project: 12th and Yesler WES 1591, F&BI 108382

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	60	10-146
Chloromethane	mg/kg (ppm)	1	71	27-133
Vinyl chloride	mg/kg (ppm)	1	80	22-139
Bromomethane	mg/kg (ppm)	1	93	38-114
Chloroethane	mg/kg (ppm)	1	89	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	89	10-196
Acetone	mg/kg (ppm)	5	104	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	94	47-128
Hexane	mg/kg (ppm)	1	84	43-142
Methylene chloride	mg/kg (ppm)	1	100	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	95	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	98	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	95	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	114	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	104	72-127
Chloroform	mg/kg (ppm)	1	98	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	106	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	96	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	100	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	100	69-128
Carbon tetrachloride	mg/kg (ppm)	1	97	60-139
Benzene	mg/kg (ppm)	1	98	71-118
Trichloroethene	mg/kg (ppm)	1	96	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	99	72-127
Bromodichloromethane	mg/kg (ppm)	1	95	57-126
Dibromomethane	mg/kg (ppm)	1	100	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	108	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	102	67-122
Toluene	mg/kg (ppm)	1	100	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	101	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	102	64-115
2-Hexanone	mg/kg (ppm)	5	109	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	100	72-130
Tetrachloroethene	mg/kg (ppm)	1	104	72-114
Dibromochloromethane	mg/kg (ppm)	1	98	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	101	74-132
Chlorobenzene	mg/kg (ppm)	1	100	76-111
Ethylbenzene	mg/kg (ppm)	1	101	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	100	64-121
m,p-Xylene	mg/kg (ppm)	2	104	78-122
o-Xylene	mg/kg (ppm)	1	100	77-124
Styrene	mg/kg (ppm)	1	104	74-126
Isopropylbenzene	mg/kg (ppm)	1	103	76-127
Bromoform	mg/kg (ppm)	1	107	56-132
n-Propylbenzene	mg/kg (ppm)	1	97	74-124
Bromobenzene	mg/kg (ppm)	1	99	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	100	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	103	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	103	61-137
2-Chlorotoluene	mg/kg (ppm)	1	97	74-121
4-Chlorotoluene	mg/kg (ppm)	1	98	75-122
tert-Butylbenzene	mg/kg (ppm)	1	99	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	98	76-125
sec-Butylbenzene	mg/kg (ppm)	1	98	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	101	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	99	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	99	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	101	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	94	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	102	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	102	50-153
Naphthalene	mg/kg (ppm)	1	103	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	101	63-138

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

108382

SAMPLE CHAIN OF CUSTODY

ME 8/24/21

BT2 V33

Page # of

Report To: [Signature]  
 Company: Williams & Morrow  
 Address: 1111 1st Ave NE  
 City, State, ZIP: Seattle WA 98105  
 Phone: [Signature] Email: [Signature]

SAMPLERS (signature)	PROJECT NAME <u>BTM + K515R</u>	PO # <u>2065 15991</u>
REMARKS <u>Miller camp</u>	INVOICE TO	
Project specific PIs? - Yes / No		

TURNAROUND TIME  
 Standard turnaround  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL  
 Archive samples  
 Other  
 Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		
<u>ASD-112/08-KS1A-D</u>		<u>8-24</u>	<u>11</u>	<u>Soil</u>	<u>5</u>					<input checked="" type="checkbox"/>	<u>NO</u>			<u>only 3 used</u>
<u>ASD-112/11-6' GRAVE</u>		<u>8-24</u>	<u>11</u>	<u>Soil</u>	<u>5</u>					<input checked="" type="checkbox"/>				
<u>ASD-112/15-3'</u>	<u>03</u>	<u>8-24</u>	<u>11</u>	<u>Soil</u>	<u>5</u>					<input checked="" type="checkbox"/>				
<u>ASD-112/15-3.5'</u>		<u>8-24</u>	<u>11</u>	<u>Soil</u>	<u>5</u>					<input checked="" type="checkbox"/>				
<u>ASD-112/33-3'</u>	<u>05</u>	<u>8-24</u>	<u>11</u>	<u>Soil</u>	<u>5</u>					<input checked="" type="checkbox"/>				
<u>ELB/112-B</u>	<u>06</u>	<u>8-23</u>	<u>11</u>	<u>Soil</u>	<u>1</u>					<input checked="" type="checkbox"/>				
<u>ASD-112/15-5.0'</u>	<u>07</u>	<u>8-24</u>	<u>11</u>	<u>Soil</u>	<u>1</u>					<input checked="" type="checkbox"/>				<u>also used</u>

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
<u>[Signature]</u>		<u>Michael E. Kelli</u>		<u>W&amp;M</u>		<u>8-24</u>	<u>3:49</u>
Received by: <u>[Signature]</u>						<u>8/24/21</u>	<u>15:49</u>
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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November 18, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on November 15, 2021 from the 12th & Yesler WES 1591, F&BI 111281 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  
WES1118R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 15, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th & Yesler WES 1591, F&BI 111281 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
111281 -01	40E/2S-4.5'
111281 -02	48E/2S-4.5'
111281 -03	60E/2S-4.5'

The 8260D samples were taken from four ounce soil jars. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	40E/2S-4.5' pc	Client:	Whitman Environmental Sciences
Date Received:	11/15/21	Project:	WES 1591, F&BI 111281
Date Extracted:	11/16/21	Lab ID:	111281-01
Date Analyzed:	11/16/21	Data File:	111609.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	90	109
Toluene-d8	99	89	112
4-Bromofluorobenzene	94	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID:	48E/2S-4.5' pc	Client:	Whitman Environmental Sciences
Date Received:	11/15/21	Project:	WES 1591, F&BI 111281
Date Extracted:	11/16/21	Lab ID:	111281-02
Date Analyzed:	11/16/21	Data File:	111611.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	90	109
Toluene-d8	99	89	112
4-Bromofluorobenzene	98	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID:	60E/2S-4.5' pc	Client:	Whitman Environmental Sciences
Date Received:	11/15/21	Project:	WES 1591, F&BI 111281
Date Extracted:	11/16/21	Lab ID:	111281-03
Date Analyzed:	11/16/21	Data File:	111610.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	90	109
Toluene-d8	100	89	112
4-Bromofluorobenzene	98	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	WES 1591, F&BI 111281
Date Extracted:	11/16/21	Lab ID:	01-2581 mb
Date Analyzed:	11/16/21	Data File:	111605.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	90	109
Toluene-d8	97	89	112
4-Bromofluorobenzene	99	84	115

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	<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)	<1	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	<1	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

Date of Report: 11/18/21

Date Received: 11/15/21

Project: 12th & Yesler WES 1591, F&BI 111281

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

Laboratory Code: 111281-01 (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)	1	<0.5	12	9 vo	10-142	29 vo
Chloromethane	mg/kg (ppm)	1	<0.5	42	40	10-126	5
Vinyl chloride	mg/kg (ppm)	1	<0.05	46	42	10-138	9
Bromomethane	mg/kg (ppm)	1	<0.5	75	82	10-163	9
Chloroethane	mg/kg (ppm)	1	<0.5	62	58	10-176	7
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	47	42	10-176	11
Acetone	mg/kg (ppm)	5	<5	81	81	10-163	0
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	69	62	10-160	11
Hexane	mg/kg (ppm)	1	<0.25	41	34	10-137	19
Methylene chloride	mg/kg (ppm)	1	<0.5	81	79	10-156	2
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	89	87	21-145	2
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	81	75	14-137	8
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	83	79	19-140	5
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	106	104	10-158	2
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	87	84	25-135	4
Chloroform	mg/kg (ppm)	1	<0.05	84	84	21-145	0
2-Butanone (MEK)	mg/kg (ppm)	5	<1	84	80	19-147	5
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	90	88	12-160	2
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	84	78	10-156	7
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	81	77	17-140	5
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	79	74	9-164	7
Benzene	mg/kg (ppm)	1	<0.03	84	81	29-129	4
Trichloroethene	mg/kg (ppm)	1	<0.02	81	79	21-139	2
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	88	85	30-135	3
Bromodichloromethane	mg/kg (ppm)	1	<0.05	89	89	23-155	0
Dibromomethane	mg/kg (ppm)	1	<0.05	88	89	23-145	1
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	90	88	24-155	2
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	90	91	28-144	1
Toluene	mg/kg (ppm)	1	<0.05	86	87	35-130	1
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	89	90	26-149	1
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	89	88	10-205	1
2-Hexanone	mg/kg (ppm)	5	<0.5	84	85	15-166	1
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	87	86	31-137	1
Tetrachloroethene	mg/kg (ppm)	1	<0.025	89	86	20-133	3
Dibromochloromethane	mg/kg (ppm)	1	<0.05	86	87	28-150	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	88	87	28-142	1
Chlorobenzene	mg/kg (ppm)	1	<0.05	89	88	32-129	1
Ethylbenzene	mg/kg (ppm)	1	<0.05	87	86	32-137	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	90	90	31-143	0
m,p-Xylene	mg/kg (ppm)	2	<0.1	87	87	34-136	0
o-Xylene	mg/kg (ppm)	1	<0.05	93	91	33-134	2
Styrene	mg/kg (ppm)	1	<0.05	89	90	35-137	1
Isopropylbenzene	mg/kg (ppm)	1	<0.05	91	90	31-142	1
Bromoform	mg/kg (ppm)	1	<0.05	84	83	21-156	1
n-Propylbenzene	mg/kg (ppm)	1	<0.05	88	86	23-146	2
Bromobenzene	mg/kg (ppm)	1	<0.05	91	90	34-130	1
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	90	88	18-149	2
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	93	92	28-140	1
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	89	90	25-144	1
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	90	88	31-134	2
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	90	89	31-136	1
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	92	90	30-137	2
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	92	88	10-182	4
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	90	89	23-145	1
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	94	90	21-149	4
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	90	87	30-131	3
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	90	88	29-129	2
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	91	91	31-132	0
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	92	87	11-161	6
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	93	93	22-142	0
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	99	98	10-142	1
Naphthalene	mg/kg (ppm)	1	<0.05	90	90	14-157	0
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	90	92	20-144	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/18/21

Date Received: 11/15/21

Project: 12th & Yesler WES 1591, F&BI 111281

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	42	10-146
Chloromethane	mg/kg (ppm)	1	65	27-133
Vinyl chloride	mg/kg (ppm)	1	77	22-139
Bromomethane	mg/kg (ppm)	1	84	38-114
Chloroethane	mg/kg (ppm)	1	84	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	83	10-196
Acetone	mg/kg (ppm)	5	95	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	96	47-128
Hexane	mg/kg (ppm)	1	89	43-142
Methylene chloride	mg/kg (ppm)	1	97	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	100	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	100	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	99	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	127	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	101	72-127
Chloroform	mg/kg (ppm)	1	99	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	94	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	104	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	98	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	99	69-128
Carbon tetrachloride	mg/kg (ppm)	1	96	60-139
Benzene	mg/kg (ppm)	1	99	71-118
Trichloroethene	mg/kg (ppm)	1	97	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	101	72-127
Bromodichloromethane	mg/kg (ppm)	1	103	57-126
Dibromomethane	mg/kg (ppm)	1	102	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	100	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	103	67-122
Toluene	mg/kg (ppm)	1	100	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	101	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	101	64-115
2-Hexanone	mg/kg (ppm)	5	96	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	101	72-130
Tetrachloroethene	mg/kg (ppm)	1	105	72-114
Dibromochloromethane	mg/kg (ppm)	1	100	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	101	74-132
Chlorobenzene	mg/kg (ppm)	1	102	76-111
Ethylbenzene	mg/kg (ppm)	1	99	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	104	64-121
m,p-Xylene	mg/kg (ppm)	2	101	78-122
o-Xylene	mg/kg (ppm)	1	106	77-124
Styrene	mg/kg (ppm)	1	102	74-126
Isopropylbenzene	mg/kg (ppm)	1	104	76-127
Bromoform	mg/kg (ppm)	1	95	56-132
n-Propylbenzene	mg/kg (ppm)	1	99	74-124
Bromobenzene	mg/kg (ppm)	1	99	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	99	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	101	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	99	61-137
2-Chlorotoluene	mg/kg (ppm)	1	98	74-121
4-Chlorotoluene	mg/kg (ppm)	1	99	75-122
tert-Butylbenzene	mg/kg (ppm)	1	102	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	100	76-125
sec-Butylbenzene	mg/kg (ppm)	1	99	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	101	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	99	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	100	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	102	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	97	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	103	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	109	50-153
Naphthalene	mg/kg (ppm)	1	98	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	101	63-138

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

111281

SAMPLE CHAIN OF CUSTODY

ME 11-15-21

CF

Page # of

SAMPLERS (signature)

PROJECT NAME

PO #

13TH + 1/2" ROR

6053 / 13191

REMARKS

INVOICE TO

TURNAROUND TIME

Standard turnaround

X RUSH 3 days

Rush charges authorized by:

SAMPLE DISPOSAL

Archive samples

Other

Default: Dispose after 30 days

Report To: [Signature]  
Company: CHIMMUS ENVIRONMENTAL SERVICES  
Address: 888 15th Ave NW  
City, State, ZIP: Seattle, WA 98119  
Phone: [Signature] Email: [Signature]

Project specific PIs? - Yes / No

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082			
40E/RS-7.5'	01	11-15	11 AM	soil	1					X					
48E/RS-7.5'	02									X					
60E/RS-7.5'	03									X					

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

SIGNATURE		PRINT NAME		COMPANY		DATE		TIME	
Relinquished by: <u>[Signature]</u>		<u>[Signature]</u>		<u>DES</u>		<u>11/15/21</u>		<u>3:00</u>	
Received by: <u>[Signature]</u>		<u>Dhan Phan</u>		<u>FE BT</u>		<u>11/15/21</u>		<u>1400</u>	
Relinquished by:									
Received by:						Samples received at <u>15°C</u>			

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

December 13, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on December 7, 2021 from the 12th + Yesler WES 1591, F&BI 112115 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  
WES1213R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on December 7, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th + Yesler WES 1591, F&BI 112115 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
112115 -01	62E/5S-4.5'
112115 -02	65E/8S-6.5'
112115 -03	72E/6S-7'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/13/21  
Date Received: 12/07/21  
Project: 12th + Yesler WES 1591, F&BI 112115  
Date Extracted: 12/08/21  
Date Analyzed: 12/08/21

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
62E/5S-4.5' 112115-01	<50	<250	96
65E/8S-6.5' 112115-02	<50	<250	95
72E/6S-7' 112115-03	<50	<250	94
Method Blank 01-2864 MB	<50	<250	105

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID: 62E/5S-4.5'	Client: Whitman Environmental Sciences
Date Received: 12/07/21	Project: 12th + Yesler WES 1591, F&BI
112115	
Date Extracted: 12/08/21	Lab ID: 112115-01
Date Analyzed: 12/08/21	Data File: 120812.D
Matrix: Soil	Instrument: GCMS4
Units: mg/kg (ppm) Dry Weight	Operator: WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	90	109
Toluene-d8	101	89	112
4-Bromofluorobenzene	97	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID: 65E/8S-6.5'	Client: Whitman Environmental Sciences
Date Received: 12/07/21 112115	Project: 12th + Yesler WES 1591, F&BI
Date Extracted: 12/08/21	Lab ID: 112115-02
Date Analyzed: 12/08/21	Data File: 120813.D
Matrix: Soil	Instrument: GCMS4
Units: mg/kg (ppm) Dry Weight	Operator: WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	90	109
Toluene-d8	102	89	112
4-Bromofluorobenzene	92	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID: 72E/6S-7	Client: Whitman Environmental Sciences
Date Received: 12/07/21	Project: 12th + Yesler WES 1591, F&BI
112115	
Date Extracted: 12/08/21	Lab ID: 112115-03
Date Analyzed: 12/08/21	Data File: 120814.D
Matrix: Soil	Instrument: GCMS4
Units: mg/kg (ppm) Dry Weight	Operator: WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	90	109
Toluene-d8	100	89	112
4-Bromofluorobenzene	97	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th + Yesler WES 1591, F&BI
	112115		
Date Extracted:	12/08/21	Lab ID:	01-2766 mb
Date Analyzed:	12/08/21	Data File:	120805.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	90	109
Toluene-d8	100	89	112
4-Bromofluorobenzene	99	84	115

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	<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)	<1	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	<1	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

Date of Report: 12/13/21

Date Received: 12/07/21

Project: 12th + Yesler WES 1591, F&BI 112115

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 112115-01 (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	112	114	73-135	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	114	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/13/21

Date Received: 12/07/21

Project: 12th + Yesler WES 1591, F&BI 112115

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

Laboratory Code: 112115-01 (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)	1	<0.5	13	15	10-142	14
Chloromethane	mg/kg (ppm)	1	<0.5	38	39	10-126	3
Vinyl chloride	mg/kg (ppm)	1	<0.05	41	40	10-138	2
Bromomethane	mg/kg (ppm)	1	<0.5	79	71	10-163	11
Chloroethane	mg/kg (ppm)	1	<0.5	56	56	10-176	0
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	48	47	10-176	2
Acetone	mg/kg (ppm)	5	<5	79	76	10-163	4
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	63	63	10-160	0
Hexane	mg/kg (ppm)	1	<0.25	35	39	10-137	11
Methylene chloride	mg/kg (ppm)	1	<0.5	78	76	10-156	3
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	79	78	21-145	1
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	69	69	14-137	0
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	70	71	19-140	1
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	101	96	10-158	5
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	76	77	25-135	1
Chloroform	mg/kg (ppm)	1	<0.05	79	77	21-145	3
2-Butanone (MEK)	mg/kg (ppm)	5	<1	70	70	19-147	0
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	85	81	12-160	5
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	76	76	10-156	0
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	72	72	17-140	0
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	76	76	9-164	0
Benzene	mg/kg (ppm)	1	<0.03	73	74	29-129	1
Trichloroethene	mg/kg (ppm)	1	<0.02	73	74	21-139	1
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	73	75	30-135	3
Bromodichloromethane	mg/kg (ppm)	1	<0.05	82	79	23-155	4
Dibromomethane	mg/kg (ppm)	1	<0.05	81	81	23-145	0
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	80	82	24-155	2
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	81	79	28-144	2
Toluene	mg/kg (ppm)	1	<0.05	73	73	35-130	0
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	77	76	26-149	1
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	79	78	10-205	1
2-Hexanone	mg/kg (ppm)	5	<0.5	69	70	15-166	1
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	76	75	31-137	1
Tetrachloroethene	mg/kg (ppm)	1	<0.025	80	82	20-133	2
Dibromochloromethane	mg/kg (ppm)	1	<0.05	78	76	28-150	3
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	79	78	28-142	1
Chlorobenzene	mg/kg (ppm)	1	<0.05	75	76	32-129	1
Ethylbenzene	mg/kg (ppm)	1	<0.05	76	74	32-137	3
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	81	80	31-143	1
m,p-Xylene	mg/kg (ppm)	2	<0.1	73	76	34-136	4
o-Xylene	mg/kg (ppm)	1	<0.05	75	77	33-134	3
Styrene	mg/kg (ppm)	1	<0.05	69	71	35-137	3
Isopropylbenzene	mg/kg (ppm)	1	<0.05	81	80	31-142	1
Bromoform	mg/kg (ppm)	1	<0.05	75	73	21-156	3
n-Propylbenzene	mg/kg (ppm)	1	<0.05	73	74	23-146	1
Bromobenzene	mg/kg (ppm)	1	<0.05	74	74	34-130	0
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	76	77	18-149	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	76	77	28-140	1
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	76	75	25-144	1
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	72	73	31-134	1
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	69	72	31-136	4
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	81	77	30-137	5
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	75	73	10-182	3
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	79	77	23-145	3
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	79	78	21-149	1
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	69	70	30-131	1
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	68	68	29-129	0
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	74	75	31-132	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	73	70	11-161	4
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	71	71	22-142	0
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	97	91	10-142	6
Naphthalene	mg/kg (ppm)	1	<0.05	65	68	14-157	5
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	77	74	20-144	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/13/21

Date Received: 12/07/21

Project: 12th + Yesler WES 1591, F&BI 112115

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	40	10-146
Chloromethane	mg/kg (ppm)	1	51	27-133
Vinyl chloride	mg/kg (ppm)	1	64	22-139
Bromomethane	mg/kg (ppm)	1	102	38-114
Chloroethane	mg/kg (ppm)	1	76	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	85	10-196
Acetone	mg/kg (ppm)	5	75	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	85	47-128
Hexane	mg/kg (ppm)	1	83	43-142
Methylene chloride	mg/kg (ppm)	1	86	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	88	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	86	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	81	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	118	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	83	72-127
Chloroform	mg/kg (ppm)	1	87	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	72	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	92	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	92	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	87	69-128
Carbon tetrachloride	mg/kg (ppm)	1	91	60-139
Benzene	mg/kg (ppm)	1	82	71-118
Trichloroethene	mg/kg (ppm)	1	86	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	83	72-127
Bromodichloromethane	mg/kg (ppm)	1	93	57-126
Dibromomethane	mg/kg (ppm)	1	87	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	86	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	90	67-122
Toluene	mg/kg (ppm)	1	84	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	89	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	88	64-115
2-Hexanone	mg/kg (ppm)	5	74	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	85	72-130
Tetrachloroethene	mg/kg (ppm)	1	92	72-114
Dibromochloromethane	mg/kg (ppm)	1	90	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	88	74-132
Chlorobenzene	mg/kg (ppm)	1	89	76-111
Ethylbenzene	mg/kg (ppm)	1	88	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	89	64-121
m,p-Xylene	mg/kg (ppm)	2	86	78-122
o-Xylene	mg/kg (ppm)	1	89	77-124
Styrene	mg/kg (ppm)	1	89	74-126
Isopropylbenzene	mg/kg (ppm)	1	91	76-127
Bromoform	mg/kg (ppm)	1	86	56-132
n-Propylbenzene	mg/kg (ppm)	1	85	74-124
Bromobenzene	mg/kg (ppm)	1	87	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	86	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	84	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	84	61-137
2-Chlorotoluene	mg/kg (ppm)	1	85	74-121
4-Chlorotoluene	mg/kg (ppm)	1	85	75-122
tert-Butylbenzene	mg/kg (ppm)	1	88	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	86	76-125
sec-Butylbenzene	mg/kg (ppm)	1	86	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	89	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	86	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	88	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	88	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	87	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	94	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	106	50-153
Naphthalene	mg/kg (ppm)	1	89	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	94	63-138

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

112115

SAMPLE CHAIN OF CUSTODY

12-07-21

CO1/VS1

Report To [Signature]

Company FRIEDMAN & BRUYA, INC.

Address 8315 15TH AVE NE

City, State, ZIP SEATTLE, WA 98119

Phone [Signature] Email [Signature]

SAMPLERS (signature)

PROJECT NAME

RM-1/ESTOR

PO #

CO1-1591

REMARKS

INVOICE TO

Project specific RLS? Yes / No

Page # of

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

Archive samples

Other

Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	
<u>GRE/55 - XLS 61 A E</u>	<u>OR</u>	<u>11/12/21</u>	<u>11</u>	<u>SOIL</u>	<u>5</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<u>GRE/55 - XLS 61 A E</u>	<u>OR</u>	<u>11/12/21</u>	<u>11</u>	<u>SOIL</u>	<u>5</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<u>GRE/55 - XLS 61 A E</u>	<u>OR</u>	<u>11/12/21</u>	<u>11</u>	<u>SOIL</u>	<u>5</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

Relinquished by:

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FB1

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Received by:

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PLUMAT TADDESE

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12-07-21

18:07

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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Seattle, WA 98119-2029  
(206) 285-8282  
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December 27, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on December 16, 2021 from the 12th & Yesler WES 1591, F&BI 112341 project. There are 13 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  
WES1227R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on December 16, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th & Yesler WES 1591 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
112341 -01	47E/5S-5'
112341 -02	52E/4S-4.5'
112341 -03	56E/7S-6'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	47E/5S-5'	Client:	Whitman Environmental Sciences
Date Received:	12/16/21	Project:	12th & Yesler WES 1591, F&BI 112341
Date Extracted:	12/20/21	Lab ID:	112341-01
Date Analyzed:	12/20/21	Data File:	112341-01.054
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.41
Cadmium	<1
Lead	4.09

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	52E/4S-4.5'	Client:	Whitman Environmental Sciences
Date Received:	12/16/21	Project:	12th & Yesler WES 1591, F&BI 112341
Date Extracted:	12/20/21	Lab ID:	112341-02
Date Analyzed:	12/20/21	Data File:	112341-02.124
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.96
Cadmium	<1
Lead	10.9

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	56E/7S-6'	Client:	Whitman Environmental Sciences
Date Received:	12/16/21	Project:	12th & Yesler WES 1591, F&BI 112341
Date Extracted:	12/20/21	Lab ID:	112341-03
Date Analyzed:	12/20/21	Data File:	112341-03.146
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	13.2
Cadmium	<1
Lead	16.6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th & Yesler WES 1591, F&BI 112341
Date Extracted:	12/20/21	Lab ID:	I1-849 mb
Date Analyzed:	12/20/21	Data File:	I1-849 mb.036
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	47E/5S-5'	Client:	Whitman Environmental Sciences
Date Received:	12/16/21	Project:	12th & Yesler WES 1591, F&BI 112341
Date Extracted:	12/17/21	Lab ID:	112341-01
Date Analyzed:	12/17/21	Data File:	121723.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	90	109
Toluene-d8	99	89	112
4-Bromofluorobenzene	97	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID: 52E/4S-4.5'	Client: Whitman Environmental Sciences
Date Received: 12/16/21	Project: 12th & Yesler WES 1591, F&BI 112341
Date Extracted: 12/17/21	Lab ID: 112341-02
Date Analyzed: 12/17/21	Data File: 121724.D
Matrix: Soil	Instrument: GCMS4
Units: mg/kg (ppm) Dry Weight	Operator: WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	90	109
Toluene-d8	100	89	112
4-Bromofluorobenzene	98	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID: 56E/7S-6'	Client: Whitman Environmental Sciences
Date Received: 12/16/21	Project: 12th & Yesler WES 1591, F&BI 112341
Date Extracted: 12/17/21	Lab ID: 112341-03
Date Analyzed: 12/17/21	Data File: 121725.D
Matrix: Soil	Instrument: GCMS4
Units: mg/kg (ppm) Dry Weight	Operator: WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	90	109
Toluene-d8	101	89	112
4-Bromofluorobenzene	98	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th & Yesler WES 1591, F&BI 112341
Date Extracted:	12/17/21	Lab ID:	01-2835 mb
Date Analyzed:	12/17/21	Data File:	121705.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	90	109
Toluene-d8	100	89	112
4-Bromofluorobenzene	99	84	115

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	<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)	<1	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	<1	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

Date of Report: 12/27/21

Date Received: 12/16/21

Project: 12th & Yesler WES 1591, F&BI 112341

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

Laboratory Code: 112341-01 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	75	72 vo	75-125	4
Cadmium	mg/kg (ppm)	10	<5	90	90	75-125	0
Lead	mg/kg (ppm)	50	<5	86	84	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	85	80-120
Cadmium	mg/kg (ppm)	10	94	80-120
Lead	mg/kg (ppm)	50	93	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/27/21

Date Received: 12/16/21

Project: 12th & Yesler WES 1591, F&BI 112341

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

Laboratory Code: 112320-06 (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)	1	<0.5	21	17	10-142	21 vo
Chloromethane	mg/kg (ppm)	1	<0.5	50	44	10-126	13
Vinyl chloride	mg/kg (ppm)	1	<0.05	47	48	10-138	2
Bromomethane	mg/kg (ppm)	1	<0.5	56	62	10-163	10
Chloroethane	mg/kg (ppm)	1	<0.5	56	58	10-176	4
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	55	55	10-176	0
Acetone	mg/kg (ppm)	5	<5	86	81	10-163	6
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	64	62	10-160	3
Hexane	mg/kg (ppm)	1	<0.25	53	48	10-137	10
Methylene chloride	mg/kg (ppm)	1	<0.5	73	77	10-156	5
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	82	82	21-145	0
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	71	72	14-137	1
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	77	74	19-140	4
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	85	85	10-158	0
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	82	80	25-135	2
Chloroform	mg/kg (ppm)	1	<0.05	79	81	21-145	2
2-Butanone (MEK)	mg/kg (ppm)	5	<1	81	82	19-147	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	77	78	12-160	1
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	78	78	10-156	0
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	76	75	17-140	1
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	87	84	9-164	4
Benzene	mg/kg (ppm)	1	<0.03	78	78	29-129	0
Trichloroethene	mg/kg (ppm)	1	<0.02	79	75	21-139	5
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	82	82	30-135	0
Bromodichloromethane	mg/kg (ppm)	1	<0.05	81	79	23-155	2
Dibromomethane	mg/kg (ppm)	1	<0.05	80	78	23-145	3
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	85	86	24-155	1
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	83	85	28-144	2
Toluene	mg/kg (ppm)	1	<0.05	78	77	35-130	1
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	81	82	26-149	1
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	82	82	10-205	0
2-Hexanone	mg/kg (ppm)	5	<0.5	82	81	15-166	1
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	77	78	31-137	1
Tetrachloroethene	mg/kg (ppm)	1	<0.025	79	79	20-133	0
Dibromochloromethane	mg/kg (ppm)	1	<0.05	81	81	28-150	0
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	79	79	28-142	0
Chlorobenzene	mg/kg (ppm)	1	<0.05	81	82	32-129	1
Ethylbenzene	mg/kg (ppm)	1	<0.05	81	82	32-137	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	82	83	31-143	1
m,p-Xylene	mg/kg (ppm)	2	<0.1	81	80	34-136	1
o-Xylene	mg/kg (ppm)	1	<0.05	84	84	33-134	0
Styrene	mg/kg (ppm)	1	<0.05	82	80	35-137	2
Isopropylbenzene	mg/kg (ppm)	1	<0.05	81	82	31-142	1
Bromoform	mg/kg (ppm)	1	<0.05	77	77	21-156	0
n-Propylbenzene	mg/kg (ppm)	1	<0.05	81	80	23-146	1
Bromobenzene	mg/kg (ppm)	1	<0.05	82	82	34-130	0
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	81	82	18-149	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	83	84	28-140	1
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	83	81	25-144	2
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	80	81	31-134	1
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	80	81	31-136	1
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	82	82	30-137	0
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	84	86	10-182	2
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	81	82	23-145	1
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	83	82	21-149	1
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	81	82	30-131	1
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	80	81	29-129	1
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	82	84	31-132	2
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	80	81	11-161	1
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	82	82	22-142	0
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	82	82	10-142	0
Naphthalene	mg/kg (ppm)	1	<0.05	81	81	14-157	0
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	80	83	20-144	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/27/21

Date Received: 12/16/21

Project: 12th & Yesler WES 1591, F&BI 112341

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	42	10-146
Chloromethane	mg/kg (ppm)	1	61	27-133
Vinyl chloride	mg/kg (ppm)	1	73	22-139
Bromomethane	mg/kg (ppm)	1	77	38-114
Chloroethane	mg/kg (ppm)	1	81	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	90	10-196
Acetone	mg/kg (ppm)	5	94	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	89	47-128
Hexane	mg/kg (ppm)	1	89	43-142
Methylene chloride	mg/kg (ppm)	1	101	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	97	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	98	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	101	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	118	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	101	72-127
Chloroform	mg/kg (ppm)	1	99	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	95	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	97	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	102	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	97	69-128
Carbon tetrachloride	mg/kg (ppm)	1	111	60-139
Benzene	mg/kg (ppm)	1	97	71-118
Trichloroethene	mg/kg (ppm)	1	99	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	102	72-127
Bromodichloromethane	mg/kg (ppm)	1	99	57-126
Dibromomethane	mg/kg (ppm)	1	100	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	96	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	103	67-122
Toluene	mg/kg (ppm)	1	98	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	100	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	98	64-115
2-Hexanone	mg/kg (ppm)	5	94	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	95	72-130
Tetrachloroethene	mg/kg (ppm)	1	102	72-114
Dibromochloromethane	mg/kg (ppm)	1	101	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	97	74-132
Chlorobenzene	mg/kg (ppm)	1	100	76-111
Ethylbenzene	mg/kg (ppm)	1	101	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	107	64-121
m,p-Xylene	mg/kg (ppm)	2	100	78-122
o-Xylene	mg/kg (ppm)	1	105	77-124
Styrene	mg/kg (ppm)	1	100	74-126
Isopropylbenzene	mg/kg (ppm)	1	101	76-127
Bromoform	mg/kg (ppm)	1	94	56-132
n-Propylbenzene	mg/kg (ppm)	1	100	74-124
Bromobenzene	mg/kg (ppm)	1	102	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	99	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	101	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	100	61-137
2-Chlorotoluene	mg/kg (ppm)	1	102	74-121
4-Chlorotoluene	mg/kg (ppm)	1	100	75-122
tert-Butylbenzene	mg/kg (ppm)	1	100	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	104	76-125
sec-Butylbenzene	mg/kg (ppm)	1	102	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	105	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	99	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	100	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	102	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	92	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	104	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	104	50-153
Naphthalene	mg/kg (ppm)	1	102	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	103	63-138

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

112341

SAMPLE CHAIN OF CUSTODY

12-16-21

BTI/WSAI

Report to: William  
 Company: William Earl Sciences  
 Address: 888 16th Ave NE  
 City, State, ZIP: Seattle, WA 98115  
 Phone: \_\_\_\_\_ Email: william@wsai.com

SAMPLERS (signature) \_\_\_\_\_  
 PROJECT NAME: 13th + 15th  
 REMARKS: 1531  
 PO #: 0265  
 INVOICE TO: \_\_\_\_\_  
 Project specific RIs? - Yes / No

Page # \_\_\_\_\_ of \_\_\_\_\_  
 TURNAROUND TIME  
 Standard turnaround  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_  
 SAMPLE DISPOSAL  
 Archive samples  
 Other \_\_\_\_\_  
 Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED								Notes					
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	LEAD		ARSENIC	ASPHALTUM			
<u>WEE/58-5'</u>	<u>01A-E</u>	<u>12-12</u>	<u>PM</u>	<u>SOIL</u>	<u>5</u>														
<u>WEE/45-4.5'</u>	<u>021</u>	<u>1</u>	<u>2</u>	<u>SOIL</u>	<u>1</u>														
<u>WEE/175-2'</u>	<u>03</u>																		

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

Relinquished by: _____	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: <u>Michael English</u>	<u>[Signature]</u>	<u>Michael English</u>	<u>FBIS</u>	<u>12/16/21</u>	<u>5:27</u>
Received by: _____				Samples received at <u>4</u> °C	

***Excavation Base  
Compliance Samples***

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 22, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on July 13, 2021 from the 12th and Yesler WES-1591, F&BI 107184 project. There are 6 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  
WES0722R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 13, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 107184 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
107184 -01	W43/N5-B
107184 -02	W44.5/N3.5-B
107184 -03	W45/N10-B
107184 -04	W46/N7-B
107184 -05	W49/N6-B
107184 -06	W50/N2.5-B
107184 -07	W51.5/N5-B
107184 -08	W53/N1.5-B

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/22/21  
 Date Received: 07/13/21  
 Project: 12th and Yesler WES-1591, F&BI 107184  
 Date Extracted: 07/16/21  
 Date Analyzed: 07/20/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-132)
W43/N5-B 107184-01	<0.02	<0.02	<0.02	<0.06	<5	77
W44.5/N3.5-B 107184-02	<0.02	<0.02	<0.02	<0.06	<5	75
W45/N10-B 107184-03	<0.02	<0.02	<0.02	<0.06	<5	77
W46/N7-B 107184-04	<0.02	<0.02	<0.02	<0.06	<5	77
W49/N6-B 107184-05	<0.02	<0.02	<0.02	<0.06	<5	78
W50/N2.5-B 107184-06	<0.02	<0.02	<0.02	<0.06	<5	76
W51.5/N5-B 107184-07	<0.02	<0.02	<0.02	<0.06	<5	77
W53/N1.5-B 107184-08	<0.02	<0.02	<0.02	<0.06	<5	78
Method Blank 01-1452 MB	<0.02	<0.02	<0.02	<0.06	<5	83

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/22/21

Date Received: 07/13/21

Project: 12th and Yesler WES-1591, F&BI 107184

Date Extracted: 07/14/21

Date Analyzed: 07/14/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
W43/N5-B 107184-01	<50	<250	105
W44.5/N3.5-B 107184-02	<50	<250	106
W45/N10-B 107184-03	<50	<250	104
W46/N7-B 107184-04	<50	<250	104
W49/N6-B 107184-05	<50	<250	112
W50/N2.5-B 107184-06	<50	<250	102
W51.5/N5-B 107184-07	<50	<250	103
W53/N1.5-B 107184-08	<50	<250	101
Method Blank 01-1622 MB	<50	<250	102

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/22/21

Date Received: 07/13/21

Project: 12th and Yesler WES-1591, F&BI 107184

**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: 107216-01 (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)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	80	66-121
Toluene	mg/kg (ppm)	0.5	154 vo	72-128
Ethylbenzene	mg/kg (ppm)	0.5	86	69-132
Xylenes	mg/kg (ppm)	1.5	100	69-131
Gasoline	mg/kg (ppm)	20	95	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/22/21

Date Received: 07/13/21

Project: 12th and Yesler WES-1591, F&BI 107184

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 107184-01 (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	98	96	73-135	2

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

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

167184  
 SAMPLE CHAIN OF CUSTODY  
 ME 07/13/21  
 Page # 154 of 403

Report To: [Signature]  
 Company: FRYMAN ENV. SERVICES  
 Address: 8816 16th Ave NE  
 City, State, ZIP: Seattle, WA 98119  
 Phone: \_\_\_\_\_  
 Email: [Signature]

SAMPLERS (signature)		PROJECT NAME	PO #
<u>[Signature]</u>		<u>FRYMAN/8816</u>	<u>2255</u>
REMARKS		INVOICE TO	
<u>[Signature]</u>		<u>1599</u>	

TURNAROUND TIME  
 Standard turnaround  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_  
 SAMPLE DISPOSAL  
 Archive samples  
 Other \_\_\_\_\_  
 Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082			
10413/115-B	01 AE	7/13	AM	SOIL	5	X	X	X							
10415/1135-B	02														
10415/1110-B	03														
10416/117-B	04														
10419/116-B	05														
10501/118.5-B	06														
10515/115-B	07														
10531/115-B	08														

Samples received at 21 00

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
<u>[Signature]</u>		<u>Nolan Duan</u>		<u>FRSE</u>		<u>7/13/21</u>	<u>1:54</u>
Received by: <u>[Signature]</u>							
Relinquished by: <u>[Signature]</u>							
Received by:							
Relinquished by:							

Friedman & Bryva, 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 23, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on July 14, 2021 from the 12th and Yesler WES 1591, F&BI 107222 project. There are 6 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  
WES0723R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 14, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 107222 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
107222 -01	W34/N8.5-B
107222 -02	W35/N4.5-B
107222 -03	W37.5/N11-B
107222 -04	W38/N4-B
107222 -05	W39/N7-B
107222 -06	W41/N8-B
107222 -07	W42.5/N11-B

Xylenes in the 8021B matrix spike sample exceeded the acceptance criteria. 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.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/23/21

Date Received: 07/14/21

Project: 12th and Yesler WES 1591, F&BI 107222

Date Extracted: 07/19/21

Date Analyzed: 07/20/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
W34/N8.5-B 107222-01	<0.02	<0.02	<0.02	<0.06	<5	107
W35/N4.5-B 107222-02	<0.02	<0.02	<0.02	<0.06	<5	107
W37.5/N11-B 107222-03	<0.02	<0.02	<0.02	<0.06	<5	94
W38/N4-B 107222-04	<0.02	<0.02	<0.02	<0.06	<5	108
W39/N7-B 107222-05	<0.02	<0.02	<0.02	<0.06	<5	108
W41/N8-B 107222-06	<0.02	<0.02	<0.02	<0.06	<5	108
W42.5/N11-B 107222-07	<0.02	<0.02	<0.02	<0.06	<5	106
Method Blank 01-1644 MB	<0.02	<0.02	<0.02	<0.06	<5	135

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/23/21

Date Received: 07/14/21

Project: 12th and Yesler WES 1591, F&BI 107222

Date Extracted: 07/15/21

Date Analyzed: 07/15/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 53-144)
W34/N8.5-B 107222-01	<50	<250	99
W35/N4.5-B 107222-02	<50	<250	98
W37.5/N11-B 107222-03	<50	<250	104
W38/N4-B 107222-04	<50	<250	103
W39/N7-B 107222-05	<50	<250	104
W41/N8-B 107222-06	<50	<250	96
W42.5/N11-B 107222-07	<50	<250	98
Method Blank 01-1637 MB	<50	<250	101

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/23/21

Date Received: 07/14/21

Project: 12th and Yesler WES 1591, F&BI 107222

**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: 107190-11 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benzene	mg/kg (ppm)	0.5	<0.02	140	120	50-150	15
Toluene	mg/kg (ppm)	0.5	<0.02	140	120	50-150	15
Ethylbenzene	mg/kg (ppm)	0.5	<0.02	140	120	50-150	15
Xylenes	mg/kg (ppm)	1.5	<0.06	153 vo	130	50-150	16
Gasoline	mg/kg (ppm)	20	<5	135	110	50-150	20

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	105	69-120
Toluene	mg/kg (ppm)	0.5	113	70-117
Ethylbenzene	mg/kg (ppm)	0.5	110	65-123
Xylenes	mg/kg (ppm)	1.5	115	66-120
Gasoline	mg/kg (ppm)	20	90	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/23/21

Date Received: 07/14/21

Project: 12th and Yesler WES 1591, F&BI 107222

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 107222-01 (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	88	90	64-133	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	88	58-147

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

107222

SAMPLE CHAIN OF CUSTODY

7/4/21 ME

A03 VS 4

SAMPLERS (signature)

PROJECT NAME

PO #

REMARKS

INVOICE TO

Project specific RLS? - Yes / No

ANALYSES REQUESTED

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples

Other \_\_\_\_\_

Default: Dispose after 30 days

Report To: Joe Friedman

Company: CHIMMUS EVO SERVICES

Address: 312 16th Ave West

City, State, ZIP: Seattle, WA 98119

Phone: \_\_\_\_\_

Email: joefriedman@chimmusevo.com

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		
0354/1185-B	01 A+E	7-13	AM	SOIL	5	X	X	X						
0355/1145-B	02													
0375/1111-B	03													
0358/1144-B	04													
0379/1177-B	05													
0411/1108-B	06													
0418.5/1111-B	07													

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Relinquished by:

Joe Friedman

CHIMMUS

7/14/21

5:56

Received by:

Joe Friedman

CHIMMUS

7/14/21

12:16

Relinquished by:

Samples received at 6:00

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 28, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on July 21, 2021 from the 12th and Yesler WES-1591, F&BI 107345 project. There are 19 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  
WES0728R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 21, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 107345 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
107345 -01	E9/S19.5-B
107345 -02	E10.5/S22-B
107345 -03	E12/S19-B
107345 -04	E12.5/N17-B
107345 -05	E19/N13-B
107345 -06	W1/S16.5-B
107345 -07	W51/N9.5-B

Arsenic in the 6020B matrix spike and matrix spike duplicate failed the acceptance criteria. The laboratory control sample passed the acceptance criteria, therefore the results were due to matrix effect.

The 8260D matrix spike and matrix spike duplicate failed the relative percent difference for several compounds. In addition, the 8260D laboratory control sample exceeded the acceptance criteria for several compounds. The analytes were not detected therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/28/21

Date Received: 07/21/21

Project: 12th and Yesler WES-1591, F&BI 107345

Date Extracted: 07/22/21

Date Analyzed: 07/23/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
W1/S16.5-B 107345-06	<5	107
Method Blank 01-1654 MB	<5	98

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/28/21

Date Received: 07/21/21

Project: 12th and Yesler WES-1591, F&BI 107345

Date Extracted: 07/22/21

Date Analyzed: 07/23/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
E9/S19.5-B 107345-01	<0.02	<0.02	<0.02	<0.06	<5	101
E10.5/S22-B 107345-02	<0.02	<0.02	<0.02	<0.06	<5	111
E12/S19-B 107345-03	<0.02	<0.02	<0.02	<0.06	<5	111
W51/N9.5-B 107345-07	<0.02	<0.02	<0.02	<0.06	<5	112
Method Blank 01-1654 MB	<0.02	<0.02	<0.02	<0.06	<5	95

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/28/21

Date Received: 07/21/21

Project: 12th and Yesler WES-1591, F&BI 107345

Date Extracted: 07/22/21

Date Analyzed: 07/22/21

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
E9/S19.5-B 107345-01	<50	<250	94
E10.5/S22-B 107345-02	<50	<250	102
E12/S19-B 107345-03	<50	<250	91
W1/S16.5-B 107345-06	<50	<250	91
W51/N9.5-B 107345-07	<50	<250	91
Method Blank 01-1695 MB	<50	<250	103

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E12.5/N17-B	Client:	Whitman Environmental Sciences
Date Received:	07/21/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/22/21	Lab ID:	107345-04
Date Analyzed:	07/23/21	Data File:	107345-04.158
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.69
Cadmium	<1
Chromium	10.8
Lead	1.52
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	W1/S16.5-B	Client:	Whitman Environmental Sciences
Date Received:	07/21/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/22/21	Lab ID:	107345-06
Date Analyzed:	07/23/21	Data File:	107345-06.159
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	5.06
Cadmium	<1
Lead	2.78
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	W1/S16.5-B	Client:	Whitman Environmental Sciences
Date Received:	07/21/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/22/21	Lab ID:	107345-06 x5
Date Analyzed:	07/26/21	Data File:	107345-06 x5.053
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	25.0
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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:	07/22/21	Lab ID:	I1-446 mb
Date Analyzed:	07/23/21	Data File:	I1-446 mb.126
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID: W1/S16.5-B	Client: Whitman Environmental Sciences
Date Received: 07/21/21	Project: 12th and Yesler WES-1591
Date Extracted: 07/22/21	Lab ID: 107345-06
Date Analyzed: 07/22/21	Data File: 072210.D
Matrix: Soil	Instrument: GCMS13
Units: mg/kg (ppm) Dry Weight	Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	84	118
Toluene-d8	105	86	117
4-Bromofluorobenzene	96	90	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	<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)	<1	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	<1	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 8260D

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES-1591
Date Extracted:	07/22/21	Lab ID:	01-1596 mb
Date Analyzed:	07/22/21	Data File:	072207.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	84	118
Toluene-d8	106	86	117
4-Bromofluorobenzene	99	90	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	<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)	<1	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	<1	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 PCBs By EPA Method 8082A

Client Sample ID:	W1/S16.5-B	Client:	Whitman Environmental Sciences
Date Received:	07/21/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/22/21	Lab ID:	107345-06 1/6
Date Analyzed:	07/23/21	Data File:	072308.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	66	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES-1591
Date Extracted:	07/22/21	Lab ID:	01-1691 mb 1/6
Date Analyzed:	07/22/21	Data File:	072204.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	84	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/28/21

Date Received: 07/21/21

Project: 12th and Yesler WES-1591, F&BI 107345

**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: 107263-01 (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)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	89	69-120
Toluene	mg/kg (ppm)	0.5	94	70-117
Ethylbenzene	mg/kg (ppm)	0.5	94	65-123
Xylenes	mg/kg (ppm)	1.5	97	66-120
Gasoline	mg/kg (ppm)	20	100	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/28/21

Date Received: 07/21/21

Project: 12th and Yesler WES-1591, F&BI 107345

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 107343-01 (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	110	102	73-135	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	106	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/28/21

Date Received: 07/21/21

Project: 12th and Yesler WES-1591, F&BI 107345

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

Laboratory Code: 107310-01 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	68 vo	66 vo	75-125	3
Cadmium	mg/kg (ppm)	10	<5	96	95	75-125	1
Chromium	mg/kg (ppm)	50	13.9	91	91	75-125	0
Lead	mg/kg (ppm)	50	<5	82	83	75-125	1
Mercury	mg/kg (ppm)	5	<5	89	88	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	89	80-120
Cadmium	mg/kg (ppm)	10	99	80-120
Chromium	mg/kg (ppm)	50	103	80-120
Lead	mg/kg (ppm)	50	100	80-120
Mercury	mg/kg (ppm)	5	102	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/28/21

Date Received: 07/21/21

Project: 12th and Yesler WES-1591, F&BI 107345

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

Laboratory Code: 107349-01 (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)	1.0	<0.5	18	18	10-47	0
Chloromethane	mg/kg (ppm)	1.0	<0.5	52	48	10-88	8
Vinyl chloride	mg/kg (ppm)	1.0	<0.05	51	50	10-79	2
Bromomethane	mg/kg (ppm)	1.0	<0.5	55	48	10-85	14
Chloroethane	mg/kg (ppm)	1.0	<0.5	66	66	11-106	0
Trichlorofluoromethane	mg/kg (ppm)	1.0	<0.5	59	64	10-85	8
Acetone	mg/kg (ppm)	5.0	<5	53	82	10-224	43 vo
1,1-Dichloroethene	mg/kg (ppm)	1.0	<0.05	83	83	11-105	0
Hexane	mg/kg (ppm)	1.0	<0.25	54	54	10-106	0
Methylene chloride	mg/kg (ppm)	1.0	<0.5	86	86	10-139	0
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1.0	<0.05	75	71	18-131	5
trans-1,2-Dichloroethene	mg/kg (ppm)	1.0	<0.05	72	69	16-122	4
1,1-Dichloroethane	mg/kg (ppm)	1.0	<0.05	71	69	19-125	3
2,2-Dichloropropane	mg/kg (ppm)	1.0	<0.05	77	73	10-184	5
cis-1,2-Dichloroethene	mg/kg (ppm)	1.0	<0.05	78	76	18-129	3
Chloroform	mg/kg (ppm)	1.0	<0.05	74	72	18-126	3
2-Butanone (MEK)	mg/kg (ppm)	5.0	<1	67	84	10-190	23 vo
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1.0	<0.05	77	75	19-138	3
1,1,1-Trichloroethane	mg/kg (ppm)	1.0	<0.05	72	69	16-126	4
1,1-Dichloropropene	mg/kg (ppm)	1.0	<0.05	74	73	19-129	1
Carbon tetrachloride	mg/kg (ppm)	1.0	<0.05	76	71	13-125	7
Benzene	mg/kg (ppm)	1.0	<0.03	74	71	15-129	4
Trichloroethene	mg/kg (ppm)	1.0	<0.02	74	71	14-127	4
1,2-Dichloropropane	mg/kg (ppm)	1.0	<0.05	78	75	17-137	4
Bromodichloromethane	mg/kg (ppm)	1.0	<0.05	77	73	24-130	5
Dibromomethane	mg/kg (ppm)	1.0	<0.05	78	72	20-138	8
4-Methyl-2-pentanone	mg/kg (ppm)	5.0	<1	79	77	21-139	3
cis-1,3-Dichloropropene	mg/kg (ppm)	1.0	<0.05	86	81	17-135	6
Toluene	mg/kg (ppm)	1.0	<0.05	66	63	15-129	5
trans-1,3-Dichloropropene	mg/kg (ppm)	1.0	<0.05	75	72	18-130	4
1,1,2-Trichloroethane	mg/kg (ppm)	1.0	<0.05	73	69	29-128	6
2-Hexanone	mg/kg (ppm)	5.0	<0.5	68	72	28-142	6
1,3-Dichloropropane	mg/kg (ppm)	1.0	<0.05	70	69	20-135	1
Tetrachloroethene	mg/kg (ppm)	1.0	<0.025	68	64	20-121	6
Dibromochloromethane	mg/kg (ppm)	1.0	<0.05	75	68	11-138	10
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1.0	<0.05	72	68	21-130	6
Chlorobenzene	mg/kg (ppm)	1.0	<0.05	72	70	19-129	3
Ethylbenzene	mg/kg (ppm)	1.0	<0.05	73	69	23-133	6
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1.0	<0.05	73	69	16-127	6
m,p-Xylene	mg/kg (ppm)	2.0	<0.1	72	69	19-134	4
o-Xylene	mg/kg (ppm)	1.0	<0.05	73	70	20-132	4
Styrene	mg/kg (ppm)	1.0	<0.05	73	70	23-127	4
Isopropylbenzene	mg/kg (ppm)	1.0	<0.05	72	69	21-134	4
Bromoform	mg/kg (ppm)	1.0	<0.05	78	74	10-142	5
n-Propylbenzene	mg/kg (ppm)	1.0	<0.05	73	68	10-141	7
Bromobenzene	mg/kg (ppm)	1.0	<0.05	74	71	10-135	4
1,3,5-Trimethylbenzene	mg/kg (ppm)	1.0	<0.05	75	71	20-136	5
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1.0	<0.05	72	70	10-234	3
1,2,3-Trichloropropane	mg/kg (ppm)	1.0	<0.05	69	69	10-144	0
2-Chlorotoluene	mg/kg (ppm)	1.0	<0.05	72	68	10-139	6
4-Chlorotoluene	mg/kg (ppm)	1.0	<0.05	74	69	10-139	7
tert-Butylbenzene	mg/kg (ppm)	1.0	<0.05	70	66	10-144	6
1,2,4-Trimethylbenzene	mg/kg (ppm)	1.0	<0.05	80	74	24-133	8
sec-Butylbenzene	mg/kg (ppm)	1.0	<0.05	74	68	23-134	8
p-Isopropyltoluene	mg/kg (ppm)	1.0	<0.05	79	72	25-131	9
1,3-Dichlorobenzene	mg/kg (ppm)	1.0	<0.05	75	71	10-143	5
1,4-Dichlorobenzene	mg/kg (ppm)	1.0	<0.05	76	72	10-146	5
1,2-Dichlorobenzene	mg/kg (ppm)	1.0	<0.05	73	70	10-144	4
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1.0	<0.5	67	73	10-163	9
1,2,4-Trichlorobenzene	mg/kg (ppm)	1.0	<0.25	93	92	10-147	1
Hexachlorobutadiene	mg/kg (ppm)	1.0	<0.25	72	73	10-162	1
Naphthalene	mg/kg (ppm)	1.0	<0.05	91	91	30-138	0
1,2,3-Trichlorobenzene	mg/kg (ppm)	1.0	<0.25	88	89	10-173	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/28/21

Date Received: 07/21/21

Project: 12th and Yesler WES-1591, F&BI 107345

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1.0	71	10-93
Chloromethane	mg/kg (ppm)	1.0	96	34-101
Vinyl chloride	mg/kg (ppm)	1.0	86	47-106
Bromomethane	mg/kg (ppm)	1.0	74	38-123
Chloroethane	mg/kg (ppm)	1.0	93	44-123
Trichlorofluoromethane	mg/kg (ppm)	1.0	111 vo	56-108
Acetone	mg/kg (ppm)	5.0	136 vo	70-130
1,1-Dichloroethene	mg/kg (ppm)	1.0	146 vo	61-118
Hexane	mg/kg (ppm)	1.0	115	54-142
Methylene chloride	mg/kg (ppm)	1.0	102	10-213
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1.0	100	70-130
trans-1,2-Dichloroethene	mg/kg (ppm)	1.0	106	70-130
1,1-Dichloroethane	mg/kg (ppm)	1.0	100	70-130
2,2-Dichloropropane	mg/kg (ppm)	1.0	115	70-130
cis-1,2-Dichloroethene	mg/kg (ppm)	1.0	109	70-130
Chloroform	mg/kg (ppm)	1.0	103	70-130
2-Butanone (MEK)	mg/kg (ppm)	5.0	125	70-130
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1.0	109	66-140
1,1,1-Trichloroethane	mg/kg (ppm)	1.0	107	70-130
1,1-Dichloropropene	mg/kg (ppm)	1.0	109	70-130
Carbon tetrachloride	mg/kg (ppm)	1.0	115	70-130
Benzene	mg/kg (ppm)	1.0	107	70-130
Trichloroethene	mg/kg (ppm)	1.0	104	53-133
1,2-Dichloropropane	mg/kg (ppm)	1.0	112	67-137
Bromodichloromethane	mg/kg (ppm)	1.0	109	70-130
Dibromomethane	mg/kg (ppm)	1.0	107	70-130
4-Methyl-2-pentanone	mg/kg (ppm)	5.0	114	70-130
cis-1,3-Dichloropropene	mg/kg (ppm)	1.0	123	70-130
Toluene	mg/kg (ppm)	1.0	94	63-127
trans-1,3-Dichloropropene	mg/kg (ppm)	1.0	112	70-130
1,1,2-Trichloroethane	mg/kg (ppm)	1.0	103	70-130
2-Hexanone	mg/kg (ppm)	5.0	106	65-148
1,3-Dichloropropene	mg/kg (ppm)	1.0	102	67-135
Tetrachloroethene	mg/kg (ppm)	1.0	96	66-124
Dibromochloromethane	mg/kg (ppm)	1.0	103	62-139
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1.0	102	70-130
Chlorobenzene	mg/kg (ppm)	1.0	103	70-130
Ethylbenzene	mg/kg (ppm)	1.0	101	70-130
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1.0	105	68-129
m,p-Xylene	mg/kg (ppm)	2.0	100	67-129
o-Xylene	mg/kg (ppm)	1.0	102	70-130
Styrene	mg/kg (ppm)	1.0	101	70-130
Isopropylbenzene	mg/kg (ppm)	1.0	99	70-130
Bromoform	mg/kg (ppm)	1.0	113	63-141
n-Propylbenzene	mg/kg (ppm)	1.0	98	68-125
Bromobenzene	mg/kg (ppm)	1.0	104	70-130
1,3,5-Trimethylbenzene	mg/kg (ppm)	1.0	103	66-128
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1.0	109	35-184
1,2,3-Trichloropropane	mg/kg (ppm)	1.0	102	70-130
2-Chlorotoluene	mg/kg (ppm)	1.0	103	70-130
4-Chlorotoluene	mg/kg (ppm)	1.0	102	70-130
tert-Butylbenzene	mg/kg (ppm)	1.0	95	70-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1.0	104	64-133
sec-Butylbenzene	mg/kg (ppm)	1.0	95	70-130
p-Isopropyltoluene	mg/kg (ppm)	1.0	99	70-130
1,3-Dichlorobenzene	mg/kg (ppm)	1.0	105	70-130
1,4-Dichlorobenzene	mg/kg (ppm)	1.0	105	70-130
1,2-Dichlorobenzene	mg/kg (ppm)	1.0	105	70-130
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1.0	110	70-130
1,2,4-Trichlorobenzene	mg/kg (ppm)	1.0	122	70-130
Hexachlorobutadiene	mg/kg (ppm)	1.0	103	67-140
Naphthalene	mg/kg (ppm)	1.0	123	67-143
1,2,3-Trichlorobenzene	mg/kg (ppm)	1.0	119	57-161

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/28/21

Date Received: 07/21/21

Project: 12th and Yesler WES-1591, F&BI 107345

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES FOR  
POLYCHLORINATED BIPHENYLS AS  
AROCLOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: 107341-01 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	<0.02	67	67	29-125	0
Aroclor 1260	mg/kg (ppm)	0.25	<0.02	69	68	25-137	1

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.25	81	55-137
Aroclor 1260	mg/kg (ppm)	0.25	89	51-150

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte may be due to carryover from previous sample injections.
- cf - The sample was centrifuged prior to analysis.
- d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.
- dv - Insufficient sample volume was available to achieve normal reporting limits.
- f - The sample was laboratory filtered prior to analysis.
- fb - The analyte was detected in the method blank.
- fc - The 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.

107345

SAMPLE CHAIN OF CUSTODY

ME 07/21/21

Page # \_\_\_\_\_ of \_\_\_\_\_

VS/

Report To [Signature]

Company Williams Lewis Services

Address [Signature]

City, State, ZIP Seattle, WA 98119

Phone [Signature]

Email [Signature]

SAMPLERS (signature)

PROJECT NAME

REMARKS

PO #

INVOICE TO

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

Archive samples

Other

Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Notes
E19/S19.5-B	014-E	7-21	AM	soil	5	X	X	X					
E10.5/SRR-B	02	"				X	X	X					
E1R/S19-B	03	"				X	X	X					
E1R.5/N17-B	04	"				X	X	X					
E19/N13-B	05	"				X	X	X					
D1/S16.5-B	06 A.E.	7-16				X	X	X	X				
D51/NR5-B	07 V	7-21				X	X	X					

Add per DV/3/21/21

Friedman & Bryya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Reinquished by:

Received by:

Reinquished by:

Received by:

[Signatures and Print Names]

COMPANY

DATE

TIME

Received by:

FRIEDMAN & BRUYA, INC.

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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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www.friedmanandbruya.com

July 29, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on July 15, 2021 from the 12th and Yesler WES 1591, F&BI 107248 project. There are 35 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

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 15, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 107248 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
107248 -01	W2/S 15.5-B
107248 -02	S11.5-SW-10'
107248 -03	S9.5-SW-9'
107248 -04	S7.5-SW-11'
107248 -05	S4.5-SW-8'
107248 -06	E22.5-SW-15'
107248 -07	E20.5-SW-17'
107248 -08	E14.5/S22-B
107248 -09	E18/N16-B-R6
107248 -10	E20/N14-B
107248 -11	E22/N15-B-R8

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

Date Extracted: 07/20/21

Date Analyzed: 07/21/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
W2/S 15.5-B 107248-01	<5	110
Method Blank 01-1647 MB	<5	80

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21  
 Date Received: 07/15/21  
 Project: 12th and Yesler WES 1591, F&BI 107248  
 Date Extracted: 07/20/21  
 Date Analyzed: 07/21/21 and 07/23/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
S11.5-SW-10' 107248-02	<0.02	<0.02	<0.02	<0.06	<5	112
S9.5-SW-9' 107248-03	<0.02	<0.02	<0.02	<0.06	<5	107
S7.5-SW-11' 107248-04	<0.02	<0.02	<0.02	<0.06	<5	113
S4.5-SW-8' 107248-05	<0.02	<0.02	0.079	0.076	53	109
Method Blank 01-1647 MB	<0.02	<0.02	<0.02	<0.06	<5	78

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

Date Extracted: 07/19/21

Date Analyzed: 07/19/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 53-144)
W2/S 15.5-B 107248-01	<50	<250	109
S11.5-SW-10' 107248-02	<50	<250	117
S9.5-SW-9' 107248-03	<50	<250	107
S7.5-SW-11' 107248-04	<50	<250	115
S4.5-SW-8' 107248-05	<50	<250	109
Method Blank 01-1674 MB	<50	<250	116

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	W2/S 15.5-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-01
Date Analyzed:	07/19/21	Data File:	107248-01.048
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	4.51
Cadmium	<1
Lead	3.32
Mercury	<1

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	W2/S 15.5-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-01 x5
Date Analyzed:	07/19/21	Data File:	107248-01 x5.123
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	31.9
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E22.5-SW-15'	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-06
Date Analyzed:	07/19/21	Data File:	107248-06.049
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	1.58
Cadmium	<1
Lead	2.31
Mercury	<1

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E22.5-SW-15'	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-06 x5
Date Analyzed:	07/19/21	Data File:	107248-06 x5.126
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	31.9
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FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E20.5-SW-17'	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-07
Date Analyzed:	07/19/21	Data File:	107248-07.098
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Arsenic	2.52
Cadmium	<1
Lead	1.47
Mercury	<1

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E20.5-SW-17'	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-07 x5
Date Analyzed:	07/20/21	Data File:	107248-07 x5.034
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	18.8
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FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E14.5/S22-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-08
Date Analyzed:	07/19/21	Data File:	107248-08.099
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.01
Cadmium	<1
Lead	1.72
Mercury	<1

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E14.5/S22-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-08 x5
Date Analyzed:	07/20/21	Data File:	107248-08 x5.035
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	17.2
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FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E18/N16-B-R6	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-09
Date Analyzed:	07/19/21	Data File:	107248-09.110
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.56
Cadmium	<1
Lead	2.79
Mercury	<1

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E18/N16-B-R6	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-09 x5
Date Analyzed:	07/20/21	Data File:	107248-09 x5.036
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Chromium	26.3
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FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E20/N14-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-10
Date Analyzed:	07/19/21	Data File:	107248-10.111
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.52
Cadmium	<1
Lead	3.11
Mercury	<1

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E20/N14-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-10 x5
Date Analyzed:	07/20/21	Data File:	107248-10 x5.050
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Chromium	27.7
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FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E22/N15-B-R8	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/26/21	Lab ID:	107248-11
Date Analyzed:	07/26/21	Data File:	107248-11.062
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.52
Cadmium	<1
Chromium	22.4
Lead	2.56
Mercury	<1

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

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:	07/19/21	Lab ID:	I1-439 mb
Date Analyzed:	07/19/21	Data File:	I1-439 mb.039
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

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ENVIRONMENTAL CHEMISTS

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:	07/26/21	Lab ID:	I1-449 mb
Date Analyzed:	07/26/21	Data File:	I1-449 mb.056
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

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	W2/S 15.5-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/16/21	Lab ID:	107248-01
Date Analyzed:	07/16/21	Data File:	071623.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	90	109
Toluene-d8	101	89	112
4-Bromofluorobenzene	101	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591
Date Extracted:	07/16/21	Lab ID:	01-1583 mb
Date Analyzed:	07/16/21	Data File:	071609.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	90	109
Toluene-d8	101	89	112
4-Bromofluorobenzene	100	84	115

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	<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)	<1	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	<1	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 Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	W2/S 15.5-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/26/21	Lab ID:	107248-01 1/5
Date Analyzed:	07/26/21	Data File:	072612.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	75	24	111
Phenol-d6	81	37	116
Nitrobenzene-d5	78	38	117
2-Fluorobiphenyl	79	45	117
2,4,6-Tribromophenol	79	11	158
Terphenyl-d14	90	50	124

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591
Date Extracted:	07/26/21	Lab ID:	01-1739 mb 1/5
Date Analyzed:	07/26/21	Data File:	072610.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	88	24	111
Phenol-d6	94	37	116
Nitrobenzene-d5	98	38	117
2-Fluorobiphenyl	84	45	117
2,4,6-Tribromophenol	86	11	158
Terphenyl-d14	96	50	124

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

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ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	W2/S 15.5-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-01 1/6
Date Analyzed:	07/20/21	Data File:	072006.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	67	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

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ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	01-1678 mb 1/6
Date Analyzed:	07/20/21	Data File:	072005.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	86	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

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ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: 107219-04 (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	0.025	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	90	66-121
Toluene	mg/kg (ppm)	0.5	92	72-128
Ethylbenzene	mg/kg (ppm)	0.5	90	69-132
Xylenes	mg/kg (ppm)	1.5	93	69-131
Gasoline	mg/kg (ppm)	20	100	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: 107275-01 (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	1,500	82	93	64-133	13

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	92	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: 107248-06 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	86	90	75-125	5
Cadmium	mg/kg (ppm)	10	<5	97	98	75-125	1
Chromium	mg/kg (ppm)	50	28.1	88	87	75-125	1
Lead	mg/kg (ppm)	50	<5	94	93	75-125	1
Mercury	mg/kg (ppm)	5	<5	95	94	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	83	80-120
Cadmium	mg/kg (ppm)	10	99	80-120
Chromium	mg/kg (ppm)	50	108	80-120
Lead	mg/kg (ppm)	50	97	80-120
Mercury	mg/kg (ppm)	5	94	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: 107400-01 (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	2.70	90	91	75-125	1
Cadmium	mg/kg (ppm)	10	<1	107	109	75-125	2
Chromium	mg/kg (ppm)	50	18.8	90	91	75-125	1
Lead	mg/kg (ppm)	50	7.21	85	88	75-125	3
Mercury	mg/kg (ppm)	5	<1	101	103	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	88	80-120
Cadmium	mg/kg (ppm)	10	104	80-120
Chromium	mg/kg (ppm)	50	104	80-120
Lead	mg/kg (ppm)	50	93	80-120
Mercury	mg/kg (ppm)	5	107	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: 107248-01 (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)	1	<0.5	9 vo	13	10-142	36 vo
Chloromethane	mg/kg (ppm)	1	<0.5	35	41	10-126	16
Vinyl chloride	mg/kg (ppm)	1	<0.05	32	37	10-138	14
Bromomethane	mg/kg (ppm)	1	<0.5	51	55	10-163	8
Chloroethane	mg/kg (ppm)	1	<0.5	53	57	10-176	7
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	40	43	10-176	7
Acetone	mg/kg (ppm)	5	<5	95	86	10-163	10
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	51	55	10-160	8
Hexane	mg/kg (ppm)	1	<0.25	31	33	10-137	6
Methylene chloride	mg/kg (ppm)	1	<0.5	58	60	10-156	3
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	79	81	21-145	2
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	68	68	14-137	0
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	71	75	19-140	5
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	91	88	10-158	3
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	77	81	25-135	5
Chloroform	mg/kg (ppm)	1	<0.05	76	79	21-145	4
2-Butanone (MEK)	mg/kg (ppm)	5	<1	91	86	19-147	6
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	79	79	12-160	0
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	77	78	10-156	1
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	69	72	17-140	4
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	74	75	9-164	1
Benzene	mg/kg (ppm)	1	<0.03	75	78	29-129	4
Trichloroethene	mg/kg (ppm)	1	<0.02	75	77	21-139	3
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	77	79	30-135	3
Bromodichloromethane	mg/kg (ppm)	1	<0.05	77	80	23-155	4
Dibromomethane	mg/kg (ppm)	1	<0.05	80	80	23-145	0
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	87	87	24-155	0
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	79	79	28-144	0
Toluene	mg/kg (ppm)	1	<0.05	72	77	35-130	7
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	75	76	26-149	1
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	77	84	10-205	9
2-Hexanone	mg/kg (ppm)	5	<0.5	86	85	15-166	1
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	74	80	31-137	8
Tetrachloroethene	mg/kg (ppm)	1	<0.025	69	76	20-133	10
Dibromochloromethane	mg/kg (ppm)	1	<0.05	69	73	28-150	6
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	75	80	28-142	6
Chlorobenzene	mg/kg (ppm)	1	<0.05	74	78	32-129	5
Ethylbenzene	mg/kg (ppm)	1	<0.05	75	80	32-137	6
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	75	82	31-143	9
m,p-Xylene	mg/kg (ppm)	2	<0.1	75	78	34-136	4
o-Xylene	mg/kg (ppm)	1	<0.05	76	80	33-134	5
Styrene	mg/kg (ppm)	1	<0.05	75	79	35-137	5
Isopropylbenzene	mg/kg (ppm)	1	<0.05	78	81	31-142	4
Bromoform	mg/kg (ppm)	1	<0.05	72	75	21-156	4
n-Propylbenzene	mg/kg (ppm)	1	<0.05	75	75	23-146	0
Bromobenzene	mg/kg (ppm)	1	<0.05	77	76	34-130	1
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	75	75	18-149	0
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	78	79	28-140	1
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	78	79	25-144	1
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	75	75	31-134	0
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	75	75	31-136	0
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	77	78	30-137	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	75	76	10-182	1
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	75	75	23-145	0
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	76	76	21-149	0
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	74	74	30-131	0
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	76	75	29-129	1
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	77	76	31-132	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	72	71	11-161	1
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	69	71	22-142	3
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	78	78	10-142	0
Naphthalene	mg/kg (ppm)	1	<0.05	71	73	14-157	3
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	68	69	20-144	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	57	10-146
Chloromethane	mg/kg (ppm)	1	77	27-133
Vinyl chloride	mg/kg (ppm)	1	80	22-139
Bromomethane	mg/kg (ppm)	1	93	38-114
Chloroethane	mg/kg (ppm)	1	91	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	81	10-196
Acetone	mg/kg (ppm)	5	109	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	93	47-128
Hexane	mg/kg (ppm)	1	89	43-142
Methylene chloride	mg/kg (ppm)	1	108	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	103	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	103	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	101	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	122	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	102	72-127
Chloroform	mg/kg (ppm)	1	102	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	106	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	105	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	110	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	103	69-128
Carbon tetrachloride	mg/kg (ppm)	1	109	60-139
Benzene	mg/kg (ppm)	1	103	71-118
Trichloroethene	mg/kg (ppm)	1	107	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	102	72-127
Bromodichloromethane	mg/kg (ppm)	1	101	57-126
Dibromomethane	mg/kg (ppm)	1	104	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	108	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	101	67-122
Toluene	mg/kg (ppm)	1	98	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	94	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	103	64-115
2-Hexanone	mg/kg (ppm)	5	105	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	100	72-130
Tetrachloroethene	mg/kg (ppm)	1	97	72-114
Dibromochloromethane	mg/kg (ppm)	1	94	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	104	74-132
Chlorobenzene	mg/kg (ppm)	1	100	76-111
Ethylbenzene	mg/kg (ppm)	1	102	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	101	64-121
m,p-Xylene	mg/kg (ppm)	2	101	78-122
o-Xylene	mg/kg (ppm)	1	102	77-124
Styrene	mg/kg (ppm)	1	101	74-126
Isopropylbenzene	mg/kg (ppm)	1	102	76-127
Bromoform	mg/kg (ppm)	1	96	56-132
n-Propylbenzene	mg/kg (ppm)	1	101	74-124
Bromobenzene	mg/kg (ppm)	1	102	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	100	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	102	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	105	61-137
2-Chlorotoluene	mg/kg (ppm)	1	101	74-121
4-Chlorotoluene	mg/kg (ppm)	1	100	75-122
tert-Butylbenzene	mg/kg (ppm)	1	102	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	101	76-125
sec-Butylbenzene	mg/kg (ppm)	1	100	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	101	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	102	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	102	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	103	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	95	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	97	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	100	50-153
Naphthalene	mg/kg (ppm)	1	97	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	95	63-138

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: 107342-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.83	<0.01	74	79	34-118	7
2-Methylnaphthalene	mg/kg (ppm)	0.83	<0.01	81	86	29-130	6
1-Methylnaphthalene	mg/kg (ppm)	0.83	<0.01	82	86	37-119	5
Acenaphthylene	mg/kg (ppm)	0.83	<0.01	80	84	45-128	5
Acenaphthene	mg/kg (ppm)	0.83	<0.01	78	81	36-125	4
Fluorene	mg/kg (ppm)	0.83	<0.01	84	87	48-121	4
Phenanthrene	mg/kg (ppm)	0.83	<0.01	81	86	50-150	6
Anthracene	mg/kg (ppm)	0.83	<0.01	85	89	50-150	5
Fluoranthene	mg/kg (ppm)	0.83	0.0097	91	98	50-150	7
Pyrene	mg/kg (ppm)	0.83	0.0097	89	94	50-150	5
Benz(a)anthracene	mg/kg (ppm)	0.83	<0.01	92	95	50-150	3
Chrysene	mg/kg (ppm)	0.83	<0.01	89	92	50-150	3
Benzo(a)pyrene	mg/kg (ppm)	0.83	<0.01	94	98	50-150	4
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	<0.01	92	98	50-150	6
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	<0.01	91	96	50-150	5
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	<0.01	90	85	41-134	6
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	<0.01	88	85	44-130	3
Benzo(g,h,i)perylene	mg/kg (ppm)	0.83	<0.01	80	76	33-131	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.83	81	58-108
2-Methylnaphthalene	mg/kg (ppm)	0.83	88	67-108
1-Methylnaphthalene	mg/kg (ppm)	0.83	89	66-107
Acenaphthylene	mg/kg (ppm)	0.83	88	70-130
Acenaphthene	mg/kg (ppm)	0.83	83	66-112
Fluorene	mg/kg (ppm)	0.83	87	67-117
Phenanthrene	mg/kg (ppm)	0.83	86	70-130
Anthracene	mg/kg (ppm)	0.83	90	70-130
Fluoranthene	mg/kg (ppm)	0.83	96	70-130
Pyrene	mg/kg (ppm)	0.83	87	70-130
Benz(a)anthracene	mg/kg (ppm)	0.83	92	70-130
Chrysene	mg/kg (ppm)	0.83	93	70-130
Benzo(a)pyrene	mg/kg (ppm)	0.83	95	68-120
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	94	69-125
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	99	70-130
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	82	67-129
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	86	67-128
Benzo(g,h,i)perylene	mg/kg (ppm)	0.83	77	64-127

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES FOR  
POLYCHLORINATED BIPHENYLS AS  
AROCOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: 107274-01 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	<0.02	66	73	29-125	10
Aroclor 1260	mg/kg (ppm)	0.25	<0.02	76	83	25-137	9

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.25	88	55-137
Aroclor 1260	mg/kg (ppm)	0.25	99	51-150

**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.



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 11, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on August 6, 2021 from the 12th and Yesler WES-1591, F&BI 108111 project. There are 6 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  
WES0811R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 6, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 108111 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
108111 -01	S4.5/W3-B
108111 -02	S6/W1-B
108111 -03	S8/W-2B

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/11/21

Date Received: 08/06/21

Project: 12th and Yesler WES-1591, F&BI 108111

Date Extracted: 08/09/21

Date Analyzed: 08/09/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
S4.5/W3-B 108111-01	<5	62
S6/W1-B 108111-02	<5	86
S8/W-2B 108111-03	<5	89
Method Blank 01-1770 MB	<5	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/11/21

Date Received: 08/06/21

Project: 12th and Yesler WES-1591, F&BI 108111

Date Extracted: 08/09/21

Date Analyzed: 08/09/21

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 53-144)
S4.5/W3-B 108111-01	<50	<250	94
S6/W1-B 108111-02	<50	<250	89
S8/W-2B 108111-03	<50	<250	101
Method Blank 01-1819 MB	<50	<250	91

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/11/21

Date Received: 08/06/21

Project: 12th and Yesler WES-1591, F&BI 108111

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

Laboratory Code: 108111-01 (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	120	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/11/21

Date Received: 08/06/21

Project: 12th and Yesler WES-1591, F&BI 108111

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 108115-01 (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	21,000	97 b	7 b	64-133	170 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	86	58-147

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

108111

SAMPLE CHAIN OF CUSTODY

ME 8/6/21

CD1 VS-D3

Report To *[Signature]*

Company *Friedman & Bruya, Inc.*

Address *SPR KENNEDY AVE*

City, State, ZIP *SEATTLE, WA 98105*

Phone *[Signature]*

SAMPLERS (signature)	PROJECT NAME <i>TR44 / 157R</i>	PO # <i>0285-1591</i>
REMARKS	INVOICE TO	
Protect specific RIs? - Yes / No		

Page #      of     

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by:     

SAMPLE DISPOSAL

Archive samples

Other     

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082			
<i>SH8 / 035-B</i>	<i>01A9E</i>	<i>8-5-21</i>	<i>1M</i>	<i>soil</i>	<i>5</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
<i>SG / 021-B</i>	<i>02</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
<i>SB / 03-2B</i>	<i>03</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								

Samples received at 23 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<i>[Signature]</i>	<i>[Signature]</i>	<i>FB I</i>	<i>8-5-21</i>	<i>5:55</i>
Relinquished by:				
Received by:	<i>Khoi Hoang</i>		<i>8/6/21</i>	<i>17:35</i>
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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Arina Podnozova, B.S.  
Eric Young, B.S.

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August 17, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the additional results from the testing of material submitted on August 6, 2021 from the 12th and Yesler WES-1591, F&BI 108111 project. There are 6 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl  
Project Manager

Enclosures  
WES0817R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 6, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 108111 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
108111 -01	S4.5/W3-B
108111 -02	S6/W1-B
108111 -03	S8/W-2B

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/17/21

Date Received: 08/06/21

Project: 12th and Yesler WES-1591, F&BI 108111

Date Extracted: 08/09/21

Date Analyzed: 08/09/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
S4.5/W3-B 108111-01	<0.02	<0.02	<0.02	<0.06	<5	74
S6/W1-B 108111-02	<0.02	<0.02	<0.02	<0.06	<5	107
S8/W-2B 108111-03	<0.02	<0.02	<0.02	<0.06	<5	108
Method Blank 01-1770 MB	<0.02	<0.02	<0.02	<0.06	<5	107

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/17/21

Date Received: 08/06/21

Project: 12th and Yesler WES-1591, F&BI 108111

Date Extracted: 08/09/21

Date Analyzed: 08/09/21

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 53-144)
S4.5/W3-B 108111-01	<50	<250	94
S6/W1-B 108111-02	<50	<250	89
S8/W-2B 108111-03	<50	<250	101
Method Blank 01-1819 MB	<50	<250	91

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/17/21

Date Received: 08/06/21

Project: 12th and Yesler WES-1591, F&BI 108111

**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: 108111-01 (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)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	98	69-120
Toluene	mg/kg (ppm)	0.5	103	70-117
Ethylbenzene	mg/kg (ppm)	0.5	102	65-123
Xylenes	mg/kg (ppm)	1.5	106	66-120
Gasoline	mg/kg (ppm)	20	120	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/17/21

Date Received: 08/06/21

Project: 12th and Yesler WES-1591, F&BI 108111

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 108115-01 (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	21,000	97 b	7 b	64-133	170 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	86	58-147

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

108111

SAMPLE CHAIN OF CUSTODY

ME 8/6/21

Report To: [Signature]

Company: PRIME CONSULTANTS

Address: 3711 1st Ave NE

City, State, ZIP: Seattle, WA 98115

Phone: \_\_\_\_\_

Email: hannah@primeconsultants.com

SAMPLERS (signature)	PROJECT NAME	PO #
[Signature]	<u>PRIME CONSULTANTS</u>	<u>2005-1591</u>
REMARKS	INVOICE TO	
<u>Protect specific RI's? Yes / No</u>		

Page # \_\_\_\_\_ of \_\_\_\_\_

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples

Other \_\_\_\_\_

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED						Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270		PCBs EPA 8082
<u>5415 / 03-B</u>	<u>01A9E</u>	<u>8-5-21</u>	<u>PM</u>	<u>SOIL</u>	<u>5</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<u>(X) - per DW</u>
<u>56 / 01-B</u>	<u>02</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<u>8/12/21 ME</u>
<u>58 / 02-B</u>	<u>03</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>"</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					

SIGNATURE		PRINT NAME		COMPANY		DATE		TIME	
[Signature]		[Signature]		PRIME		8-5-21		5:35	
Received by:		[Signature]		[Signature]		8/6/21		17:35	
Received by:		[Signature]		PRIME					
Received by:		[Signature]		PRIME					

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

***Sidewall Performance and Compliance Samples***

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 10, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on May 6, 2021 from the 12th and Yesler WES 1591, F&BI 105080 project. There are 6 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  
WES0510R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 6, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 105080 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
105080 -01	NW STK-N
105080 -02	NW STK-S
105080 -03	NW STK-E
105080 -04	NW STK- Top
105080 -05	S13.5-SW-7'
105080 -06	S14.5-SW-8'
105080 -07	E14.5-SW-9'
105080 -08	E15.5-SW-6'
105080 -09	S19.5-SW-8'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/10/21

Date Received: 05/06/21

Project: 12th and Yesler WES 1591, F&BI 105080

Date Extracted: 05/06/21

Date Analyzed: 05/06/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-132)
NW STK-N 105080-01	<0.02	<0.02	0.032	<0.06	40	73
NW STK-S 105080-02	<0.02	<0.02	<0.02	<0.06	<5	75
NW STK-E 105080-03	<0.02	<0.02	<0.02	<0.06	6.1	74
NW STK- Top 105080-04	<0.02	<0.02	<0.02	<0.06	<5	75
S13.5-SW-7' 105080-05	<0.02	<0.02	<0.02	<0.06	<5	75
S14.5-SW-8' 105080-06	<0.02	<0.02	0.028	<0.06	25	72
Method Blank 01-997 MB2	<0.02	<0.02	<0.02	<0.06	<5	77

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/10/21

Date Received: 05/06/21

Project: 12th and Yesler WES 1591, F&BI 105080

Date Extracted: 05/06/21

Date Analyzed: 05/06/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
NW STK-N 105080-01	360 x	2,600	88
NW STK-S 105080-02	<50	<250	87
NW STK-E 105080-03	<50	<250	87
NW STK- Top 105080-04	<50	<250	87
S13.5-SW-7' 105080-05	<50	<250	78
S14.5-SW-8' 105080-06	<50	<250	79
E14.5-SW-9' 105080-07	290 x	1,800	77
E15.5-SW-6' 105080-08	<50	<250	88
S19.5-SW-8' 105080-09	<50	<250	77
Method Blank 01-1094 MB	<50	<250	79

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/10/21

Date Received: 05/06/21

Project: 12th and Yesler WES 1591, F&BI 105080

**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: 105068-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	0.039	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	104	66-121
Toluene	mg/kg (ppm)	0.5	106	72-128
Ethylbenzene	mg/kg (ppm)	0.5	104	69-132
Xylenes	mg/kg (ppm)	1.5	107	69-131
Gasoline	mg/kg (ppm)	20	100	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/10/21

Date Received: 05/06/21

Project: 12th and Yesler WES 1591, F&BI 105080

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 105076-01 (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	210	84	84	73-135	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	94	74-139

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

105080

SAMPLE CHAIN OF CUSTODY

ME 05/06/81 CT3

Page #

of

Send Report To *Paul Friedman*

Company *ERS*

Address

City, State, ZIP

Phone # Fax #

SAMPLERS (signature)

PROJECT NAME/NO.

PO#

*RH + JESSIE*

*085  
1591*

REMARKS

TURNAROUND TIME  
Standard (2 Weeks)  
 RUSH *TAKE FOR STK*  
Rush charges authorized by *STAMP*

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

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED						Notes										
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS											
<i>NEB5TK-N</i>	<i>01</i>	<i>5-2</i>		<i>Soils</i>	<i>1</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														
<i>11-S</i>	<i>02</i>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														<i>RUSH</i>
<i>11-E</i>	<i>03</i>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														<i>PLEASE</i>
<i>11 TOP</i>	<i>04</i>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														
<i>SLB.S-SO-7</i>	<i>05</i>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														
<i>SH.S-SO-8</i>	<i>06</i>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														
<i>EH.S-SO-9</i>	<i>07</i>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														
<i>E.S.S-SO-5</i>	<i>08</i>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														
<i>SH.S-SO-8</i>	<i>09</i>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

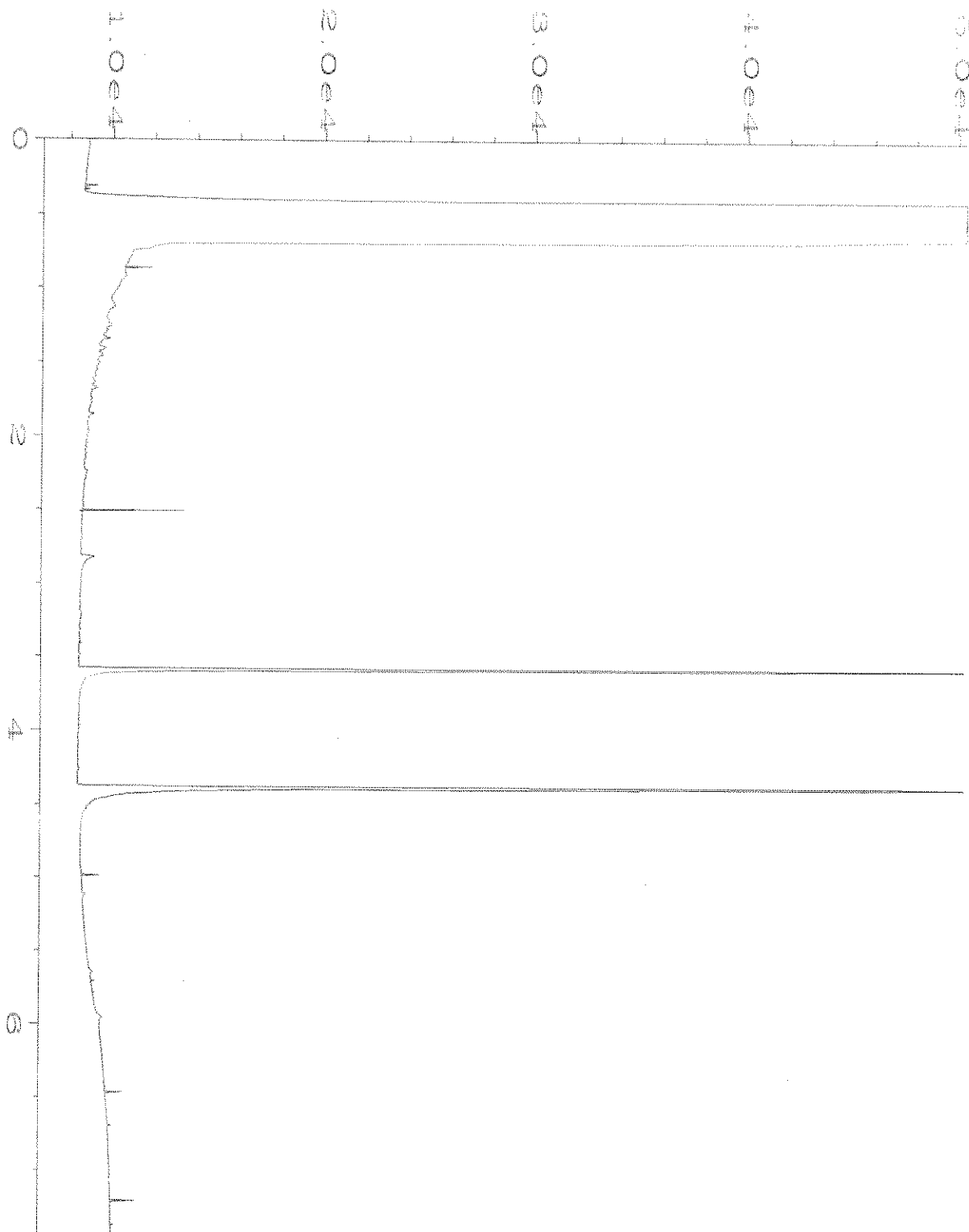
Relinquished by: *[Signature]*

Received by: *Paul Wynn*

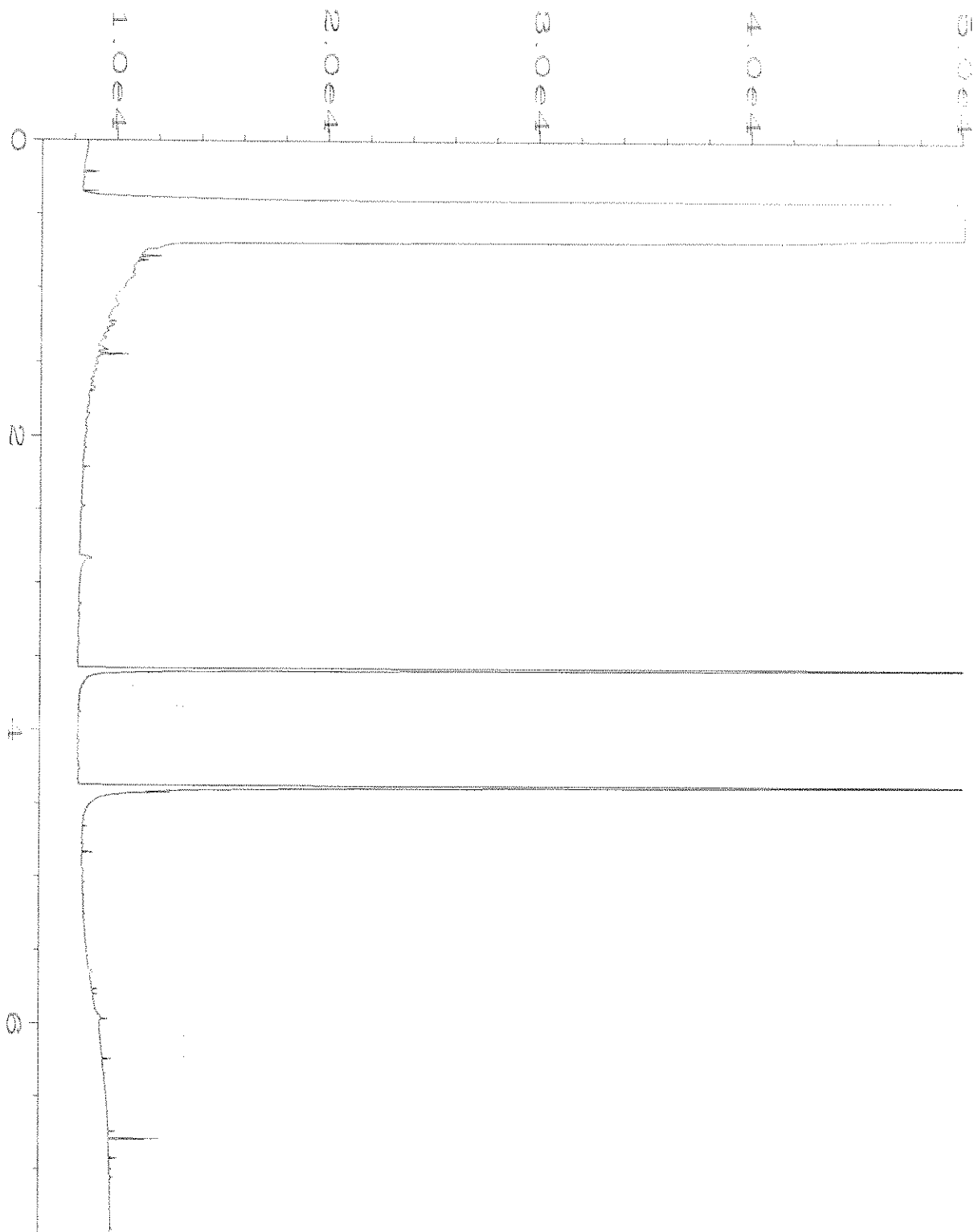
Relinquished by: *Paul Wynn*

Received by: *Paul Wynn*

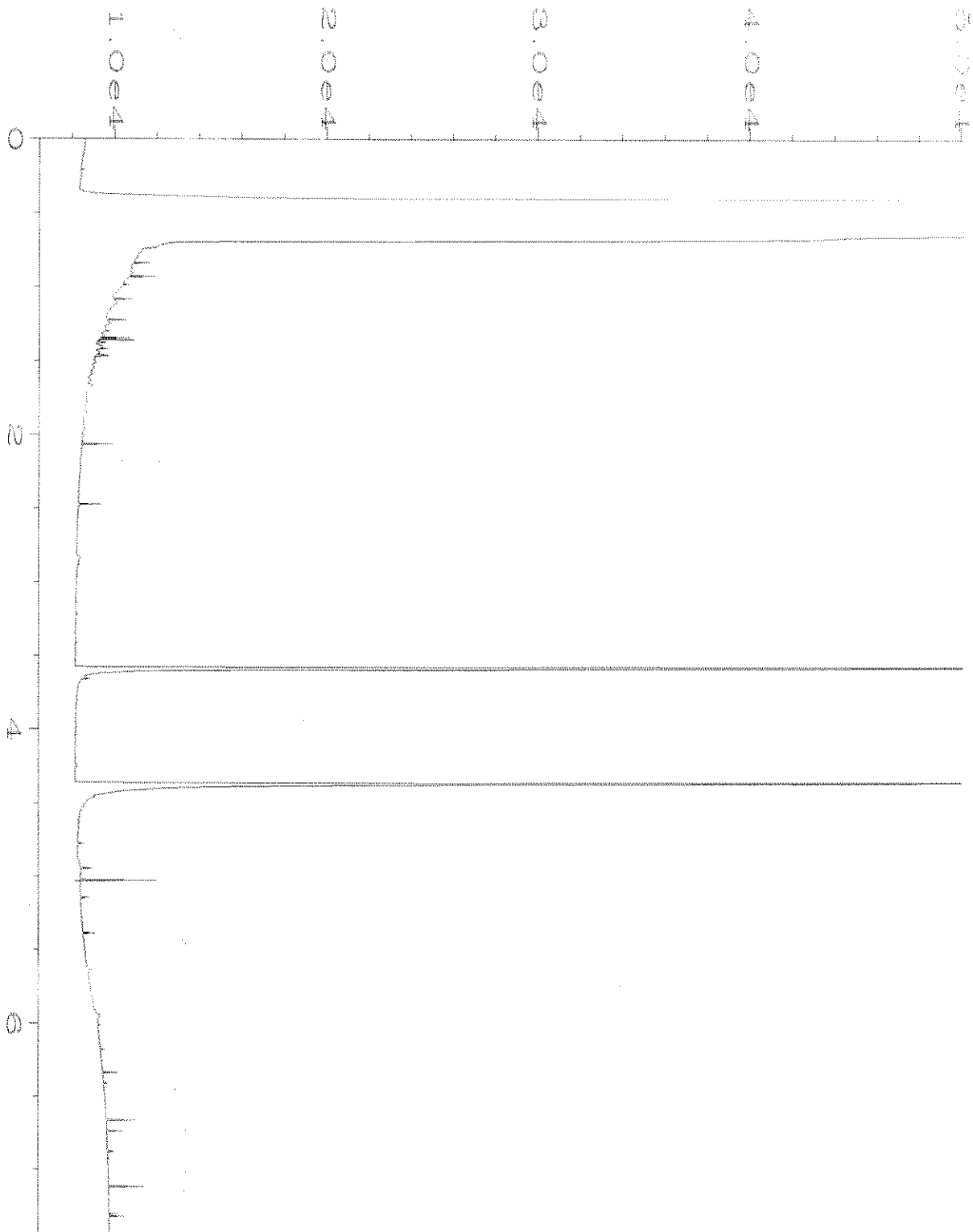
Samples received at *4* °C



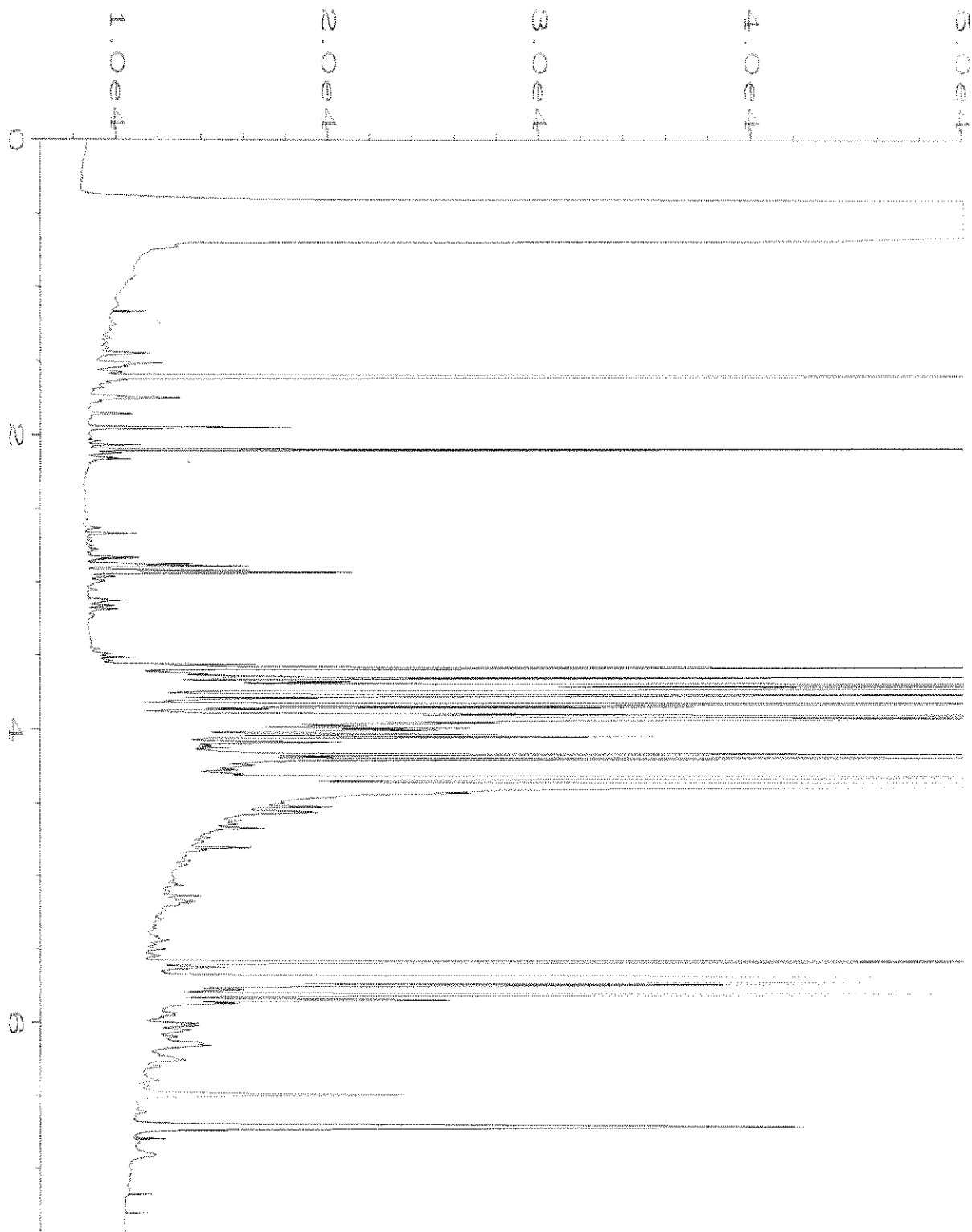
Data File Name	: C:\HPCHEM\1\DATA\05-05-21\008F0401.D	Page Number	: 1
Operator	: TL	Vial Number	: 8
Instrument	: GC1	Injection Number	: 1
Sample Name	: 105080-01	Sequence Line	: 4
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 05 May 21 11:00 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 08:59 AM		



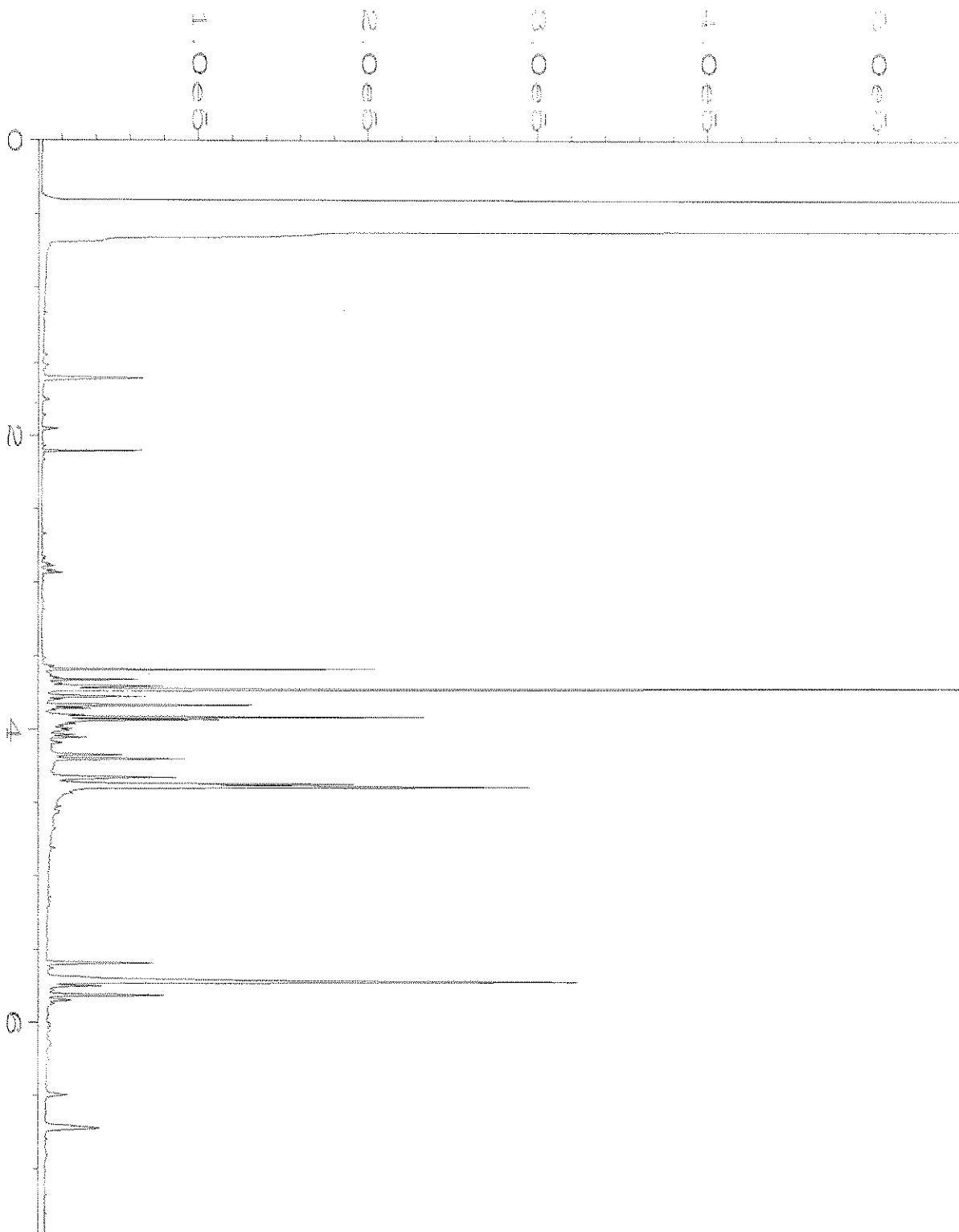
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Operator	: TL	Vial Number	: 10
Instrument	: GC1	Injection Number	: 1
Sample Name	: 104580-02	Sequence Line	: 7
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 05 May 21 01:44 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 09:10 AM		



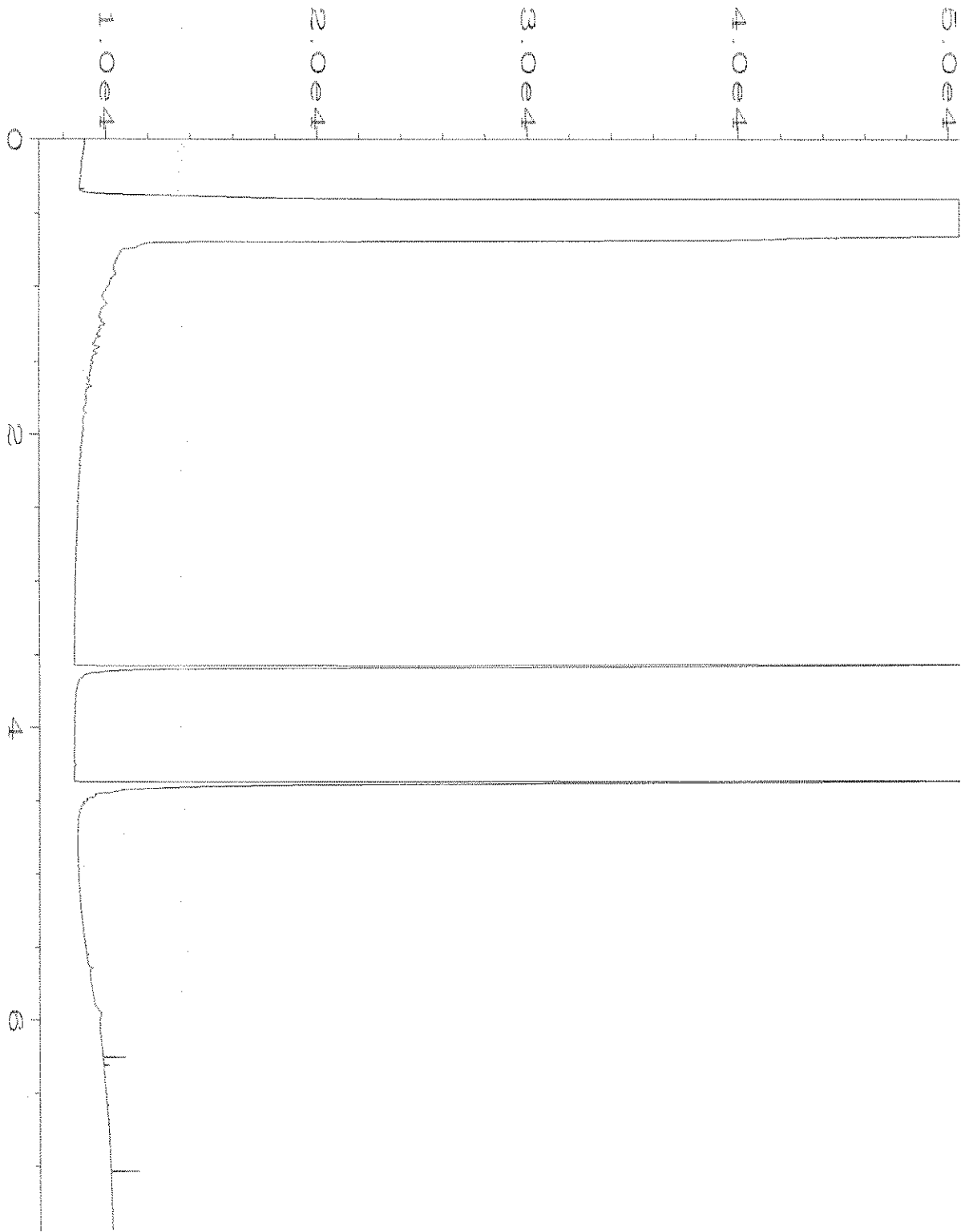
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Operator	: TL	Vial Number	: 11
Instrument	: GC1	Injection Number	: 1
Sample Name	: 104580-03	Sequence Line	: 7
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 05 May 21 01:55 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 09:10 AM		



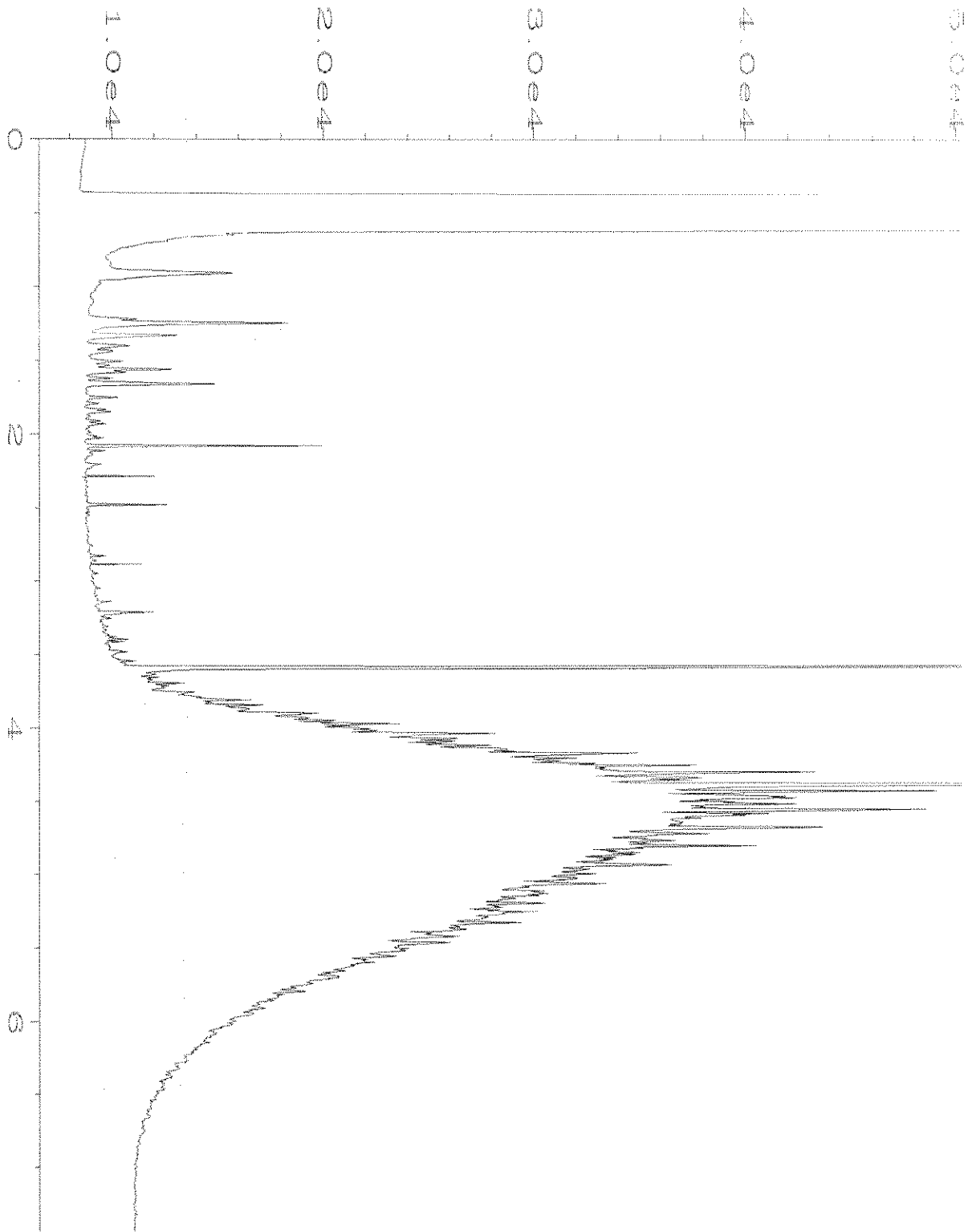
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Operator	: TL	Vial Number	: 12
Instrument	: GC1	Injection Number	: 1
Sample Name	: 104580-04	Sequence Line	: 7
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 05 May 21 02:07 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 09:10 AM		



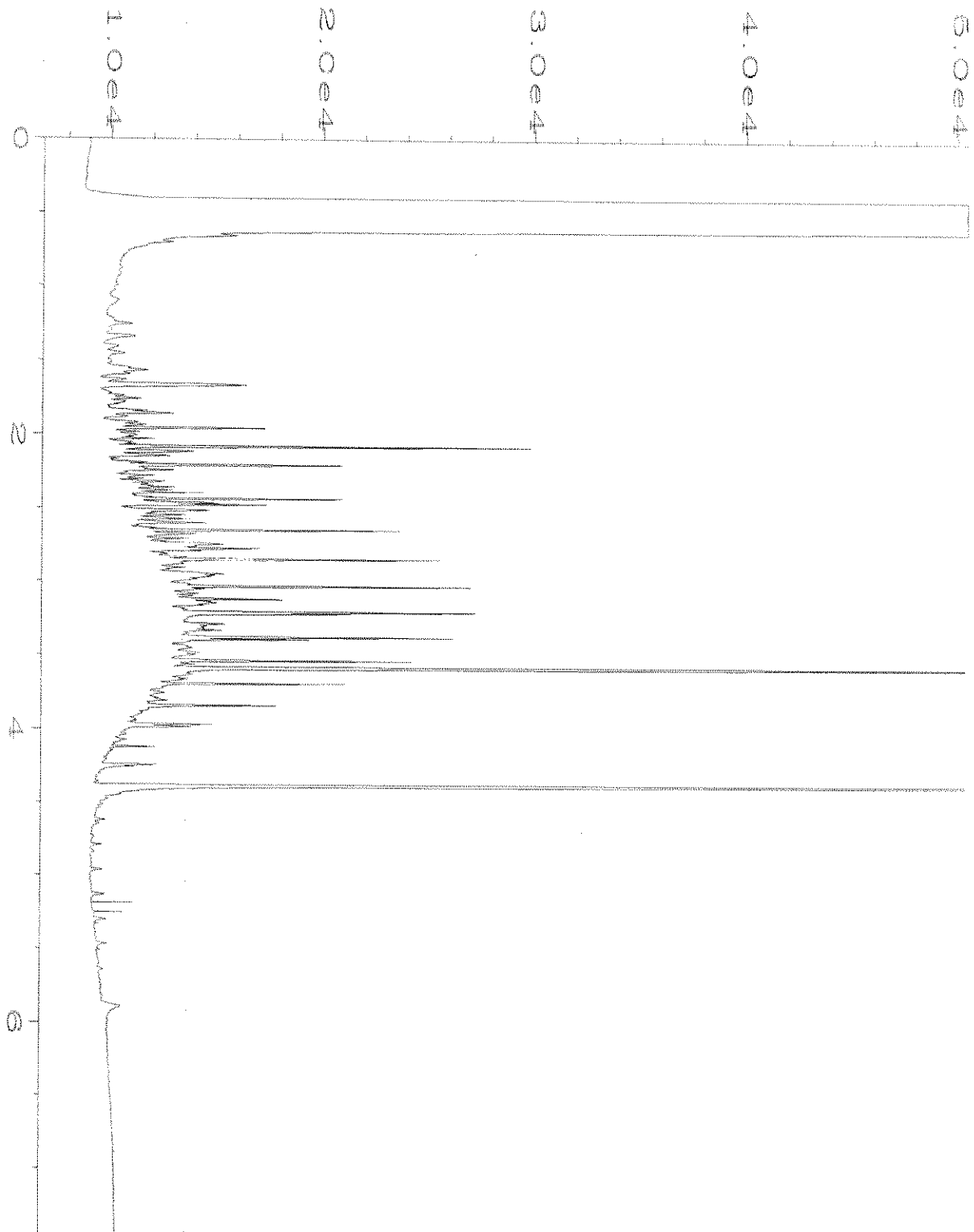
Data File Name	: C:\HPCHEM\1\DATA\05-05-21\012F0701.D	Page Number	: 1
Operator	: TL	Vial Number	: 12
Instrument	: GC1	Injection Number	: 1
Sample Name	: 104580-04	Sequence Line	: 7
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 05 May 21 02:07 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 09:11 AM		



Data File Name	: C:\HPCHEM\1\DATA\05-05-21\006F0401.D	Page Number	: 1
Operator	: TL	Vial Number	: 6
Instrument	: GC1	Injection Number	: 1
Sample Name	: 01-1089 mb	Sequence Line	: 4
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 05 May 21 10:37 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 08:58 AM		



Data File Name	: C:\HPCHEM\1\DATA\05-05-21\096F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 96
Instrument	: GC1	Injection Number	: 1
Sample Name	: HCIDs G/M 63-83A	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 05 May 21 10:17 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 08:58 AM		



Data File Name	: C:\HPCHEM\1\DATA\05-05-21\097F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 97
Instrument	: GC1	Injection Number	: 1
Sample Name	: HCIDs Dx 62-142G	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 05 May 21 10:26 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 08:58 AM		

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 13, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on May 10, 2021 from the 12th and Yesler WES-1591, F&BI 105144 project. There are 6 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  
WES0513R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 10, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 105144 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
105144 -01	W34.5SW-10'
105144 -02	W36.5SW-12'
105144 -03	W38.5SW-7'
105144 -04	W39.5SW-10'
105144 -05	W41.5SW-9'
105144 -06	W42.5SW-11'
105144 -07	W45.5SW-10'
105144 -08	W48.5SW-14'
105144 -09	W49.5SW-12'
105144 -10	W50.5SW-15'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/13/21  
 Date Received: 05/10/21  
 Project: 12th and Yesler WES-1591, F&BI 105144  
 Date Extracted: 05/10/21  
 Date Analyzed: 05/11/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
W34.5SW-10' 105144-01	<0.02	<0.02	<0.02	<0.06	<5	89
W36.5SW-12' 105144-02	<0.02	<0.02	<0.02	<0.06	<5	89
W38.5SW-7' 105144-03	<0.02	<0.02	<0.02	<0.06	<5	89
W39.5SW-10' 105144-04	<0.02	<0.02	<0.02	<0.06	<5	90
W41.5SW-9' 105144-05	<0.02	<0.02	<0.02	<0.06	<5	89
W42.5SW-11' 105144-06	<0.02	<0.02	<0.02	<0.06	<5	74
W45.5SW-10' 105144-07	<0.02	<0.02	<0.02	<0.06	<5	90
W48.5SW-14' 105144-08	<0.02	<0.02	<0.02	<0.06	<5	90
W49.5SW-12' 105144-09	<0.02	<0.02	<0.02	<0.06	<5	81
W50.5SW-15' 105144-10	<0.02	<0.02	<0.02	<0.06	<5	91
Method Blank 01-1002 MB	<0.02	<0.02	<0.02	<0.06	<5	76

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/13/21  
Date Received: 05/10/21  
Project: 12th and Yesler WES-1591, F&BI 105144  
Date Extracted: 05/10/21  
Date Analyzed: 05/10/21

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**  
Results Reported on a Dry Weight Basis  
Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 53-144)
W34.5SW-10' 105144-01	<50	<250	98
W36.5SW-12' 105144-02	<50	<250	101
W38.5SW-7' 105144-03	<50	<250	99
W39.5SW-10' 105144-04	<50	<250	94
W41.5SW-9' 105144-05	<50	<250	90
W42.5SW-11' 105144-06	<50	<250	95
W45.5SW-10' 105144-07	<50	<250	89
W48.5SW-14' 105144-08	<50	<250	91
W49.5SW-12' 105144-09	<50	<250	88
W50.5SW-15' 105144-10	<50	<250	89
Method Blank 01-1109 MB	<50	<250	88

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/13/21

Date Received: 05/10/21

Project: 12th and Yesler WES-1591, F&BI 105144

**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: 105135-01 (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	0.025	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	102	66-121
Toluene	mg/kg (ppm)	0.5	102	72-128
Ethylbenzene	mg/kg (ppm)	0.5	99	69-132
Xylenes	mg/kg (ppm)	1.5	99	69-131
Gasoline	mg/kg (ppm)	20	95	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/13/21

Date Received: 05/10/21

Project: 12th and Yesler WES-1591, F&BI 105144

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 105144-01 (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	86	84	64-133	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	92	58-147

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

105144

SAMPLE CHA OF CUSTODY 05-10-24

Page # of A02 / VS4

Send Report To Dan Whitman

Company: Whitman Environmental Sciences

Address: 5508 35th Ave NE

City, State, ZIP Seattle, WA 98105

Phone # (206) 523-3505 Fax # (206) 523-0224

SAMPLERS (signature)

PROJECT NAME/NO.

Handwritten signature and project name

PO #

Handwritten PO number

REMARKS

TURNAROUND TIME

Standard (2 Weeks)

RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

Dispose after 30 days

Return samples

Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED						Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS		
0334.5 SCD-10'10" A-5-7-21			PM	SOIL	5	X	X	X					
0336.5 SCD-12'02													
0338.5 SCD-7'03													
0339.5 SCD-10'04													
0341.5 SCD-9'05													
0342.5 SCD-11'06													
0343.5 SCD-10'07													
0343.5 SCD-11'08													
0344.5 SCD-12'09													
0350.5 SCD-15'10													

Friedman & Bruno, 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:

Handwritten signature

Handwritten company name

Handwritten date

Received by:

Handwritten signature

Handwritten name

Handwritten company name

Handwritten date

Relinquished by:

Handwritten signature

Received by:

Handwritten signature

Samples received at 10:00

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

May 19, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on May 13, 2021 from the 12th and Yesler WES-1591, F&BI 105246 project. There are 5 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  
WES0519R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 13, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 105246 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
105246 -01	N 0.5 SW-13'
105246 -02	N 1.5 SW-8'
105246 -03	N 2.5 SW-15'
105246 -04	N 3.5 SW-11'
105246 -05	N 4.5 SW-14'
105246 -06	N 6.5 SW-10'
105246 -07	S 8.5 SW-6'
105246 -08	S 11 SW-7'
105246 -09	S 15.5 SW-8'
105246 -10	S 16.5 SW-9'
105246 -11	W 34.5 SW-13'
105246 -12	W 46.5 SW-15'
105246 -13	W 52.5 SW-9'
105246 -14	W 52.5 SW-15'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/19/21  
 Date Received: 05/13/21  
 Project: 12th and Yesler WES-1591, F&BI 105246  
 Date Extracted: 05/14/21  
 Date Analyzed: 05/17/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
N 0.5 SW-13' 105246-01	<0.02	<0.02	<0.02	<0.06	<5	88
N 1.5 SW-8' 105246-02	<0.02	<0.02	<0.02	<0.06	<5	89
N 2.5 SW-15' 105246-03	<0.02	<0.02	<0.02	<0.06	<5	78
N 3.5 SW-11' 105246-04	<0.02	<0.02	<0.02	<0.06	<5	88
N 4.5 SW-14' 105246-05	<0.02	<0.02	<0.02	<0.06	<5	88
N 6.5 SW-10' 105246-06	<0.02	<0.02	<0.02	<0.06	<5	88
S 8.5 SW-6' 105246-07	<0.02	<0.02	0.036	<0.06	15	87
S 11 SW-7' 105246-08	<0.02	<0.02	<0.02	<0.06	<5	86
S 15.5 SW-8' 105246-09	<0.02	<0.02	<0.02	<0.06	<5	91
S 16.5 SW-9' 105246-10	<0.02	<0.02	<0.02	<0.06	<5	91
W 34.5 SW-13' 105246-11	<0.02	0.026	<0.02	<0.06	<5	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/19/21

Date Received: 05/13/21

Project: 12th and Yesler WES-1591, F&BI 105246

Date Extracted: 05/14/21

Date Analyzed: 05/17/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
W 46.5 SW-15' 105246-12	<0.02	<0.02	<0.02	<0.06	<5	87
W 52.5 SW-9' 105246-13	<0.02	<0.02	<0.02	<0.06	<5	77
W 52.5 SW-15' 105246-14	<0.02	<0.02	<0.02	<0.06	<5	90
Method Blank 01-1011 MB	<0.02	<0.02	<0.02	<0.06	<5	88

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/19/21

Date Received: 05/13/21

Project: 12th and Yesler WES-1591, F&BI 105246

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR BENZENE, TOLUENE, ETHYLBENZENE,  
XYLENES, AND TPH AS GASOLINE  
USING METHOD 8021B AND NWTPH-G<sub>x</sub>**

Laboratory Code: 105246-01 (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)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	102	69-120
Toluene	mg/kg (ppm)	0.5	106	70-117
Ethylbenzene	mg/kg (ppm)	0.5	105	65-123
Xylenes	mg/kg (ppm)	1.5	107	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

105246

SAMPLE CHAIN OF CUSTODY <sup>ME</sup> 05-13-21

Page # 1 of 2

Report To: Mr. [Signature]

Company: CHITMAN ENV. SERVICES

Address: 5815 16th Ave NE

City, State, ZIP: SEATTLE, WA 98115

Phone: \_\_\_\_\_ Email: CHITMAN@CHITMAN.COM

SAMPLERS (signature)	PROJECT NAME <u>374 / 1010R</u>	PO # <u>005-1591</u>
REMARKS	INVOICE TO	
Project specific RI's? - Yes / No		

TURNAROUND TIME	SAMPLE DISPOSAL
<input type="checkbox"/> Standard turnaround	<input type="checkbox"/> Archive samples †
<input type="checkbox"/> RUSH	<input type="checkbox"/> Other _____
Rush charges authorized by: _____	Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		
N. 2.5 SW - 15'	01A-D					X	X							N. 2.5 SW - 15'
N. 3.5 SW - 11'	03													N. 3.5 SW - 11'
N. 4.5 SW - 14'	04													N. 4.5 SW - 14'
N. 6.5 SW - 10'	05													N. 6.5 SW - 10'
S. 8.5 SW - 6'	05		06 A-D											S. 8.5 SW - 6'
S. 11 SW - 7'	07 A-D													S. 11 SW - 7'
S. 15.5 SW - 8'	08													S. 15.5 SW - 8'
S. 16.5 SW - 9'	09													S. 16.5 SW - 9'
W. 34.5 SW - 13'	10													W. 34.5 SW - 13'
	11													

SIGNATURE		PRINT NAME		COMPANY		DATE	
Relinquished by: _____		VIN A		EBO7		5/13/21 15:40	
Received by: <u>[Signature]</u>							
Relinquished by:							
Received by:							
Samples received at <u>1000</u>							

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

105246

SAMPLE CHAIN OF CUSTODY WE 05-13-21

Page # 2 of 2

Report To BBB

Company Friedman

Address \_\_\_\_\_

City, State, ZIP \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

SAMPLERS (signature)	PROJECT NAME	PO #
<u>[Signature]</u>	<u>1251 + 14100</u>	<u>0685</u>
REMARKS	INVOICE TO	
<u>[Signature]</u>	<u>1591</u>	
Project specific RLS? - Yes / No		

TURNAROUND TIME	SAMPLE DISPOSAL
<input checked="" type="checkbox"/> Standard turnaround	<input type="checkbox"/> Archive samples †
<input type="checkbox"/> RUSH	<input type="checkbox"/> Other
Rush charges authorized by: _____	Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		
<u>W 52.5 SW - 9</u>	<u>12AD</u>	<u>5</u>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<u>W 52.5 SW - 9</u>
<u>W 52.5 SW - 15</u>	<u>13</u>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<u>W 52.5 SW - 15</u>
<u>W 52.5 SW - 15</u>	<u>14</u>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<u>W 52.5 SW - 15</u>

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

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
<u>[Signature]</u>		<u>VIN H</u>		<u>FBI</u>		<u>5/13/21</u>	<u>1545</u>
Received by:		Relinquished by:		Received by:		Samples received at <u>1000</u>	

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

June 1, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on May 20, 2021 from the 12th and Yesler WES-1591, F&BI 105390 project. There are 21 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  
WES0601R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 20, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 105390 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
105390 -01	S4.5-SW-8
105390 -02	S12.5-SW-11
105390 -03	S15.5-SW-11
105390 -04	W37.5-SW-16
105390 -05	W40.5-SW-14
105390 -06	W43.5-SW-15

Several 8260D 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. In addition, the matrix spike and matrix spike duplicate exceeded the relative percent difference for several compounds. The analytes were not detected therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/01/21

Date Received: 05/20/21

Project: 12th and Yesler WES-1591, F&BI 105390

Date Extracted: 05/26/21

Date Analyzed: 05/27/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
S12.5-SW-11 105390-02	<5	89
S15.5-SW-11 105390-03	9.6	77
Method Blank 01-1286 MB	<5	74

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/01/21

Date Received: 05/20/21

Project: 12th and Yesler WES-1591, F&BI 105390

Date Extracted: 05/26/21

Date Analyzed: 05/27/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
W37.5-SW-16 105390-04	<0.02	<0.02	<0.02	<0.06	<5	89
W40.5-SW-14 105390-05	<0.02	<0.02	<0.02	<0.06	<5	88
W43.5-SW-15 105390-06	<0.02	<0.02	<0.02	<0.06	<5	89
Method Blank 01-1286 MB	<0.02	<0.02	<0.02	<0.06	<5	85

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/01/21

Date Received: 05/20/21

Project: 12th and Yesler WES-1591, F&BI 105390

Date Extracted: 05/21/21

Date Analyzed: 05/21/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
S12.5-SW-11 105390-02	<50	<250	93
S15.5-SW-11 105390-03	<50	<250	94
Method Blank 01-1274 MB	<50	<250	95

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	S12.5-SW-11	Client:	Whitman Environmental Sciences
Date Received:	05/20/21	Project:	12th and Yesler WES-1591
Date Extracted:	05/21/21	Lab ID:	105390-02
Date Analyzed:	05/21/21	Data File:	105390-02.063
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.34
Cadmium	<1
Chromium	15.3
Lead	1.50
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	S15.5-SW-11	Client:	Whitman Environmental Sciences
Date Received:	05/20/21	Project:	12th and Yesler WES-1591
Date Extracted:	05/21/21	Lab ID:	105390-03
Date Analyzed:	05/21/21	Data File:	105390-03.064
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.58
Cadmium	<1
Lead	2.09
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	S15.5-SW-11	Client:	Whitman Environmental Sciences
Date Received:	05/20/21	Project:	12th and Yesler WES-1591
Date Extracted:	05/21/21	Lab ID:	105390-03 x5
Date Analyzed:	05/21/21	Data File:	105390-03 x5.091
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	17.8
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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:	05/21/21	Lab ID:	I1-323 mb2
Date Analyzed:	05/21/21	Data File:	I1-323 mb2.057
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	S12.5-SW-11	Client:	Whitman Environmental Sciences
Date Received:	05/20/21	Project:	12th and Yesler WES-1591
Date Extracted:	05/24/21	Lab ID:	105390-02
Date Analyzed:	05/24/21	Data File:	052406.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	79	128
Toluene-d8	103	84	121
4-Bromofluorobenzene	106	84	116

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	<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)	<1	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	<1	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 8260D

Client Sample ID: S15.5-SW-11	Client: Whitman Environmental Sciences
Date Received: 05/20/21	Project: 12th and Yesler WES-1591
Date Extracted: 05/24/21	Lab ID: 105390-03
Date Analyzed: 05/24/21	Data File: 052407.D
Matrix: Soil	Instrument: GCMS11
Units: mg/kg (ppm) Dry Weight	Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	114	79	128
Toluene-d8	105	84	121
4-Bromofluorobenzene	101	84	116

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	<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)	<1	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	<1	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 8260D

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES-1591
Date Extracted:	05/24/21	Lab ID:	01-1150 mb
Date Analyzed:	05/24/21	Data File:	052405.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	79	128
Toluene-d8	92	84	121
4-Bromofluorobenzene	103	84	116

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	<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)	<1	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	<1	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 PCBs By EPA Method 8082A

Client Sample ID:	S12.5-SW-11	Client:	Whitman Environmental Sciences
Date Received:	05/20/21	Project:	12th and Yesler WES-1591
Date Extracted:	05/24/21	Lab ID:	105390-02 1/6
Date Analyzed:	05/24/21	Data File:	052428.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	57	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	S15.5-SW-11	Client:	Whitman Environmental Sciences
Date Received:	05/20/21	Project:	12th and Yesler WES-1591
Date Extracted:	05/24/21	Lab ID:	105390-03 1/6
Date Analyzed:	05/24/21	Data File:	052429.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	57	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES-1591
Date Extracted:	05/24/21	Lab ID:	01-1279 mb 1/6
Date Analyzed:	05/24/21	Data File:	052423.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	83	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/01/21

Date Received: 05/20/21

Project: 12th and Yesler WES-1591, F&BI 105390

**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: 105390-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	96	69-120
Toluene	mg/kg (ppm)	0.5	100	70-117
Ethylbenzene	mg/kg (ppm)	0.5	100	65-123
Xylenes	mg/kg (ppm)	1.5	100	66-120
Gasoline	mg/kg (ppm)	20	85	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/01/21

Date Received: 05/20/21

Project: 12th and Yesler WES-1591, F&BI 105390

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 105186-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	100	92	73-135	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	100	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/01/21

Date Received: 05/20/21

Project: 12th and Yesler WES-1591, F&BI 105390

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

Laboratory Code: 105317-01 (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	8.01	69 b	97 b	75-125	34 b
Cadmium	mg/kg (ppm)	10	<1	90	89	75-125	1
Chromium	mg/kg (ppm)	50	8.04	89	89	75-125	0
Lead	mg/kg (ppm)	50	13.1	85	92	75-125	8
Mercury	mg/kg (ppm)	5	<1	91	87	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	91	80-120
Cadmium	mg/kg (ppm)	10	90	80-120
Chromium	mg/kg (ppm)	50	97	80-120
Lead	mg/kg (ppm)	50	86	80-120
Mercury	mg/kg (ppm)	5	91	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/01/21

Date Received: 05/20/21

Project: 12th and Yesler WES-1591, F&BI 105390

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

Laboratory Code: 105390-02 (Matrix Spike)

Analyte	Reporting Units	Sample Spike Level (Wet wt)	Percent Result Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)	
Dichlorodifluoromethane	mg/kg (ppm)	1	<0.5	14 vo	18 vo	50-150	25 vo
Chloromethane	mg/kg (ppm)	1.0	<0.5	38 vo	48 vo	50-150	23 vo
Vinyl chloride	mg/kg (ppm)	1.0	<0.05	51	60	50-150	16
Bromomethane	mg/kg (ppm)	1.0	<0.5	53	73	50-150	32 vo
Chloroethane	mg/kg (ppm)	1.0	<0.5	73	86	50-150	16
Trichlorofluoromethane	mg/kg (ppm)	1.0	<0.5	45 vo	52	50-150	14
Acetone	mg/kg (ppm)	5.0	<5	82	104	50-150	24 vo
1,1-Dichloroethene	mg/kg (ppm)	1.0	<0.05	62	71	50-150	14
Hexane	mg/kg (ppm)	1.0	<0.25	39 vo	47 vo	50-150	19
Methylene chloride	mg/kg (ppm)	1.0	<0.5	88	93	50-150	6
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1.0	<0.05	64	75	50-150	16
trans-1,2-Dichloroethene	mg/kg (ppm)	1.0	<0.05	63	74	50-150	16
1,1-Dichloroethane	mg/kg (ppm)	1.0	<0.05	67	79	50-150	16
2,2-Dichloropropane	mg/kg (ppm)	1.0	<0.05	59	70	50-150	17
cis-1,2-Dichloroethene	mg/kg (ppm)	1.0	<0.05	67	79	50-150	16
Chloroform	mg/kg (ppm)	1.0	<0.05	61	73	50-150	18
2-Butanone (MEK)	mg/kg (ppm)	5.0	<1	72	75	50-150	4
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1.0	<0.05	65	76	50-150	16
1,1,1-Trichloroethane	mg/kg (ppm)	1.0	<0.05	63	75	50-150	17
1,1-Dichloropropene	mg/kg (ppm)	1.0	<0.05	58	72	50-150	22 vo
Carbon tetrachloride	mg/kg (ppm)	1.0	<0.05	61	72	50-150	17
Benzene	mg/kg (ppm)	1.0	<0.03	63	74	50-150	16
Trichloroethene	mg/kg (ppm)	1.0	<0.02	62	74	50-150	18
1,2-Dichloropropane	mg/kg (ppm)	1.0	<0.05	61	72	50-150	17
Bromodichloromethane	mg/kg (ppm)	1.0	<0.05	59	83	50-150	34 vo
Dibromomethane	mg/kg (ppm)	1.0	<0.05	64	78	50-150	20
4-Methyl-2-pentanone	mg/kg (ppm)	5.0	<1	65	73	50-150	12
cis-1,3-Dichloropropene	mg/kg (ppm)	1.0	<0.05	63	77	50-150	20
Toluene	mg/kg (ppm)	1.0	<0.05	68	74	50-150	8
trans-1,3-Dichloropropene	mg/kg (ppm)	1.0	<0.05	67	76	50-150	13
1,1,2-Trichloroethane	mg/kg (ppm)	1.0	<0.05	72	78	50-150	8
2-Hexanone	mg/kg (ppm)	5.0	<0.5	74	79	50-150	7
1,3-Dichloropropane	mg/kg (ppm)	1.0	<0.05	68	73	50-150	7
Tetrachloroethene	mg/kg (ppm)	1.0	<0.025	69	74	50-150	7
Dibromochloromethane	mg/kg (ppm)	1.0	<0.05	69	75	50-150	8
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1.0	<0.05	71	76	50-150	7
Chlorobenzene	mg/kg (ppm)	1.0	<0.05	71	77	50-150	8
Ethylbenzene	mg/kg (ppm)	1.0	<0.05	71	77	50-150	8
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1.0	<0.05	69	73	50-150	6
m,p-Xylene	mg/kg (ppm)	2.0	<0.1	70	76	50-150	8
o-Xylene	mg/kg (ppm)	1.0	<0.05	70	76	50-150	8
Styrene	mg/kg (ppm)	1.0	<0.05	70	75	50-150	7
Isopropylbenzene	mg/kg (ppm)	1.0	<0.05	68	73	50-150	7
Bromoform	mg/kg (ppm)	1.0	<0.05	70	75	50-150	7
n-Propylbenzene	mg/kg (ppm)	1.0	<0.05	69	77	50-150	11
Bromobenzene	mg/kg (ppm)	1.0	<0.05	71	77	50-150	8
1,3,5-Trimethylbenzene	mg/kg (ppm)	1.0	<0.05	68	77	50-150	12
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1.0	<0.05	72	79	50-150	9
1,2,3-Trichloropropane	mg/kg (ppm)	1.0	<0.05	67	74	50-150	10
2-Chlorotoluene	mg/kg (ppm)	1.0	<0.05	70	78	50-150	11
4-Chlorotoluene	mg/kg (ppm)	1.0	<0.05	67	74	50-150	10
tert-Butylbenzene	mg/kg (ppm)	1.0	<0.05	69	75	50-150	8
1,2,4-Trimethylbenzene	mg/kg (ppm)	1.0	<0.05	65	71	50-150	9
sec-Butylbenzene	mg/kg (ppm)	1.0	<0.05	68	73	50-150	7
p-Isopropyltoluene	mg/kg (ppm)	1.0	<0.05	68	71	50-150	4
1,3-Dichlorobenzene	mg/kg (ppm)	1.0	<0.05	71	80	50-150	12
1,4-Dichlorobenzene	mg/kg (ppm)	1.0	<0.05	71	78	50-150	9
1,2-Dichlorobenzene	mg/kg (ppm)	1.0	<0.05	69	78	50-150	12
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1.0	<0.5	64	74	50-150	14
1,2,4-Trichlorobenzene	mg/kg (ppm)	1.0	<0.25	68	78	50-150	14
Hexachlorobutadiene	mg/kg (ppm)	1.0	<0.25	67	73	50-150	9
Naphthalene	mg/kg (ppm)	1.0	<0.05	66	75	50-150	13
1,2,3-Trichlorobenzene	mg/kg (ppm)	1.0	<0.25	68	78	50-150	14

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/01/21

Date Received: 05/20/21

Project: 12th and Yesler WES-1591, F&BI 105390

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1.0	53	10-150
Chloromethane	mg/kg (ppm)	1.0	72	21-140
Vinyl chloride	mg/kg (ppm)	1.0	99	35-135
Bromomethane	mg/kg (ppm)	1.0	98	20-151
Chloroethane	mg/kg (ppm)	1.0	93	21-147
Trichlorofluoromethane	mg/kg (ppm)	1.0	93	47-143
Acetone	mg/kg (ppm)	5.0	113	13-169
1,1-Dichloroethene	mg/kg (ppm)	1.0	108	49-138
Hexane	mg/kg (ppm)	1.0	90	61-141
Methylene chloride	mg/kg (ppm)	1.0	94	25-146
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1.0	101	65-129
trans-1,2-Dichloroethene	mg/kg (ppm)	1.0	105	62-126
1,1-Dichloroethane	mg/kg (ppm)	1.0	108	64-131
2,2-Dichloropropane	mg/kg (ppm)	1.0	93	76-150
cis-1,2-Dichloroethene	mg/kg (ppm)	1.0	107	62-127
Chloroform	mg/kg (ppm)	1.0	97	67-129
2-Butanone (MEK)	mg/kg (ppm)	5.0	94	19-171
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1.0	101	73-123
1,1,1-Trichloroethane	mg/kg (ppm)	1.0	104	66-125
1,1-Dichloropropene	mg/kg (ppm)	1.0	97	70-131
Carbon tetrachloride	mg/kg (ppm)	1.0	103	53-135
Benzene	mg/kg (ppm)	1.0	101	70-130
Trichloroethene	mg/kg (ppm)	1.0	100	62-116
1,2-Dichloropropane	mg/kg (ppm)	1.0	96	70-130
Bromodichloromethane	mg/kg (ppm)	1.0	95	70-130
Dibromomethane	mg/kg (ppm)	1.0	104	70-130
4-Methyl-2-pentanone	mg/kg (ppm)	5.0	98	64-137
cis-1,3-Dichloropropene	mg/kg (ppm)	1.0	104	68-137
Toluene	mg/kg (ppm)	1.0	99	70-130
trans-1,3-Dichloropropene	mg/kg (ppm)	1.0	103	70-130
1,1,2-Trichloroethane	mg/kg (ppm)	1.0	105	70-130
2-Hexanone	mg/kg (ppm)	5.0	102	55-145
1,3-Dichloropropene	mg/kg (ppm)	1.0	98	70-130
Tetrachloroethene	mg/kg (ppm)	1.0	100	69-131
Dibromochloromethane	mg/kg (ppm)	1.0	107	61-137
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1.0	104	70-130
Chlorobenzene	mg/kg (ppm)	1.0	101	70-130
Ethylbenzene	mg/kg (ppm)	1.0	102	70-130
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1.0	104	56-134
m,p-Xylene	mg/kg (ppm)	2.0	100	70-130
o-Xylene	mg/kg (ppm)	1.0	101	70-130
Styrene	mg/kg (ppm)	1.0	99	70-130
Isopropylbenzene	mg/kg (ppm)	1.0	98	67-131
Bromoform	mg/kg (ppm)	1.0	107	70-130
n-Propylbenzene	mg/kg (ppm)	1.0	100	70-130
Bromobenzene	mg/kg (ppm)	1.0	101	70-130
1,3,5-Trimethylbenzene	mg/kg (ppm)	1.0	100	70-130
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1.0	104	70-130
1,2,3-Trichloropropane	mg/kg (ppm)	1.0	97	70-130
2-Chlorotoluene	mg/kg (ppm)	1.0	101	70-130
4-Chlorotoluene	mg/kg (ppm)	1.0	96	70-130
tert-Butylbenzene	mg/kg (ppm)	1.0	100	70-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1.0	100	70-130
sec-Butylbenzene	mg/kg (ppm)	1.0	102	68-131
p-Isopropyltoluene	mg/kg (ppm)	1.0	105	70-130
1,3-Dichlorobenzene	mg/kg (ppm)	1.0	102	70-130
1,4-Dichlorobenzene	mg/kg (ppm)	1.0	101	70-130
1,2-Dichlorobenzene	mg/kg (ppm)	1.0	97	70-130
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1.0	98	70-130
1,2,4-Trichlorobenzene	mg/kg (ppm)	1.0	105	66-140
Hexachlorobutadiene	mg/kg (ppm)	1.0	99	67-141
Naphthalene	mg/kg (ppm)	1.0	100	69-119
1,2,3-Trichlorobenzene	mg/kg (ppm)	1.0	107	66-138

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/01/21

Date Received: 05/20/21

Project: 12th and Yesler WES-1591, F&BI 105390

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES FOR  
POLYCHLORINATED BIPHENYLS AS  
AROCLOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: 105390-02 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	<0.02	73	86	29-125	16
Aroclor 1260	mg/kg (ppm)	0.25	<0.02	75	89	25-137	17

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.25	98	55-137
Aroclor 1260	mg/kg (ppm)	0.25	103	51-150

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

105390

SAMPLE CHAIN OF CUSTODY

05-20-21

VS1/BI2

Report To Mr. Williams

Company Environmental Services

Address 812 1st Ave NE

City, State, ZIP Seattle, WA 98119

Phone 206-461-1111

Email enquiries@eswa.com

SAMPLERS (signature)

PROJECT NAME

REMARKS

PO #

1591

INVOICE TO

Project specific RI's? - Yes / No

ANALYSES REQUESTED

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

Archive samples

Other

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Notes
S11.5-SD-8	01A-6	5-18		Soil	5								
S12.5-SD-11	02					X	X	X	X	X	X	X	
S15.5-SD-11	03					X	X	X	X	X	X	X	
S37.5-SD-16	04					X	X	X	X	X	X	X	
S40.5-SD-14	05					X	X	X	X	X	X	X	
S43.5-SD-15	06					X	X	X	X	X	X	X	

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Reinquished by:	<u>[Signature]</u>					5-20-21	3:53
Received by:	<u>[Signature]</u>					5/20/21	1553
Reinquished by:	<u>[Signature]</u>						
Received by:	<u>[Signature]</u>						

via Webber-Bng

Samples received at 4:00

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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fbi@isomedia.com  
www.friedmanandbruya.com

June 2, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on May 25, 2021 from the 12th and Yesler WES-1591, F&BI 105467 project. There are 12 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  
WES0602R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 25, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 105467 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
105467 -01	E15.5-SW-11'
105467 -02	E17.5-SW-8'
105467 -03	E18.5-SW-10'
105467 -04	E22.5-SW-7'
105467 -05	S8.5-SW-7'
105467 -06	S19.5-SW-14'
105467 -07	S21.5-SW-12'
105467 -08	S21.5-SW-16'
105467 -09	S22.5-SW-14'
105467 -10	E10-S23-12'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/02/21

Date Received: 05/25/21

Project: 12th and Yesler WES-1591, F&BI 105467

Date Extracted: 05/26/21 and 05/27/21

Date Analyzed: 05/26/21 and 05/28/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
E15.5-SW-11' 105467-01	<0.02	<0.02	<0.02	<0.06	<5	73
S8.5-SW-7' 105467-05	<0.02	<0.02	<0.02	<0.06	10	89
S19.5-SW-14' 105467-06	<0.02	<0.02	<0.02	<0.06	<5	89
S21.5-SW-16' 105467-08	<0.02	<0.02	<0.02	<0.06	<5	89
S22.5-SW-14' 105467-09	<0.02	<0.02	<0.02	<0.06	<5	90
E10-S23-12' pc 105467-10	<0.02	0.031	0.52	1.3	240	117
Method Blank 01-1284 MB2	<0.02	<0.02	<0.02	<0.06	<5	92
Method Blank 01-1286 MB2	<0.02	<0.02	<0.02	<0.06	<5	86

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/02/21

Date Received: 05/25/21

Project: 12th and Yesler WES-1591, F&BI 105467

Date Extracted: 05/26/21

Date Analyzed: 05/26/21

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 53-144)
E15.5-SW-11' 105467-01	<50	<250	93
S19.5-SW-14' 105467-06	<50	<250	94
S21.5-SW-16' 105467-08	<50	<250	92
S22.5-SW-14' 105467-09	<50	<250	101
E10-S23-12' 105467-10	410 x	3,400	96
Method Blank 01-1317 MB	<50	<250	101

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E17.5-SW-8'	Client:	Whitman Environmental Sciences
Date Received:	05/25/21	Project:	12th and Yesler WES-1591, F&BI 105467
Date Extracted:	05/26/21	Lab ID:	105467-02
Date Analyzed:	05/26/21	Data File:	105467-02.159
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	65.6
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E18.5-SW-10'	Client:	Whitman Environmental Sciences
Date Received:	05/25/21	Project:	12th and Yesler WES-1591, F&BI 105467
Date Extracted:	05/26/21	Lab ID:	105467-03
Date Analyzed:	05/26/21	Data File:	105467-03.162
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	66.3
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E22.5-SW-7	Client:	Whitman Environmental Sciences
Date Received:	05/25/21	Project:	12th and Yesler WES-1591, F&BI 105467
Date Extracted:	05/26/21	Lab ID:	105467-04
Date Analyzed:	05/26/21	Data File:	105467-04.163
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	35.9
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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, F&BI 105467
Date Extracted:	05/26/21	Lab ID:	I1-335 mb
Date Analyzed:	05/26/21	Data File:	I1-335 mb.103
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/02/21

Date Received: 05/25/21

Project: 12th and Yesler WES-1591, F&BI 105467

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR BENZENE, TOLUENE, ETHYLBENZENE,  
XYLENES, AND TPH AS GASOLINE  
USING METHOD 8021B AND NWTPH-G<sub>x</sub>**

Laboratory Code: 105352-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	94	69-120
Toluene	mg/kg (ppm)	0.5	97	70-117
Ethylbenzene	mg/kg (ppm)	0.5	96	65-123
Xylenes	mg/kg (ppm)	1.5	98	66-120
Gasoline	mg/kg (ppm)	20	80	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/02/21

Date Received: 05/25/21

Project: 12th and Yesler WES-1591, F&BI 105467

**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: 105390-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	96	69-120
Toluene	mg/kg (ppm)	0.5	100	70-117
Ethylbenzene	mg/kg (ppm)	0.5	100	65-123
Xylenes	mg/kg (ppm)	1.5	100	66-120
Gasoline	mg/kg (ppm)	20	85	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/02/21

Date Received: 05/25/21

Project: 12th and Yesler WES-1591, F&BI 105467

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 105467-01 (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	82	92	64-133	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	82	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/02/21

Date Received: 05/25/21

Project: 12th and Yesler WES-1591, F&BI 105467

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

Laboratory Code: 105471-01 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	588	203 b	0 b	75-125	200 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	96	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

**Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

105467

SAMPLE CHAIN OF CUSTODY ME 5/25/21 BI2/152

Report to William Bruiya  
 Company William Bruiya, Inc.  
 Address 1634 16th Avenue  
 City, State, ZIP Seattle, WA 98119  
 Phone \_\_\_\_\_ Email \_\_\_\_\_

SAMPLERS (signature) \_\_\_\_\_  
 PROJECT NAME \_\_\_\_\_  
 REMARKS PH + Vialok  
 PO # 205, 159  
 INVOICE TO \_\_\_\_\_  
 Project specific RI's? - Yes / No

Page # \_\_\_\_\_ of \_\_\_\_\_  
 TURNAROUND TIME  
 Standard turnaround  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_  
 SAMPLE DISPOSAL  
 Archive samples  
 Other  
 Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED						Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270		PCBs EPA 8082	
E15.5-S0-11'	01A-E	5-24		soil	5	X	X	X						
E17.5-S0-8'	02	5-25			1									
E18.5-S0-10'	03	5-25			1									
E22.5-S0-7'	04	5-25			1									
S8.5-S0-7'	05A-E	5-25			5	X	X	X						
S19.5-S0-14'	06	5-24			5	X	X	X						
S21.5-S0-12'	07	5-24			5	X	X	X						
S21.5-S0-16'	08	5-24			5	X	X	X						
S22.5-S0-14'	09	5-24			5	X	X	X						
E01/S23-12'	10	5-24			1	X	X	X						

Samples received at 2:00 PM  
 per DW 5/26/21  
 DW 5/26/21  
 RWB 5/26/21

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	<u>Phan Phan</u>	<u>FEBI</u>	<u>5/25/21</u>	<u>2:51</u>
<u>[Signature]</u>	<u>Phan Phan</u>	<u>FEBI</u>	<u>5/25/21</u>	<u>14:57</u>
Received by:				
Relinquished 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 12, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the additional results from the testing of material submitted on May 25, 2021 from the 12th and Yesler WES-1591, F&BI 105467 project. There are 14 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  
WES0712R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 25, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 105467 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
105467 -01	E15.5-SW-11'
105467 -02	E17.5-SW-8'
105467 -03	E18.5-SW-10'
105467 -04	E22.5-SW-7'
105467 -05	S8.5-SW-7'
105467 -06	S19.5-SW-14'
105467 -07	S21.5-SW-12'
105467 -08	S21.5-SW-16'
105467 -09	S22.5-SW-14'
105467 -10	E10/S23-12'

The 6020B analysis was requested outside of the holding time for mercury. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E22.5-SW-7	Client:	Whitman Environmental Sciences
Date Received:	05/25/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/07/21	Lab ID:	105467-04
Date Analyzed:	07/07/21	Data File:	105467-04.129
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.78
Cadmium	<1
Lead	30.6
Mercury	<1 ht

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E22.5-SW-7	Client:	Whitman Environmental Sciences
Date Received:	05/25/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/07/21	Lab ID:	105467-04 x5
Date Analyzed:	07/08/21	Data File:	105467-04 x5.057
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	20.7
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	S19.5-SW-14'	Client:	Whitman Environmental Sciences
Date Received:	05/25/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/07/21	Lab ID:	105467-06
Date Analyzed:	07/07/21	Data File:	105467-06.130
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.77
Cadmium	<1
Lead	12.8
Mercury	<1 ht

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	S19.5-SW-14'	Client:	Whitman Environmental Sciences
Date Received:	05/25/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/07/21	Lab ID:	105467-06 x5
Date Analyzed:	07/08/21	Data File:	105467-06 x5.065
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	16.0
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	S21.5-SW-12'	Client:	Whitman Environmental Sciences
Date Received:	05/25/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/07/21	Lab ID:	105467-07
Date Analyzed:	07/07/21	Data File:	105467-07.131
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.53
Cadmium	<1
Mercury	<1 ht

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	S21.5-SW-12'	Client:	Whitman Environmental Sciences
Date Received:	05/25/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/07/21	Lab ID:	105467-07 x10
Date Analyzed:	07/08/21	Data File:	105467-07 x10.066
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	25.5
Lead	383

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	S21.5-SW-16'	Client:	Whitman Environmental Sciences
Date Received:	05/25/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/07/21	Lab ID:	105467-08
Date Analyzed:	07/07/21	Data File:	105467-08.132
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.89
Cadmium	<1
Lead	15.2
Mercury	<1 ht

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	S21.5-SW-16'	Client:	Whitman Environmental Sciences
Date Received:	05/25/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/07/21	Lab ID:	105467-08 x5
Date Analyzed:	07/08/21	Data File:	105467-08 x5.067
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	16.7
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	S22.5-SW-14'	Client:	Whitman Environmental Sciences
Date Received:	05/25/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/07/21	Lab ID:	105467-09
Date Analyzed:	07/07/21	Data File:	105467-09.135
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.98
Cadmium	<1
Lead	14.8
Mercury	<1 ht

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	S22.5-SW-14'	Client:	Whitman Environmental Sciences
Date Received:	05/25/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/07/21	Lab ID:	105467-09 x5
Date Analyzed:	07/08/21	Data File:	105467-09 x5.068
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	16.0
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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:	07/07/21	Lab ID:	I1-416 mb
Date Analyzed:	07/07/21	Data File:	I1-416 mb.092
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/12/21

Date Received: 05/25/21

Project: 12th and Yesler WES-1591, F&BI 105467

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

Laboratory Code: 107044-01 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	91	93	75-125	2
Cadmium	mg/kg (ppm)	10	<5	99	101	75-125	2
Chromium	mg/kg (ppm)	50	15.2	101	104	75-125	3
Lead	mg/kg (ppm)	50	<5	95	99	75-125	4
Mercury	mg/kg (ppm)	5	<5	92	102	75-125	10

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	88	80-120
Cadmium	mg/kg (ppm)	10	96	80-120
Chromium	mg/kg (ppm)	50	101	80-120
Lead	mg/kg (ppm)	50	93	80-120
Mercury	mg/kg (ppm)	5	98	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

**Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

105467

SAMPLE CHAIN OF CUSTODY ME 5/25/21 BI2/152

Report to: CHRYSTAL  
 Company: CHRYSTAL  
 Address: 1530 1st Avenue West  
 City, State, ZIP: SEATTLE, WA 98119  
 Phone: \_\_\_\_\_ Email: \_\_\_\_\_

PROJECT NAME		PO #
REMARKS		INVOICE TO
Project specific RIs? - Yes / No		

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		MTCA 5
E15.5-SD-11'	01A-E	5-25		Soil	5	X	X	X						● MTCA 5
E17.5-SD-8'	02	5-25			1									● PV DW 7/6/21 MC
E18.5-SD-10'	03	5-25			1									
E23.5-SD-7'	04	5-25			1									
S8.5-SD-7'	05A-B	5-25			5	X	X	X						
S19.5-SD-14'	06	5-24			5	X	X	X						
S21.5-SD-12'	07	5-24			5	X	X	X						
S21.5-SD-16'	08	5-24			5	X	X	X						
S22.5-SD-14'	09	5-24			5	X	X	X						
E10.5-SD-12'	10	5-23			1	X	X	X						

SIGNATURE		PRINT NAME		COMPANY		DATE		TIME	
Relinquished by: <u>[Signature]</u>		Phan Phan		F&BI		5/25/21		1457	
Received by: <u>[Signature]</u>		Phan Phan		F&BI		5/25/21		1457	
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

June 8, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on June 2, 2021 from the 12th and Yesler WES 1591, F&BI 106038 project. There are 4 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  
WES0608R.DOC

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 2, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 106038 project. Samples were logged in under the laboratory ID' s listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
106038 -01	N1.5-SW-17'
106038 -02	N3.5-SW-18'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/08/21

Date Received: 06/02/21

Project: 12th and Yesler WES 1591, F&BI 106038

Date Extracted: 06/03/21

Date Analyzed: 06/04/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
N1.5-SW-17' 106038-01	<0.02	<0.02	<0.02	<0.06	<5	90
N3.5-SW-18' 106038-02	<0.02	<0.02	<0.02	<0.06	<5	92
Method Blank 01-1294 MB	<0.02	<0.02	<0.02	<0.06	<5	91

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/08/21

Date Received: 06/02/21

Project: 12th and Yesler WES 1591, F&BI 106038

**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: 106038-01 (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)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	98	69-120
Toluene	mg/kg (ppm)	0.5	102	70-117
Ethylbenzene	mg/kg (ppm)	0.5	102	65-123
Xylenes	mg/kg (ppm)	1.5	107	66-120
Gasoline	mg/kg (ppm)	20	110	71-131

**Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

106038

SAMPLE CHAIN OF CUSTODY

06-02-21

VSI-D1

Page # of

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples

Other \_\_\_\_\_

Default: Dispose after 30 days

Report To: [Signature]  
 Company: WILSON ENV SERVICES  
 Address: 5815 16th Ave NE  
 City, State, ZIP: Seattle, WA 98119  
 Phone: \_\_\_\_\_ Email: WILSON@WES.COM

SAMPLERS (signature)		PROJECT NAME	PO #
[Signature]		<u>FRY - 4312</u>	<u>1065</u>
REMARKS		INVOICE TO	
Project specific RIs? - Yes / No			

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED						Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270		PCBs EPA 8082	
<u>N/S-SID-17</u>	<u>01A-0</u>	<u>5:05</u>	<u>11</u>	<u>soil</u>	<u>4</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
<u>N/S-SID-18</u>	<u>021</u>	<u>11</u>	<u>11</u>	<u>soil</u>	<u>4</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						

Samples received at 6:00

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
[Signature]	[Signature]	<u>WES</u>	<u>6/22/21</u>	<u>5:05</u>
Relinquished by:				
Received by:	<u>B. G.</u>	<u>FRY</u>	<u>6/22/21</u>	<u>1705</u>
Relinquished by:				
Received by:				

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

July 8, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on June 29, 2021 from the 12th and Yesler WES 1591, F&BI 106516 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  
WES0708R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 29, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 106516 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
106516 -01	N7.5-SW-18'
106516 -02	N5.5-SW-17'
106516 -03	W44.5-SW-17'
106516 -04	W49.5-SW-18'
106516 -05	E18.5-SW-10'
106516 -06	E19.5-SW-10.5'
106516 -07	E20.5-SW-12'
106516 -08	E23.5-SW-9'
106516 -09	S20.5-SW-17'
106516 -10	S22.5-SW-18'

Sample S20.5-SW-17' was sent to Amtest for organic matter analysis. The report generated by Amtest will be forwarded to your office upon receipt.

Mercury in the 6020B matrix spike failed the acceptance criteria. The laboratory control sample passed the acceptance criteria, therefore the results were due to matrix effect.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/08/21

Date Received: 06/29/21

Project: 12th and Yesler WES 1591, F&BI 106516

Date Extracted: 07/01/21

Date Analyzed: 07/01/21 and 07/02/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-132)
N7.5-SW-18' 106516-01	<0.02	<0.02	<0.02	<0.06	<5	89
N5.5-SW-17' 106516-02	<0.02	<0.02	<0.02	<0.06	<5	100
W44.5-SW-17' 106516-03	<0.02	<0.02	<0.02	<0.06	<5	104
W49.5-SW-18' 106516-04	<0.02	<0.02	<0.02	<0.06	<5	89
Method Blank 01-1428 MB	<0.02	<0.02	<0.02	<0.06	<5	88

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/08/21

Date Received: 06/29/21

Project: 12th and Yesler WES 1591, F&BI 106516

Date Extracted: 06/30/21

Date Analyzed: 06/30/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 53-144)
N7.5-SW-18' 106516-01	<50	<250	97
N5.5-SW-17' 106516-02	<50	<250	99
W44.5-SW-17' 106516-03	<50	<250	83
W49.5-SW-18' 106516-04	<50	<250	100
Method Blank 01-1534 MB	<50	<250	98

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E18.5-SW-10'	Client:	Whitman Environmental Sciences
Date Received:	06/29/21	Project:	12th and Yesler WES 1591
Date Extracted:	06/30/21	Lab ID:	106516-05
Date Analyzed:	06/30/21	Data File:	106516-05.117
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	5.12
Cadmium	<1
Chromium	16.9
Lead	35.0
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E19.5-SW-10.5'	Client:	Whitman Environmental Sciences
Date Received:	06/29/21	Project:	12th and Yesler WES 1591
Date Extracted:	06/30/21	Lab ID:	106516-06
Date Analyzed:	06/30/21	Data File:	106516-06.118
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	13.2
Cadmium	2.31
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E19.5-SW-10.5'	Client:	Whitman Environmental Sciences
Date Received:	06/29/21	Project:	12th and Yesler WES 1591
Date Extracted:	06/30/21	Lab ID:	106516-06 x5
Date Analyzed:	07/01/21	Data File:	106516-06 x5.122
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	51.7
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E19.5-SW-10.5'	Client:	Whitman Environmental Sciences
Date Received:	06/29/21	Project:	12th and Yesler WES 1591
Date Extracted:	06/30/21	Lab ID:	106516-06 x20
Date Analyzed:	07/03/21	Data File:	106516-06 x20.216
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	543
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E20.5-SW-12'	Client:	Whitman Environmental Sciences
Date Received:	06/29/21	Project:	12th and Yesler WES 1591
Date Extracted:	06/30/21	Lab ID:	106516-07
Date Analyzed:	06/30/21	Data File:	106516-07.140
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.52
Cadmium	<1
Lead	8.77
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E20.5-SW-12'	Client:	Whitman Environmental Sciences
Date Received:	06/29/21	Project:	12th and Yesler WES 1591
Date Extracted:	06/30/21	Lab ID:	106516-07 x5
Date Analyzed:	07/01/21	Data File:	106516-07 x5.123
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	26.8
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E23.5-SW-9'	Client:	Whitman Environmental Sciences
Date Received:	06/29/21	Project:	12th and Yesler WES 1591
Date Extracted:	06/30/21	Lab ID:	106516-08
Date Analyzed:	06/30/21	Data File:	106516-08.141
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	12.8
Cadmium	<1
Lead	3.03
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E23.5-SW-9'	Client:	Whitman Environmental Sciences
Date Received:	06/29/21	Project:	12th and Yesler WES 1591
Date Extracted:	06/30/21	Lab ID:	106516-08 x5
Date Analyzed:	07/01/21	Data File:	106516-08 x5.124
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	32.0
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	S20.5-SW-17	Client:	Whitman Environmental Sciences
Date Received:	06/29/21	Project:	12th and Yesler WES 1591
Date Extracted:	06/30/21	Lab ID:	106516-09
Date Analyzed:	06/30/21	Data File:	106516-09.154
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.22
Cadmium	<1
Lead	6.67
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	S20.5-SW-17	Client:	Whitman Environmental Sciences
Date Received:	06/29/21	Project:	12th and Yesler WES 1591
Date Extracted:	06/30/21	Lab ID:	106516-09 x5
Date Analyzed:	07/01/21	Data File:	106516-09 x5.131
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	26.2
----------	------

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	S22.5-SW-18'	Client:	Whitman Environmental Sciences
Date Received:	06/29/21	Project:	12th and Yesler WES 1591
Date Extracted:	06/30/21	Lab ID:	106516-10
Date Analyzed:	06/30/21	Data File:	106516-10.155
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	7.41
Cadmium	<1
Lead	3.71
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	S22.5-SW-18'	Client:	Whitman Environmental Sciences
Date Received:	06/29/21	Project:	12th and Yesler WES 1591
Date Extracted:	06/30/21	Lab ID:	106516-10 x5
Date Analyzed:	07/01/21	Data File:	106516-10 x5.136
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	30.4
----------	------

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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:	06/30/21	Lab ID:	I1-406 mb
Date Analyzed:	06/30/21	Data File:	I1-406 mb.089
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/08/21

Date Received: 06/29/21

Project: 12th and Yesler WES 1591, F&BI 106516

**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: 106516-01 (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)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	80	66-121
Toluene	mg/kg (ppm)	0.5	91	72-128
Ethylbenzene	mg/kg (ppm)	0.5	92	69-132
Xylenes	mg/kg (ppm)	1.5	91	69-131
Gasoline	mg/kg (ppm)	20	90	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/08/21

Date Received: 06/29/21

Project: 12th and Yesler WES 1591, F&BI 106516

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 106525-02 (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	6,900	117 b	174 b	64-133	39 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	90	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/08/21

Date Received: 06/29/21

Project: 12th and Yesler WES 1591, F&BI 106516

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

Laboratory Code: 106300-01 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	107	107	75-125	0
Cadmium	mg/kg (ppm)	10	<5	103	102	75-125	1
Chromium	mg/kg (ppm)	50	17.4	105	107	75-125	2
Lead	mg/kg (ppm)	50	42.8	103	119	75-125	14
Mercury	mg/kg (ppm)	5	<5	127 vo	124	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	89	80-120
Cadmium	mg/kg (ppm)	10	92	80-120
Chromium	mg/kg (ppm)	50	99	80-120
Lead	mg/kg (ppm)	50	93	80-120
Mercury	mg/kg (ppm)	5	97	80-120

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

106516

Report To THE CHEMISTS

Company CHEMISTS ENV. SERVICES

Address 515 15th Ave SE

City, State, ZIP SEATTLE WA 98155

Phone 206-325-1111

SAMPLE LAB CHIEF'S SIGNATURE  
SAMPLERS (signature) ME 06/29/21  
PROJECT NAME 17th & 8th St  
REMARKS FO# 2265 / 1571  
INVOICE TO

ANALYSES REQUESTED  
Project specific RLS? - Yes / No

Page # 02 of 02  
TURNAROUND TIME  
 Standard turnaround  
 RUSH  
Rush charges authorized by:  
SAMPLE DISPOSAL  
 Archive samples  
 Other  
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082			
N 25-SID-18'	01A9E	6-25	11M	SOIL	5	X	X	X							
N 5.5-SID-17'	02				11	X	X	X							
W 4.5-SID-17'	03				11	X	X	X							
W 19.5-SID-18'	04				11	X	X	X							
E 18.5-SID-10'	05 <sup>WATER</sup>				1										
E 19.5-SID-10.5'	06				1										
E 20.5-SID-15'	07				1										
E 23.5-SID-9'	08				1										
S 20.5-SID-17'	09	6-29			1										
S 22.5-SID-18'	10	"			1										

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

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Relinquished by:		Will Radford	Will Radford	F&BI	6/29/21	14:58	
Received by:		Will Radford	Will Radford	F&BI	6/29/21	14:58	
Relinquished by:							
Received by:							

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

July 12, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on June 21, 2021 from the 12th and Yesler WES 1591, F&BI 106360 project. There is 1 page 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  
WES0712R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 21, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 106360 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
106360 -01	ORG-1
106360 -02	ORG-2
106360 -03	ORG-3
106360 -04	S8.5-SW-6'

The samples were sent to Amtest for organic matter analysis. Review of the enclosed report indicates that all quality assurance were acceptable.



**Am Test Inc.**  
13600 NE 126TH PL  
Suite C  
Kirkland, WA 98034  
(425) 885-1664

*Professional  
Analytical  
Services*

Jul 8 2021  
Friedman & Bruya, Inc.  
3012 16th Avenue West  
Seattle, WA 98119-2029  
Attention: MICHAEL ERDAHL

Dear MICHAEL ERDAHL:

Enclosed please find the analytical data for your project.

The following is a cross correlation of client and laboratory identifications for your convenience.

CLIENT ID	MATRIX	AMTEST ID	TEST
ORG-1	Soil	21-A008750	OM std mth
ORG-2	Soil	21-A008751	OM std mth
ORG-3	Soil	21-A008752	OM std mth
S8.5-SW-6'	Soil	21-A008753	OM std mth

Your samples were received on Wednesday, June 23, 2021. At the time of receipt, the samples were logged in and properly maintained prior to the subsequent analysis.

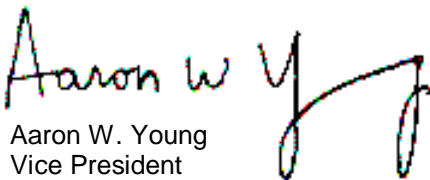
The analytical procedures used at AmTest are well documented and are typically derived from the protocols of the EPA, USDA, FDA or the Army Corps of Engineers.

Following the analytical data you will find the Quality Control (QC) results.

Please note that the detection limits that are listed in the body of the report refer to the Practical Quantitation Limits (PQL's), as opposed to the Method Detection Limits (MDL's).

If you should have any questions pertaining to the data package, please feel free to contact me.

Sincerely,

  
Aaron W. Young  
Vice President

Project #: 106360  
PO Number: B-296

BACT = Bacteriological  
CONV = Conventional

MET = Metals  
ORG = Organics

NUT=Nutrients  
DEM=Demand

MIN=Minerals

Am Test Inc.  
13600 NE 126TH PL  
Suite C  
Kirkland, WA 98034  
(425) 885-1664  
www.amtestlab.com



*Professional  
Analytical  
Services*

## ANALYSIS REPORT

Friedman & Bruya, Inc.  
3012 16th Avenue West  
Seattle, WA 98119-2029  
Attention: MICHAEL ERDAHL  
Project #: 106360  
PO Number: B-296  
All results reported on an as received basis.

Date Received: 06/23/21  
Date Reported: 7/ 8/21

---

**AMTEST Identification Number** 21-A008750  
**Client Identification** ORG-1  
**Sampling Date** 06/21/21

### Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Organic Matter	9.3	%			SM 2540G	MD	06/25/21

---

**AMTEST Identification Number** 21-A008751  
**Client Identification** ORG-2  
**Sampling Date** 06/21/21

### Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Organic Matter	7.6	%			SM 2540G	MD	06/25/21

---

**AMTEST Identification Number** 21-A008752  
**Client Identification** ORG-3  
**Sampling Date** 06/21/21

Friedman & Bruya, Inc.  
Project Name:  
AmTest ID: 21-A008752

**Miscellaneous**

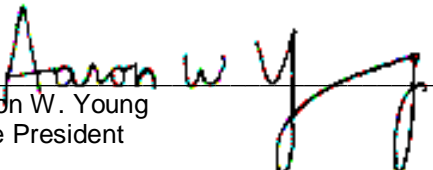
PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Organic Matter	12.5	%			SM 2540G	MD	06/25/21

---

**AMTEST Identification Number**      21-A008753  
**Client Identification**                S8.5-SW-6'  
**Sampling Date**                            05/18/21

**Miscellaneous**

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Organic Matter	6.8	%			SM 2540G	MD	06/25/21

  
\_\_\_\_\_  
Aaron W. Young  
Vice President

**Am Test Inc.**  
13600 NE 126th PL  
Suite C  
Kirkland, WA, 98034  
(425) 885-1664  
www.amtestlab.com



**Professional  
Analytical  
Services**

**QC Summary for sample numbers: 21-A008750 to 21-A008753**

**DUPLICATES**

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
21-A008765	Organic Matter	%	1.0	1.0	0.00

**SUBCONTRACT SAMPLE CHAIN OF CUSTODY**

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 [merdahl@friedmanandbruya.com](mailto:merdahl@friedmanandbruya.com)

SUBCONTRACTOR <u>Amtest</u>	
PROJECT NAME/NO. <u>106360</u>	PO # <u>B-296</u>
REMARKS Please Email Results	

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Organic matter	Notes
OR6-1	850	6-21	PM	Soil	1	X	
OR6-2	51	↓	↓		↓	X	
OR6-3	52	↓	↓		↓	X	
S85-SW-6'	53	5-18-21				X	

Relinquished by: <u><i>[Signature]</i></u>	Ann Weber-Bruya	Friedman & Bruya	6/22/21	0900
Received by: <u><i>[Signature]</i></u>	A. STAAB	AMTEST	6/23/21	115
Relinquished by:				
Received by:				

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

July 14, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on July 8, 2021 from the 12th and Yesler WES-1591, F&BI 107106 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  
WES0714R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 8, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 107106 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
107106 -01	E14.5-SW-16'
107106 -02	E14.5-SW-18'
107106 -03	E19.5-SW-10.5-1
107106 -04	E19.5-SW-10.5-1.5
107106 -05	S19.5-SW-17'
107106 -06	E14/S20-17'

The samples were received in four ounce glass jars. The NWTPH-Gx and 8021B data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/14/21

Date Received: 07/08/21

Project: 12th and Yesler WES-1591, F&BI 107106

Date Extracted: 07/09/21

Date Analyzed: 07/12/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-132)
E14.5-SW-16' pc 107106-01	<0.02	<0.02	<0.02	<0.06	<5	93
S19.5-SW-17' pc 107106-05	<0.02	<0.02	<0.02	<0.06	<5	94
E14/S20-17' pc 107106-06	<0.02	<0.02	<0.02	<0.06	<5	92
Method Blank 01-1439 MB	<0.02	<0.02	<0.02	<0.06	<5	90

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/14/21

Date Received: 07/08/21

Project: 12th and Yesler WES-1591, F&BI 107106

Date Extracted: 07/09/21

Date Analyzed: 07/09/21

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
E14.5-SW-16' 107106-01	<50	<250	105
S19.5-SW-17' 107106-05	<50	<250	96
E14/S20-17' 107106-06	<50	<250	104
Method Blank 01-1558 MB2	<50	<250	107

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E19.5-SW-10.5-1	Client:	Whitman Environmental Sciences
Date Received:	07/08/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/09/21	Lab ID:	107106-03
Date Analyzed:	07/09/21	Data File:	107106-03.112
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Lead	111
------	-----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E19.5-SW-10.5-1.5	Client:	Whitman Environmental Sciences
Date Received:	07/08/21	Project:	12th and Yesler WES-1591
Date Extracted:	07/09/21	Lab ID:	107106-04
Date Analyzed:	07/09/21	Data File:	107106-04.113
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Lead	31.0
------	------

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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:	07/09/21	Lab ID:	I1-424 mb
Date Analyzed:	07/09/21	Data File:	I1-424 mb.104
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Lead	<1
------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/14/21

Date Received: 07/08/21

Project: 12th and Yesler WES-1591, F&BI 107106

**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: 107101-01 (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)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	86	66-121
Toluene	mg/kg (ppm)	0.5	90	72-128
Ethylbenzene	mg/kg (ppm)	0.5	88	69-132
Xylenes	mg/kg (ppm)	1.5	86	69-131
Gasoline	mg/kg (ppm)	20	85	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/14/21

Date Received: 07/08/21

Project: 12th and Yesler WES-1591, F&BI 107106

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 107084-01 (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	104	104	73-135	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	102	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/14/21

Date Received: 07/08/21

Project: 12th and Yesler WES-1591, F&BI 107106

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

Laboratory Code: 107121-01 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	<5	97	97	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	98	80-120

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

107106

SAMPLE CHAIN OF CUSTODY

ME 07/08/21 822

Report To: [Signature]  
 Company: Continuum Environmental Services  
 Address: 818 15th Ave SE  
 City, State, ZIP: Seattle, WA 98148  
 Phone: \_\_\_\_\_ Email: [Signature]

SAMPLERS (signature)	PROJECT NAME	PO #
<u>[Signature]</u>	<u>15th + 1st</u>	<u>DBS-1591</u>
REMARKS	INVOICE TO	
<u>Project specific RI? - Yes / No</u>		

Page # \_\_\_\_\_ of \_\_\_\_\_

TURNAROUND TIME  
 Standard turnaround  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL  
 Archive samples  
 Other \_\_\_\_\_  
 Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED								Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082				
E 14.5-SD-15-01	01	7-8	AM	Soil	1	X	X	X								
E 14.5-SD-18-02	02															
E 14.5-SD-10.5-1-03	03															
E 14.5-SD-10.5-1.5-04	04															
S 14.5-SD-17-05	05															
E 14/520-17-06	06					X	X	X								
Samples received at 22°C																

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Relinquished by: <u>[Signature]</u>						7-8	1:05
Received by: <u>[Signature]</u>		Chan Phan		FCBI		7/8/21	13425
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 29, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on July 15, 2021 from the 12th and Yesler WES 1591, F&BI 107248 project. There are 35 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

FRIEDMAN & BRUYA, INC.

---

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 15, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 107248 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
107248 -01	W2/S 15.5-B
107248 -02	S11.5-SW-10'
107248 -03	S9.5-SW-9'
107248 -04	S7.5-SW-11'
107248 -05	S4.5-SW-8'
107248 -06	E22.5-SW-15'
107248 -07	E20.5-SW-17'
107248 -08	E14.5/S22-B
107248 -09	E18/N16-B-R6
107248 -10	E20/N14-B
107248 -11	E22/N15-B-R8

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

---

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

Date Extracted: 07/20/21

Date Analyzed: 07/21/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
W2/S 15.5-B 107248-01	<5	110
Method Blank 01-1647 MB	<5	80

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21  
 Date Received: 07/15/21  
 Project: 12th and Yesler WES 1591, F&BI 107248  
 Date Extracted: 07/20/21  
 Date Analyzed: 07/21/21 and 07/23/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
S11.5-SW-10' 107248-02	<0.02	<0.02	<0.02	<0.06	<5	112
S9.5-SW-9' 107248-03	<0.02	<0.02	<0.02	<0.06	<5	107
S7.5-SW-11' 107248-04	<0.02	<0.02	<0.02	<0.06	<5	113
S4.5-SW-8' 107248-05	<0.02	<0.02	0.079	0.076	53	109
Method Blank 01-1647 MB	<0.02	<0.02	<0.02	<0.06	<5	78

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21  
Date Received: 07/15/21  
Project: 12th and Yesler WES 1591, F&BI 107248  
Date Extracted: 07/19/21  
Date Analyzed: 07/19/21

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

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

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 53-144)
W2/S 15.5-B 107248-01	<50	<250	109
S11.5-SW-10' 107248-02	<50	<250	117
S9.5-SW-9' 107248-03	<50	<250	107
S7.5-SW-11' 107248-04	<50	<250	115
S4.5-SW-8' 107248-05	<50	<250	109
Method Blank 01-1674 MB	<50	<250	116

FRIEDMAN & BRUYA, INC.

---

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	W2/S 15.5-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-01
Date Analyzed:	07/19/21	Data File:	107248-01.048
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	4.51
Cadmium	<1
Lead	3.32
Mercury	<1

FRIEDMAN & BRUYA, INC.

---

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	W2/S 15.5-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-01 x5
Date Analyzed:	07/19/21	Data File:	107248-01 x5.123
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Chromium	31.9
----------	------

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E22.5-SW-15'	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-06
Date Analyzed:	07/19/21	Data File:	107248-06.049
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	1.58
Cadmium	<1
Lead	2.31
Mercury	<1

FRIEDMAN & BRUYA, INC.

---

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E22.5-SW-15'	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-06 x5
Date Analyzed:	07/19/21	Data File:	107248-06 x5.126
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	31.9
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FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E20.5-SW-17'	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-07
Date Analyzed:	07/19/21	Data File:	107248-07.098
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.52
Cadmium	<1
Lead	1.47
Mercury	<1

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E20.5-SW-17'	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-07 x5
Date Analyzed:	07/20/21	Data File:	107248-07 x5.034
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	18.8
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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E14.5/S22-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-08
Date Analyzed:	07/19/21	Data File:	107248-08.099
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.01
Cadmium	<1
Lead	1.72
Mercury	<1

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E14.5/S22-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-08 x5
Date Analyzed:	07/20/21	Data File:	107248-08 x5.035
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	17.2
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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E18/N16-B-R6	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-09
Date Analyzed:	07/19/21	Data File:	107248-09.110
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.56
Cadmium	<1
Lead	2.79
Mercury	<1

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E18/N16-B-R6	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-09 x5
Date Analyzed:	07/20/21	Data File:	107248-09 x5.036
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	26.3
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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E20/N14-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-10
Date Analyzed:	07/19/21	Data File:	107248-10.111
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Arsenic	6.52
Cadmium	<1
Lead	3.11
Mercury	<1

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E20/N14-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-10 x5
Date Analyzed:	07/20/21	Data File:	107248-10 x5.050
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	27.7
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E22/N15-B-R8	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/26/21	Lab ID:	107248-11
Date Analyzed:	07/26/21	Data File:	107248-11.062
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.52
Cadmium	<1
Chromium	22.4
Lead	2.56
Mercury	<1

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

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:	07/19/21	Lab ID:	I1-439 mb
Date Analyzed:	07/19/21	Data File:	I1-439 mb.039
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

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:	07/26/21	Lab ID:	I1-449 mb
Date Analyzed:	07/26/21	Data File:	I1-449 mb.056
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	W2/S 15.5-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/16/21	Lab ID:	107248-01
Date Analyzed:	07/16/21	Data File:	071623.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	90	109
Toluene-d8	101	89	112
4-Bromofluorobenzene	101	84	115

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	<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)	<1	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	<1	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 8260D

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591
Date Extracted:	07/16/21	Lab ID:	01-1583 mb
Date Analyzed:	07/16/21	Data File:	071609.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	90	109
Toluene-d8	101	89	112
4-Bromofluorobenzene	100	84	115

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	<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)	<1	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	<1	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 Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	W2/S 15.5-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/26/21	Lab ID:	107248-01 1/5
Date Analyzed:	07/26/21	Data File:	072612.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	75	24	111
Phenol-d6	81	37	116
Nitrobenzene-d5	78	38	117
2-Fluorobiphenyl	79	45	117
2,4,6-Tribromophenol	79	11	158
Terphenyl-d14	90	50	124

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591
Date Extracted:	07/26/21	Lab ID:	01-1739 mb 1/5
Date Analyzed:	07/26/21	Data File:	072610.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	88	24	111
Phenol-d6	94	37	116
Nitrobenzene-d5	98	38	117
2-Fluorobiphenyl	84	45	117
2,4,6-Tribromophenol	86	11	158
Terphenyl-d14	96	50	124

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	W2/S 15.5-B	Client:	Whitman Environmental Sciences
Date Received:	07/15/21	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	107248-01 1/6
Date Analyzed:	07/20/21	Data File:	072006.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	67	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591
Date Extracted:	07/19/21	Lab ID:	01-1678 mb 1/6
Date Analyzed:	07/20/21	Data File:	072005.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	86	23	127

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: 107219-04 (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	0.025	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	90	66-121
Toluene	mg/kg (ppm)	0.5	92	72-128
Ethylbenzene	mg/kg (ppm)	0.5	90	69-132
Xylenes	mg/kg (ppm)	1.5	93	69-131
Gasoline	mg/kg (ppm)	20	100	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: 107275-01 (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	1,500	82	93	64-133	13

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	92	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: 107248-06 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	86	90	75-125	5
Cadmium	mg/kg (ppm)	10	<5	97	98	75-125	1
Chromium	mg/kg (ppm)	50	28.1	88	87	75-125	1
Lead	mg/kg (ppm)	50	<5	94	93	75-125	1
Mercury	mg/kg (ppm)	5	<5	95	94	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	83	80-120
Cadmium	mg/kg (ppm)	10	99	80-120
Chromium	mg/kg (ppm)	50	108	80-120
Lead	mg/kg (ppm)	50	97	80-120
Mercury	mg/kg (ppm)	5	94	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: 107400-01 (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	2.70	90	91	75-125	1
Cadmium	mg/kg (ppm)	10	<1	107	109	75-125	2
Chromium	mg/kg (ppm)	50	18.8	90	91	75-125	1
Lead	mg/kg (ppm)	50	7.21	85	88	75-125	3
Mercury	mg/kg (ppm)	5	<1	101	103	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	88	80-120
Cadmium	mg/kg (ppm)	10	104	80-120
Chromium	mg/kg (ppm)	50	104	80-120
Lead	mg/kg (ppm)	50	93	80-120
Mercury	mg/kg (ppm)	5	107	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: 107248-01 (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)	1	<0.5	9 vo	13	10-142	36 vo
Chloromethane	mg/kg (ppm)	1	<0.5	35	41	10-126	16
Vinyl chloride	mg/kg (ppm)	1	<0.05	32	37	10-138	14
Bromomethane	mg/kg (ppm)	1	<0.5	51	55	10-163	8
Chloroethane	mg/kg (ppm)	1	<0.5	53	57	10-176	7
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	40	43	10-176	7
Acetone	mg/kg (ppm)	5	<5	95	86	10-163	10
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	51	55	10-160	8
Hexane	mg/kg (ppm)	1	<0.25	31	33	10-137	6
Methylene chloride	mg/kg (ppm)	1	<0.5	58	60	10-156	3
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	79	81	21-145	2
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	68	68	14-137	0
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	71	75	19-140	5
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	91	88	10-158	3
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	77	81	25-135	5
Chloroform	mg/kg (ppm)	1	<0.05	76	79	21-145	4
2-Butanone (MEK)	mg/kg (ppm)	5	<1	91	86	19-147	6
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	79	79	12-160	0
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	77	78	10-156	1
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	69	72	17-140	4
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	74	75	9-164	1
Benzene	mg/kg (ppm)	1	<0.03	75	78	29-129	4
Trichloroethene	mg/kg (ppm)	1	<0.02	75	77	21-139	3
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	77	79	30-135	3
Bromodichloromethane	mg/kg (ppm)	1	<0.05	77	80	23-155	4
Dibromomethane	mg/kg (ppm)	1	<0.05	80	80	23-145	0
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	87	87	24-155	0
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	79	79	28-144	0
Toluene	mg/kg (ppm)	1	<0.05	72	77	35-130	7
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	75	76	26-149	1
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	77	84	10-205	9
2-Hexanone	mg/kg (ppm)	5	<0.5	86	85	15-166	1
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	74	80	31-137	8
Tetrachloroethene	mg/kg (ppm)	1	<0.025	69	76	20-133	10
Dibromochloromethane	mg/kg (ppm)	1	<0.05	69	73	28-150	6
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	75	80	28-142	6
Chlorobenzene	mg/kg (ppm)	1	<0.05	74	78	32-129	5
Ethylbenzene	mg/kg (ppm)	1	<0.05	75	80	32-137	6
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	75	82	31-143	9
m,p-Xylene	mg/kg (ppm)	2	<0.1	75	78	34-136	4
o-Xylene	mg/kg (ppm)	1	<0.05	76	80	33-134	5
Styrene	mg/kg (ppm)	1	<0.05	75	79	35-137	5
Isopropylbenzene	mg/kg (ppm)	1	<0.05	78	81	31-142	4
Bromoform	mg/kg (ppm)	1	<0.05	72	75	21-156	4
n-Propylbenzene	mg/kg (ppm)	1	<0.05	75	75	23-146	0
Bromobenzene	mg/kg (ppm)	1	<0.05	77	76	34-130	1
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	75	75	18-149	0
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	78	79	28-140	1
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	78	79	25-144	1
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	75	75	31-134	0
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	75	75	31-136	0
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	77	78	30-137	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	75	76	10-182	1
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	75	75	23-145	0
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	76	76	21-149	0
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	74	74	30-131	0
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	76	75	29-129	1
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	77	76	31-132	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	72	71	11-161	1
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	69	71	22-142	3
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	78	78	10-142	0
Naphthalene	mg/kg (ppm)	1	<0.05	71	73	14-157	3
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	68	69	20-144	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	57	10-146
Chloromethane	mg/kg (ppm)	1	77	27-133
Vinyl chloride	mg/kg (ppm)	1	80	22-139
Bromomethane	mg/kg (ppm)	1	93	38-114
Chloroethane	mg/kg (ppm)	1	91	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	81	10-196
Acetone	mg/kg (ppm)	5	109	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	93	47-128
Hexane	mg/kg (ppm)	1	89	43-142
Methylene chloride	mg/kg (ppm)	1	108	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	103	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	103	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	101	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	122	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	102	72-127
Chloroform	mg/kg (ppm)	1	102	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	106	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	105	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	110	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	103	69-128
Carbon tetrachloride	mg/kg (ppm)	1	109	60-139
Benzene	mg/kg (ppm)	1	103	71-118
Trichloroethene	mg/kg (ppm)	1	107	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	102	72-127
Bromodichloromethane	mg/kg (ppm)	1	101	57-126
Dibromomethane	mg/kg (ppm)	1	104	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	108	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	101	67-122
Toluene	mg/kg (ppm)	1	98	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	94	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	103	64-115
2-Hexanone	mg/kg (ppm)	5	105	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	100	72-130
Tetrachloroethene	mg/kg (ppm)	1	97	72-114
Dibromochloromethane	mg/kg (ppm)	1	94	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	104	74-132
Chlorobenzene	mg/kg (ppm)	1	100	76-111
Ethylbenzene	mg/kg (ppm)	1	102	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	101	64-121
m,p-Xylene	mg/kg (ppm)	2	101	78-122
o-Xylene	mg/kg (ppm)	1	102	77-124
Styrene	mg/kg (ppm)	1	101	74-126
Isopropylbenzene	mg/kg (ppm)	1	102	76-127
Bromoform	mg/kg (ppm)	1	96	56-132
n-Propylbenzene	mg/kg (ppm)	1	101	74-124
Bromobenzene	mg/kg (ppm)	1	102	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	100	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	102	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	105	61-137
2-Chlorotoluene	mg/kg (ppm)	1	101	74-121
4-Chlorotoluene	mg/kg (ppm)	1	100	75-122
tert-Butylbenzene	mg/kg (ppm)	1	102	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	101	76-125
sec-Butylbenzene	mg/kg (ppm)	1	100	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	101	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	102	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	102	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	103	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	95	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	97	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	100	50-153
Naphthalene	mg/kg (ppm)	1	97	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	95	63-138

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: 107342-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.83	<0.01	74	79	34-118	7
2-Methylnaphthalene	mg/kg (ppm)	0.83	<0.01	81	86	29-130	6
1-Methylnaphthalene	mg/kg (ppm)	0.83	<0.01	82	86	37-119	5
Acenaphthylene	mg/kg (ppm)	0.83	<0.01	80	84	45-128	5
Acenaphthene	mg/kg (ppm)	0.83	<0.01	78	81	36-125	4
Fluorene	mg/kg (ppm)	0.83	<0.01	84	87	48-121	4
Phenanthrene	mg/kg (ppm)	0.83	<0.01	81	86	50-150	6
Anthracene	mg/kg (ppm)	0.83	<0.01	85	89	50-150	5
Fluoranthene	mg/kg (ppm)	0.83	0.0097	91	98	50-150	7
Pyrene	mg/kg (ppm)	0.83	0.0097	89	94	50-150	5
Benz(a)anthracene	mg/kg (ppm)	0.83	<0.01	92	95	50-150	3
Chrysene	mg/kg (ppm)	0.83	<0.01	89	92	50-150	3
Benzo(a)pyrene	mg/kg (ppm)	0.83	<0.01	94	98	50-150	4
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	<0.01	92	98	50-150	6
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	<0.01	91	96	50-150	5
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	<0.01	90	85	41-134	6
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	<0.01	88	85	44-130	3
Benzo(g,h,i)perylene	mg/kg (ppm)	0.83	<0.01	80	76	33-131	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

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

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.83	81	58-108
2-Methylnaphthalene	mg/kg (ppm)	0.83	88	67-108
1-Methylnaphthalene	mg/kg (ppm)	0.83	89	66-107
Acenaphthylene	mg/kg (ppm)	0.83	88	70-130
Acenaphthene	mg/kg (ppm)	0.83	83	66-112
Fluorene	mg/kg (ppm)	0.83	87	67-117
Phenanthrene	mg/kg (ppm)	0.83	86	70-130
Anthracene	mg/kg (ppm)	0.83	90	70-130
Fluoranthene	mg/kg (ppm)	0.83	96	70-130
Pyrene	mg/kg (ppm)	0.83	87	70-130
Benz(a)anthracene	mg/kg (ppm)	0.83	92	70-130
Chrysene	mg/kg (ppm)	0.83	93	70-130
Benzo(a)pyrene	mg/kg (ppm)	0.83	95	68-120
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	94	69-125
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	99	70-130
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	82	67-129
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	86	67-128
Benzo(g,h,i)perylene	mg/kg (ppm)	0.83	77	64-127

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/29/21

Date Received: 07/15/21

Project: 12th and Yesler WES 1591, F&BI 107248

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL SAMPLES FOR  
POLYCHLORINATED BIPHENYLS AS  
AROCLOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: 107274-01 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	<0.02	66	73	29-125	10
Aroclor 1260	mg/kg (ppm)	0.25	<0.02	76	83	25-137	9

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.25	88	55-137
Aroclor 1260	mg/kg (ppm)	0.25	99	51-150

**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.

107248

SAMPLE CHAIN OF CUSTODY WE 07-15-21

A05/VS1

Page # of

Report To William  
 Company William Weber Brye  
 Address 8813 15th Ave NE  
 City, State, ZIP Seattle, WA 98105  
 Phone \_\_\_\_\_ Email \_\_\_\_\_

SAMPLERS (signature) \_\_\_\_\_  
 PROJECT NAME \_\_\_\_\_  
 REMARKS try to locate  
 PO # 0285  
 INVOICE TO 15791

TURNAROUND TIME  
 Standard turnaround  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_  
 SAMPLE DISPOSAL  
 Archive samples  
 Other  
 Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Notes
02/15-15.5-B-01A-E	01A-E	7-13		Soil	5	X	X	X	X	X	X	X	pc/dm 7/23/21ME
51.5-SID-101 OR		7-14		Soil	5	X	X	X	X	X	X	X	
59.5-SID-91 03		7-14		Soil	5	X	X	X	X	X	X	X	
57.5-SID-111 04		7-14		Soil	5	X	X	X	X	X	X	X	
51.5-SID-81 05		7-14		Soil	5	X	X	X	X	X	X	X	
ERRS-SID-151 04		7-14		Soil	1	X	X	X	X	X	X	X	
ERRS-SID-171 07		"		Soil	1	X	X	X	X	X	X	X	
ERRS-SID-181 08		"		Soil	1	X	X	X	X	X	X	X	
ERRS-SID-191 09		"		Soil	1	X	X	X	X	X	X	X	
ERRS-SID-201 10		"		Soil	1	X	X	X	X	X	X	X	

Received by: William Weber Brye SIGNATURE  
 Relinquished by: \_\_\_\_\_  
 Received by: William Weber Brye SIGNATURE  
 Relinquished by: \_\_\_\_\_

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

Received by: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_  
 Received by: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West  
Seattle, WA 98119-2029  
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September 22, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on September 17, 2021 from the 12th + Yesler WES 1591, F&BI 109328 project. There are 4 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  
WES0922R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 17, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th + Yesler WES 1591, F&BI 109328 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
109328 -01	S2.5-SW-7'
109328 -02	S3.5-SW-7'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/22/21  
Date Received: 09/17/21  
Project: 12th + Yesler WES 1591, F&BI 109328  
Date Extracted: 09/20/21  
Date Analyzed: 09/20/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-132)
S2.5-SW-7' 109328-01	<0.02	<0.02	<0.02	<0.06	<5	81
S3.5-SW-7' 109328-02	<0.02	<0.02	<0.02	<0.06	<5	80
Method Blank 01-1947 MB	<0.02	<0.02	<0.02	<0.06	<5	80

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/22/21

Date Received: 09/17/21

Project: 12th + Yesler WES 1591, F&BI 109328

**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: 109328-01 (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)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	86	66-121
Toluene	mg/kg (ppm)	0.5	98	72-128
Ethylbenzene	mg/kg (ppm)	0.5	102	69-132
Xylenes	mg/kg (ppm)	1.5	100	69-131
Gasoline	mg/kg (ppm)	20	105	61-153

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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**

109378

Report To [Signature]

Company EDWARDS ENVIRONMENTAL SERVICES

Address 2815 15th Ave NE

City, State, ZIP Seattle WA 98119

Phone [Signature] Email [Signature]

SAMPLERS (signature) ME 09-17-21

PROJECT NAME 15th + 26th PO # 1591

REMARKS [Signature] INVOICE TO

Project specific RIs? - Yes / No

Page # of

TURNAROUND TIME

Standard turnaround  
 RUSH  
 Rush charges authorized by:

SAMPLE DISPOSAL  
 Archive samples  
 Other  
 Default: Dispose after 30 days

**ANALYSES REQUESTED**

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes						
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082							
SS.5-SD-71	014-B	9-14	11	soil	1	X	X	X											
SS.5-SD-71	DR1	11	11																

Samples received at 1500

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
<u>[Signature]</u>	<u>[Signature]</u>	<u>[Signature]</u>	<u>[Signature]</u>	<u>[Signature]</u>	<u>[Signature]</u>	9/17/21	1645
Received by:	<u>[Signature]</u>						
Relinquished by:	<u>[Signature]</u>						
Received by:	<u>[Signature]</u>						
Relinquished by:	<u>[Signature]</u>						

***Waste Screening Stockpile Samples***

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 13, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on April 7, 2021 from the 12th & Yesler WES 1591, F&BI 104118 project. There are 12 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  
WES0413R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 7, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th & Yesler WES 1591, F&BI 104118 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
104118 -01	STK-1-N
104118 -02	STK-1-E
104118 -03	STK-1-W
104118 -04	STK-2-E
104118 -05	STK-2-W
104118 -06	STK-2-S
104118 -07	N6-14'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/13/21  
Date Received: 04/07/21  
Project: 12th & Yesler WES 1591, F&BI 104118  
Date Extracted: 04/07/21  
Date Analyzed: 04/07/21

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

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

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 53-144)
STK-1-N 104118-01	63 x	430	87
STK-1-E 104118-02	<50	<250	95
STK-1-W 104118-03	<50	650	96
STK-2-E 104118-04	<50	390	87
STK-2-W 104118-05	<50	310	95
STK-2-S 104118-06	63 x	550	93
N6-14' 104118-07	<50	<250	97
Method Blank 01-867 MB	<50	<250	88

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	STK-1-N	Client:	Whitman Environmental Sciences
Date Received:	04/07/21	Project:	12th & Yesler WES 1591
Date Extracted:	04/08/21	Lab ID:	104118-01
Date Analyzed:	04/08/21	Data File:	104118-01.045
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	166
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	STK-2-E	Client:	Whitman Environmental Sciences
Date Received:	04/07/21	Project:	12th & Yesler WES 1591
Date Extracted:	04/08/21	Lab ID:	104118-04
Date Analyzed:	04/08/21	Data File:	104118-04.046
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	32.3
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	STK-2-S	Client:	Whitman Environmental Sciences
Date Received:	04/07/21	Project:	12th & Yesler WES 1591
Date Extracted:	04/08/21	Lab ID:	104118-06
Date Analyzed:	04/08/21	Data File:	104118-06.047
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	178
------	-----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	NA	Project:	12th & Yesler WES 1591
Date Extracted:	04/08/21	Lab ID:	I1-222 mb
Date Analyzed:	04/08/21	Data File:	I1-222 mb.041
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 6020B and 1311

Client ID:	STK-1-N, STK-2-S	Client:	Whitman Environmental Sciences
Date Received:	04/07/21	Project:	12th & Yesler WES 1591
Date Extracted:	04/08/21	Lab ID:	104118-01,06
Date Analyzed:	04/09/21	Data File:	104118-01,06.038
Matrix:	Soil/Solid	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 6020B and 1311

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	NA	Project:	12th & Yesler WES 1591
Date Extracted:	04/08/21	Lab ID:	I1-226 mb
Date Analyzed:	04/09/21	Data File:	I1-226 mb.039
Matrix:	Soil/Solid	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/13/21

Date Received: 04/07/21

Project: 12th & Yesler WES 1591, F&BI 104118

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 104099-07 (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	86	86	64-133	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	96	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/13/21

Date Received: 04/07/21

Project: 12th & Yesler WES 1591, F&BI 104118

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

Laboratory Code: 104099-03 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	203	0 b	0 b	75-125	0 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	93	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/13/21

Date Received: 04/07/21

Project: 12th & Yesler WES 1591, F&BI 104118

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF SOIL/SOLID SAMPLES  
FOR TCLP METALS USING  
EPA METHODS 6020B AND 1311**

Laboratory Code: 104131-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/L (ppm)	5.0	<1	89	92	75-125	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/L (ppm)	5.0	92	80-120

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

104118

SAMPLE CHAIN OF CUSTODY

ME 04/07/21

BI2

Report To *[Signature]*

Company *Friedman & Bruya, Inc.*

Address *3012 16th Avenue West*

City, State, ZIP *Seattle WA 98119-2029*

Phone *[Signature]* Email *[Signature]*

SAMPLERS (signature)

PROJECT NAME

*[Signature]*

PO #

*0285 / 1591*

REMARKS

INVOICE TO

Page # of

TURNAROUND TIME

Standard turnaround

RUSH *[Signature]*

Rush charges authorized by:

SAMPLE DISPOSAL

Archive samples

Other

Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED										Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	TCLP Pb Comp				
STK-1-11	01	4-7-21	AM	soil	1	X											C composite.
STK-1-1-E	02				1												24-hr TAT per DW
STK-1-1-B	03				1												4/9/21 ME
STK-R-E	04				1								X				
STK-R-B	05				1												
STK-R-S	06				1								X	C			
AG-14-1	07				1												
						Samples received at 1500											

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

SIGNATURE

Relinquished by:

Received by:

Relinquished by:

Received by:

PRINT NAME

*[Signature]*

*[Signature]*

*[Signature]*

*[Signature]*

COMPANY

*F&B*

*F&B*

*F&B*

DATE

4/7/21

4/7/21

4/7/21

TIME

2:12

1412

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

April 22, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on April 14, 2021 from the 12th and Yesler WES 1591, F&BI 104259 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  
WES0422R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 14, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 104259 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
104259 -01	STK-2D-E
104259 -02	STK-2D-W
104259 -03	STK-2T-E
104259 -04	STK-2T-W
104259 -05	E9-12'W

The NWTPH-Gx sample E9-12'W was taken from a four ounce glass jar. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/22/21

Date Received: 04/14/21

Project: 12th and Yesler WES 1591, F&BI 104259

Date Extracted: 04/15/21

Date Analyzed: 04/15/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
E9-12'W pc 104259-05	250	ip
Method Blank 01-900 MB	<5	84

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/22/21

Date Received: 04/14/21

Project: 12th and Yesler WES 1591, F&BI 104259

Date Extracted: 04/15/21

Date Analyzed: 04/15/21

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
STK-2D-E 104259-01	<50	<250	77
STK-2D-W 104259-02	<50	<250	82
STK-2T-E 104259-03	<50	<250	82
STK-2T-W 104259-04	<50	<250	80
E9-12'W 104259-05	2,100 x	9,300	83
Method Blank 01-921 MB2	<50	<250	85

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E9-12'W	Client:	Whitman Environmental Sciences
Date Received:	04/14/21	Project:	12th and Yesler WES 1591
Date Extracted:	04/15/21	Lab ID:	104259-05
Date Analyzed:	04/15/21	Data File:	104259-05.127
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.65
Cadmium	1.46
Lead	170
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	E9-12'W	Client:	Whitman Environmental Sciences
Date Received:	04/14/21	Project:	12th and Yesler WES 1591
Date Extracted:	04/15/21	Lab ID:	104259-05 x5
Date Analyzed:	04/19/21	Data File:	104259-05 x5.074
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	26.0
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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:	04/15/21	Lab ID:	I1-237 mb
Date Analyzed:	04/15/21	Data File:	I1-237 mb.035
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/22/21

Date Received: 04/14/21

Project: 12th and Yesler WES 1591, F&BI 104259

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

Laboratory Code: 104076-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	16	31	64 hr

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	110	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/22/21

Date Received: 04/14/21

Project: 12th and Yesler WES 1591, F&BI 104259

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 104250-01 (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	2,900	83	94	63-146	12

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	84	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/22/21

Date Received: 04/14/21

Project: 12th and Yesler WES 1591, F&BI 104259

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

Laboratory Code: 104254-01 (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	3.00	77 b	74 b	75-125	4 b
Cadmium	mg/kg (ppm)	10	<1	89	90	75-125	1
Chromium	mg/kg (ppm)	50	2.12	92	93	75-125	1
Lead	mg/kg (ppm)	50	<1	88	89	75-125	1
Mercury	mg/kg (ppm)	5	<1	84	79	75-125	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	95	80-120
Cadmium	mg/kg (ppm)	10	102	80-120
Chromium	mg/kg (ppm)	50	104	80-120
Lead	mg/kg (ppm)	50	101	80-120
Mercury	mg/kg (ppm)	5	103	80-120

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

104259

SAMPLE CHAIN OF CUSTODY 04-14-21

Page # of

01

Report To: [Signature]  
 Company: WILSON ENV. SERVICES  
 Address: 508 BROWN ST  
 City, State: ZIP 98105  
 Phone: [Signature] Email: [Signature]

SAMPLERS (signature)	
PROJECT NAME <u>EMT VESLAR</u>	PO # <u>005</u> <u>1591</u>
REMARKS	INVOICE TO
Project specific RI's? Yes / No	

TURNAROUND TIME	Standard turnaround
	<input checked="" type="checkbox"/> RUSH 24hr for Priority work
	<input type="checkbox"/> Rush charges authorized by: <u>PC</u>
SAMPLE DISPOSAL	<input type="checkbox"/> Archive samples
	<input type="checkbox"/> Other
	Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082			
SR-22-E	01	4/14/21	PM	Soil	1	X	X								
SR-22-G	02					X	X								
SR-27-E	03					X	X								NOT RUSHED
SR-27-G	04					X	X								
SR-22-G	05	4/14/21				X	X								
															Samples received at 4:00

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Relinquished by: <u>[Signature]</u>		<u>[Signature]</u>		<u>Wilson</u>		<u>4/14/21</u>	<u>3:24 PM</u>
Received by: <u>[Signature]</u>		<u>Michael E. Hall</u>		<u>FEA</u>		<u>4/14/21</u>	<u>3:24 PM</u>
Relinquished by:							
Received by:							

Friedman & Bryna, 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 23, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on April 19, 2021 from the 12th & Yesler, F&BI 104325 project. There are 7 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  
WES0423R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 19, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th & Yesler, F&BI 104325 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
104325 -01	S-Wall Stockpile-1
104325 -02	S-Wall Stockpile-2
104325 -03	S-Wall Stockpile-3
104325 -04	N-Stockpile-1
104325 -05	N-Stockpile-2
104325 -06	N-Stockpile-3

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	N-Stockpile-1	Client:	Whitman Environmental Sciences
Date Received:	04/19/21	Project:	12th & Yesler, F&BI 104325
Date Extracted:	04/20/21	Lab ID:	104325-04 x5
Date Analyzed:	04/20/21	Data File:	104325-04 x5.071
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Lead	159
------	-----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	N-Stockpile-2	Client:	Whitman Environmental Sciences
Date Received:	04/19/21	Project:	12th & Yesler, F&BI 104325
Date Extracted:	04/20/21	Lab ID:	104325-05 x5
Date Analyzed:	04/20/21	Data File:	104325-05 x5.072
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Lead	160
------	-----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	N-Stockpile-3	Client:	Whitman Environmental Sciences
Date Received:	04/19/21	Project:	12th & Yesler, F&BI 104325
Date Extracted:	04/20/21	Lab ID:	104325-06 x5
Date Analyzed:	04/20/21	Data File:	104325-06 x5.073
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Lead	131
------	-----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th & Yesler, F&BI 104325
Date Extracted:	04/20/21	Lab ID:	I1-250 mb
Date Analyzed:	04/20/21	Data File:	I1-250 mb.055
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Lead	<1
------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/23/21

Date Received: 04/19/21

Project: 12th & Yesler, F&BI 104325

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

Laboratory Code: 104277-100 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	7.97	92	97	75-125	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	94	80-120

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

104325

**SAMPLE CHAIN OF CUSTODY**

ME 04/19/21

of D02

Report To Dan Whitman  
 Company Whitman Environmental  
 Address 6812 16th Ave NE  
 City, State, ZIP Seattle, WA  
 Phone 2065235355 Email \_\_\_\_\_

SAMPLERS (signature) <u>[Signature]</u>	PROJECT NAME <u>12th + yester</u>	PO #
REMARKS	INVOICE TO <u>Same</u>	
Project specific RI's? - Yes / No		

TURNAROUND TIME  
 Standard turnaround  
 RUSH per DW 24hr TA T ME  
 Rush charges authorized by: \_\_\_\_\_  
 SAMPLE DISPOSAL  
 Archive samples  
 Other \_\_\_\_\_  
 Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes			
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082				
S-WALL STOCKPILE-1	01	4/19/21	1115	S	1											<u>Per Dan 4/19/20</u>
S-WALL STOCKPILE-2	02		1118													<u>EXCEL</u>
S-WALL STOCKPILE-3	03		1120													<u>EXCEL</u>
N-STOCKPILE-1	04		1130													<u>ARCHIVES</u>
N-STOCKPILE-2	05		1145													
N-STOCKPILE-3	06		1150													<u>Samples received at 240G</u>

Relinquished by: <u>[Signature]</u>	STAMPED SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Received by: <u>[Signature]</u>		<u>James D. Copperroll</u>	<u>GC1</u>	<u>4/19/21</u>	<u>1443</u>
Relinquished by: _____		<u>Dhan Dhan</u>	<u>F&amp;B I</u>	<u>4/19/21</u>	<u>1443</u>
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

May 10, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on May 6, 2021 from the 12th and Yesler WES 1591, F&BI 105080 project. There are 6 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  
WES0510R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 6, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 105080 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
105080 -01	NW STK-N
105080 -02	NW STK-S
105080 -03	NW STK-E
105080 -04	NW STK- Top
105080 -05	S13.5-SW-7'
105080 -06	S14.5-SW-8'
105080 -07	E14.5-SW-9'
105080 -08	E15.5-SW-6'
105080 -09	S19.5-SW-8'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/10/21

Date Received: 05/06/21

Project: 12th and Yesler WES 1591, F&BI 105080

Date Extracted: 05/06/21

Date Analyzed: 05/06/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-132)
NW STK-N 105080-01	<0.02	<0.02	0.032	<0.06	40	73
NW STK-S 105080-02	<0.02	<0.02	<0.02	<0.06	<5	75
NW STK-E 105080-03	<0.02	<0.02	<0.02	<0.06	6.1	74
NW STK- Top 105080-04	<0.02	<0.02	<0.02	<0.06	<5	75
S13.5-SW-7' 105080-05	<0.02	<0.02	<0.02	<0.06	<5	75
S14.5-SW-8' 105080-06	<0.02	<0.02	0.028	<0.06	25	72
Method Blank 01-997 MB2	<0.02	<0.02	<0.02	<0.06	<5	77

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/10/21

Date Received: 05/06/21

Project: 12th and Yesler WES 1591, F&BI 105080

Date Extracted: 05/06/21

Date Analyzed: 05/06/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
NW STK-N 105080-01	360 x	2,600	88
NW STK-S 105080-02	<50	<250	87
NW STK-E 105080-03	<50	<250	87
NW STK- Top 105080-04	<50	<250	87
S13.5-SW-7' 105080-05	<50	<250	78
S14.5-SW-8' 105080-06	<50	<250	79
E14.5-SW-9' 105080-07	290 x	1,800	77
E15.5-SW-6' 105080-08	<50	<250	88
S19.5-SW-8' 105080-09	<50	<250	77
Method Blank 01-1094 MB	<50	<250	79

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/10/21

Date Received: 05/06/21

Project: 12th and Yesler WES 1591, F&BI 105080

**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: 105068-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	0.039	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	104	66-121
Toluene	mg/kg (ppm)	0.5	106	72-128
Ethylbenzene	mg/kg (ppm)	0.5	104	69-132
Xylenes	mg/kg (ppm)	1.5	107	69-131
Gasoline	mg/kg (ppm)	20	100	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/10/21

Date Received: 05/06/21

Project: 12th and Yesler WES 1591, F&BI 105080

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 105076-01 (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	210	84	84	73-135	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	94	74-139

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

105080

SAMPLE CHAIN OF CUSTODY

ME 05/06/01

CT3

Send Report To Friedman & Bruya, Inc.

Company ERS

Address \_\_\_\_\_

City, State, ZIP \_\_\_\_\_

Phone # \_\_\_\_\_ Fax # \_\_\_\_\_

SAMPLERS (signature) \_\_\_\_\_

PROJECT NAME/NO. \_\_\_\_\_

REMARKS RAIN TANK

PO# 0055

1591

Page # \_\_\_\_\_

of \_\_\_\_\_

TURNAROUND TIME

Standard (2 Weeks)

RUSH TOP FOR STK

Rush charges authorized by signature

SAMPLE DISPOSAL

Dispose after 30 days

Return samples

Will call with instructions

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED						Notes		
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS			
<u>NEB5TK-N</u>	<u>01</u>	<u>5-2</u>		<u>Soils</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<u>RUSH</u>
<u>1' - S</u>	<u>02</u>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
<u>1' - E</u>	<u>03</u>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<u>PLEASE</u>
<u>1' TOP</u>	<u>04</u>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
<u>513.5-SD-7'</u>	<u>05</u>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
<u>514.5-SD-8'</u>	<u>06</u>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
<u>514.5-SD-9'</u>	<u>07</u>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
<u>515.5-SD-5'</u>	<u>08</u>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
<u>519.5-SD-8'</u>	<u>09</u>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Relinquished by: [Signature]

[Signature]

ERS

5/6

9:41

Received by: [Signature]

[Signature]

ERS

5/6

9:41

Relinquished by: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

Received by: \_\_\_\_\_

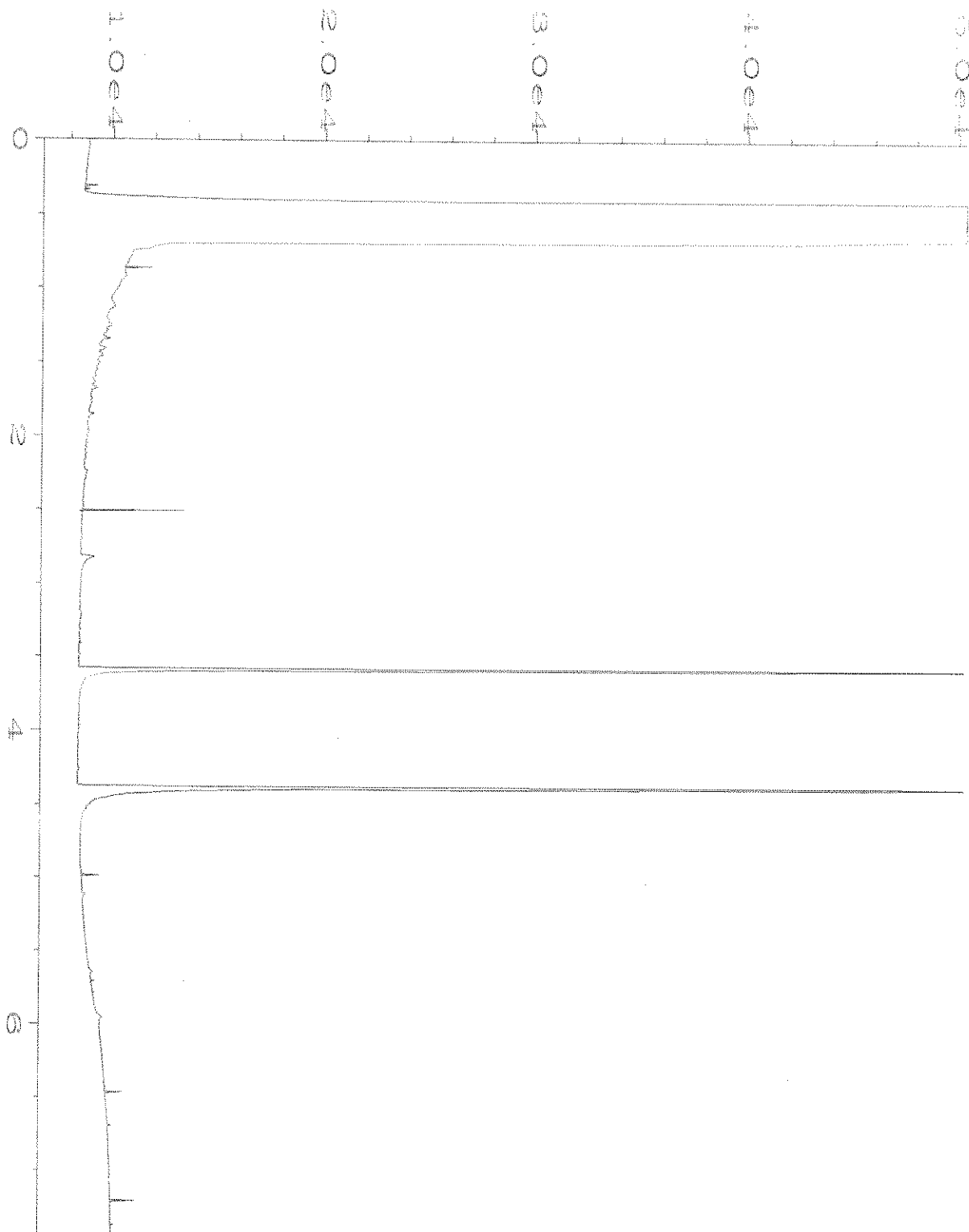
\_\_\_\_\_

\_\_\_\_\_

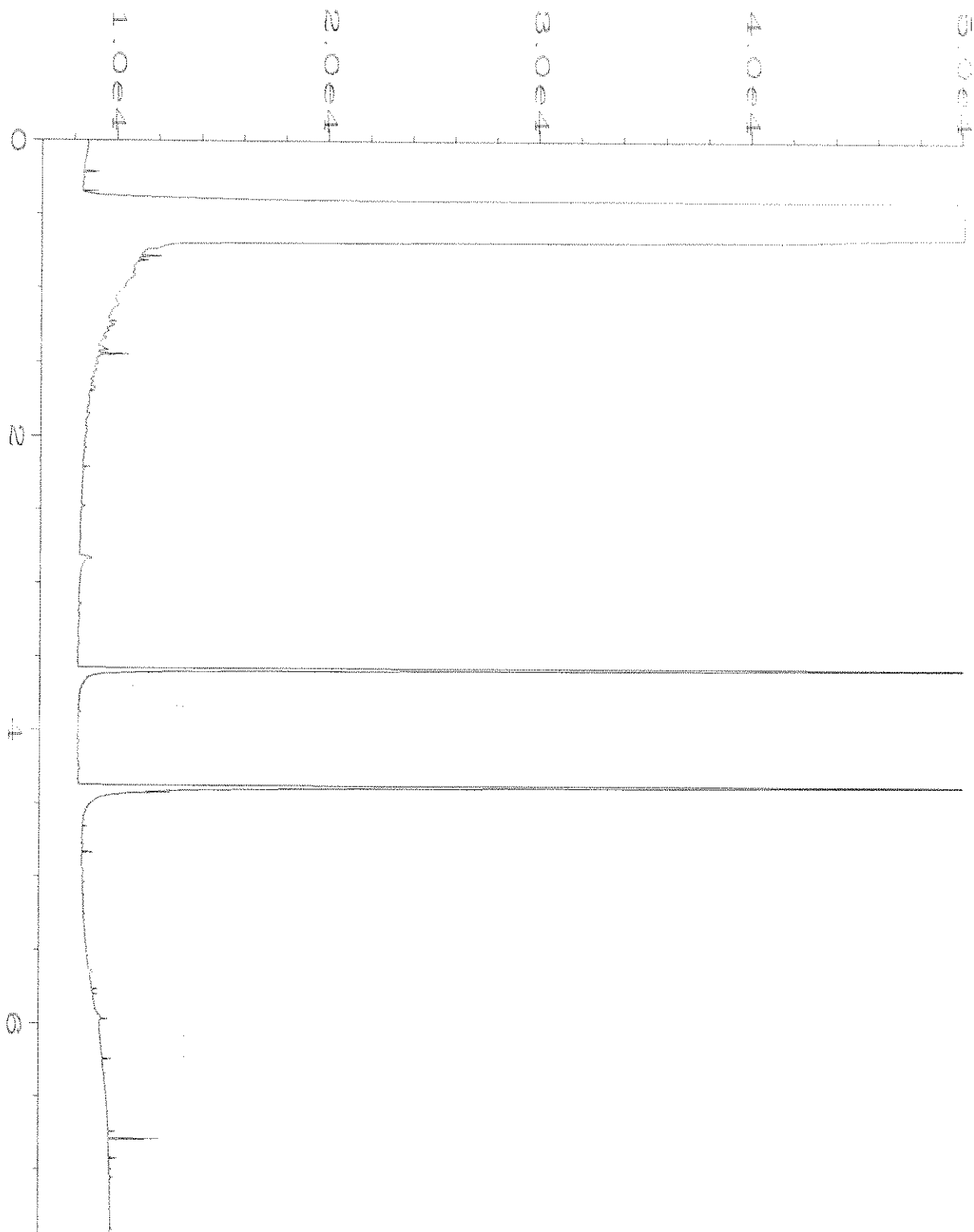
\_\_\_\_\_

\_\_\_\_\_

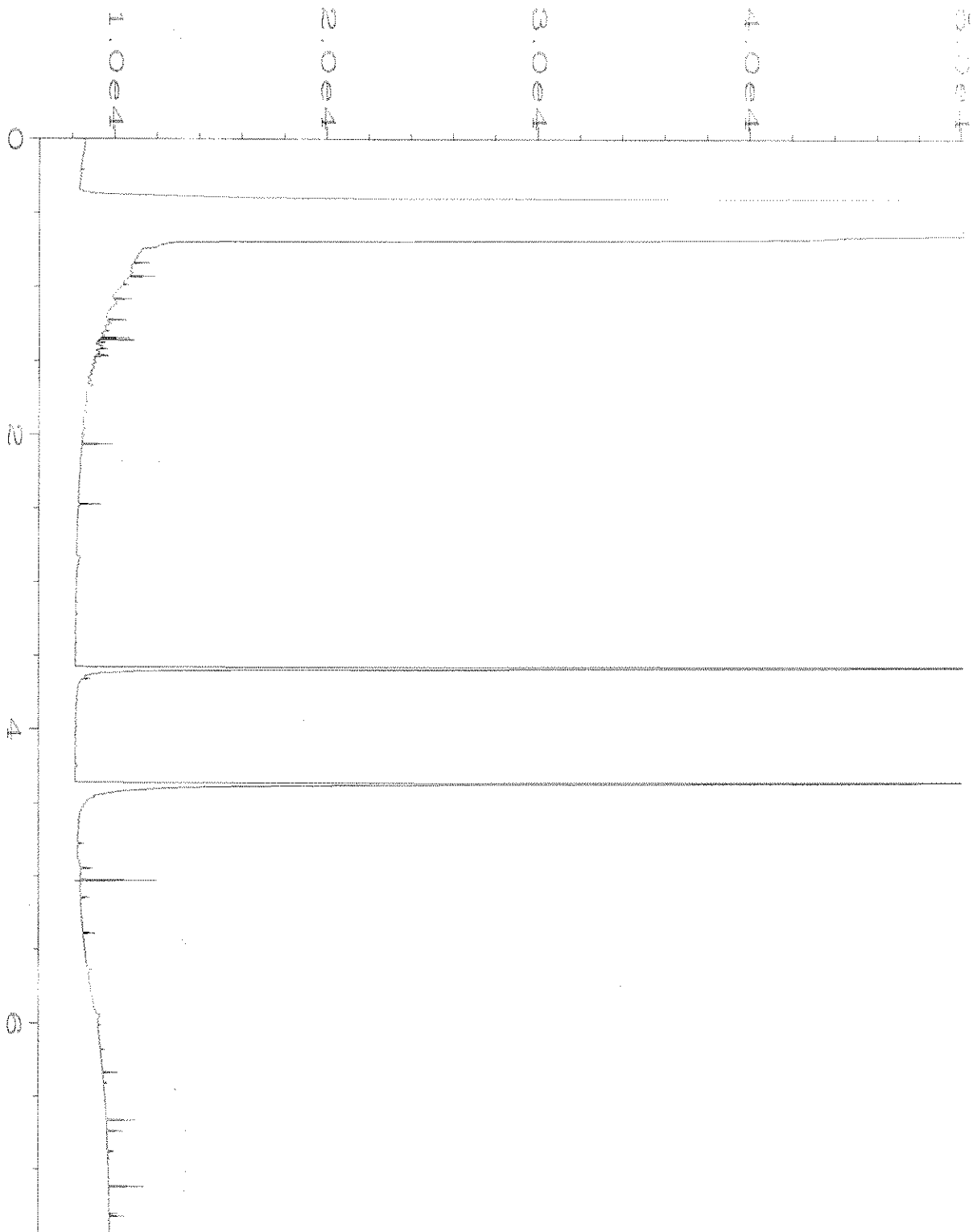
Samples received at 4 °C



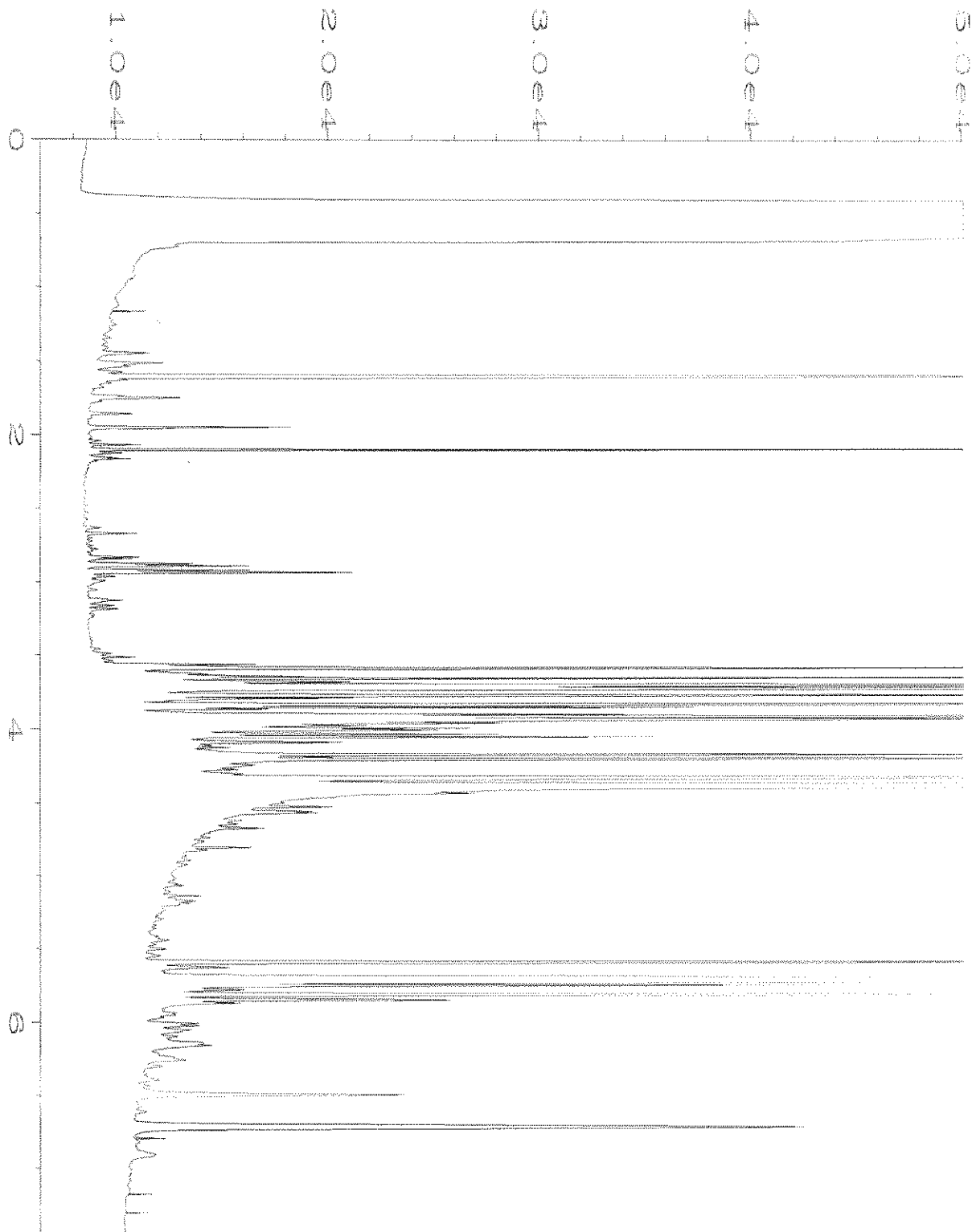
Data File Name	: C:\HPCHEM\1\DATA\05-05-21\008F0401.D	Page Number	: 1
Operator	: TL	Vial Number	: 8
Instrument	: GC1	Injection Number	: 1
Sample Name	: 105080-01	Sequence Line	: 4
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 05 May 21 11:00 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 08:59 AM		



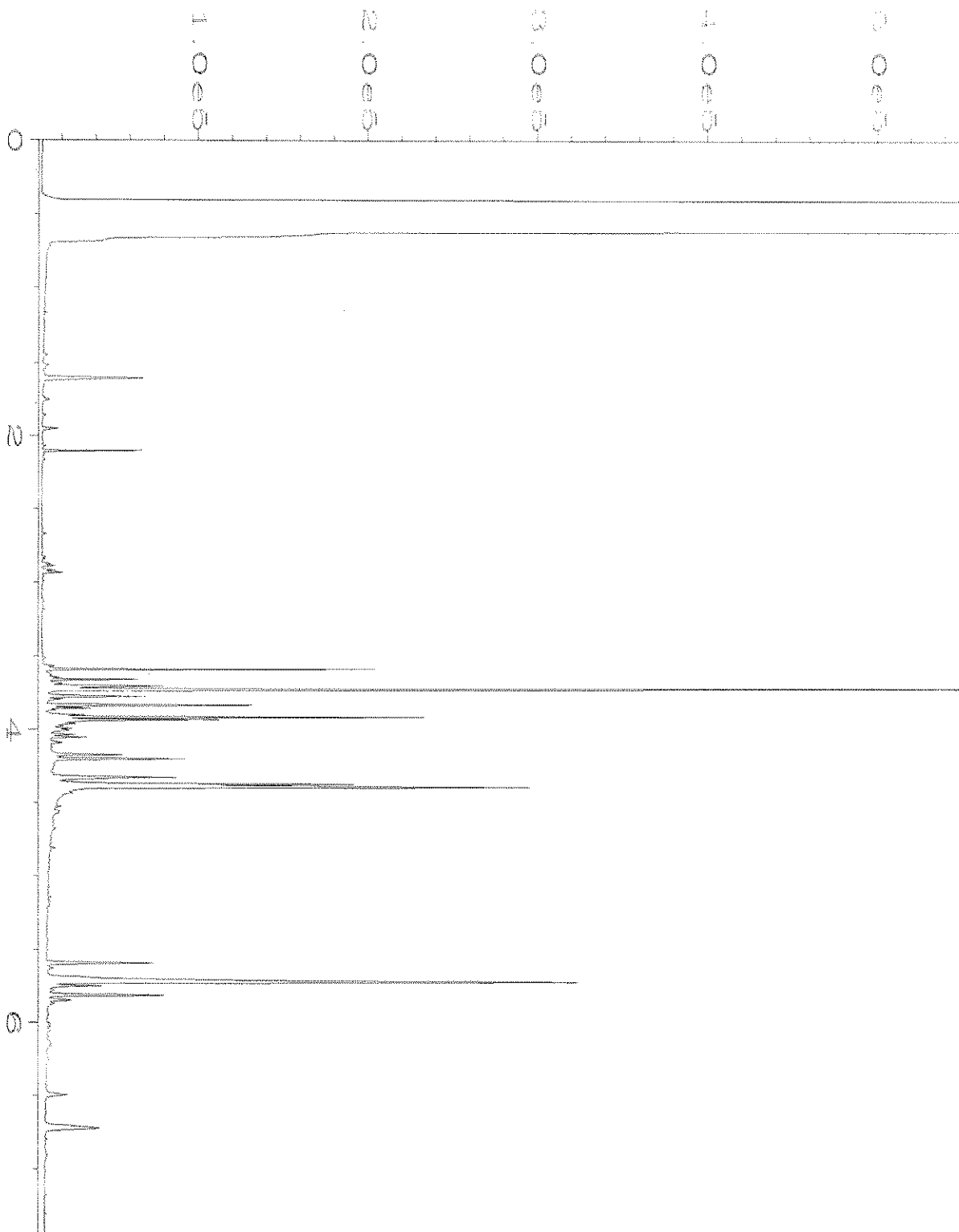
Data File Name	: C:\HPCHEM\1\DATA\05-05-21\010F0701.D	Page Number	: 1
Operator	: TL	Vial Number	: 10
Instrument	: GC1	Injection Number	: 1
Sample Name	: 104580-02	Sequence Line	: 7
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 05 May 21 01:44 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 09:10 AM		



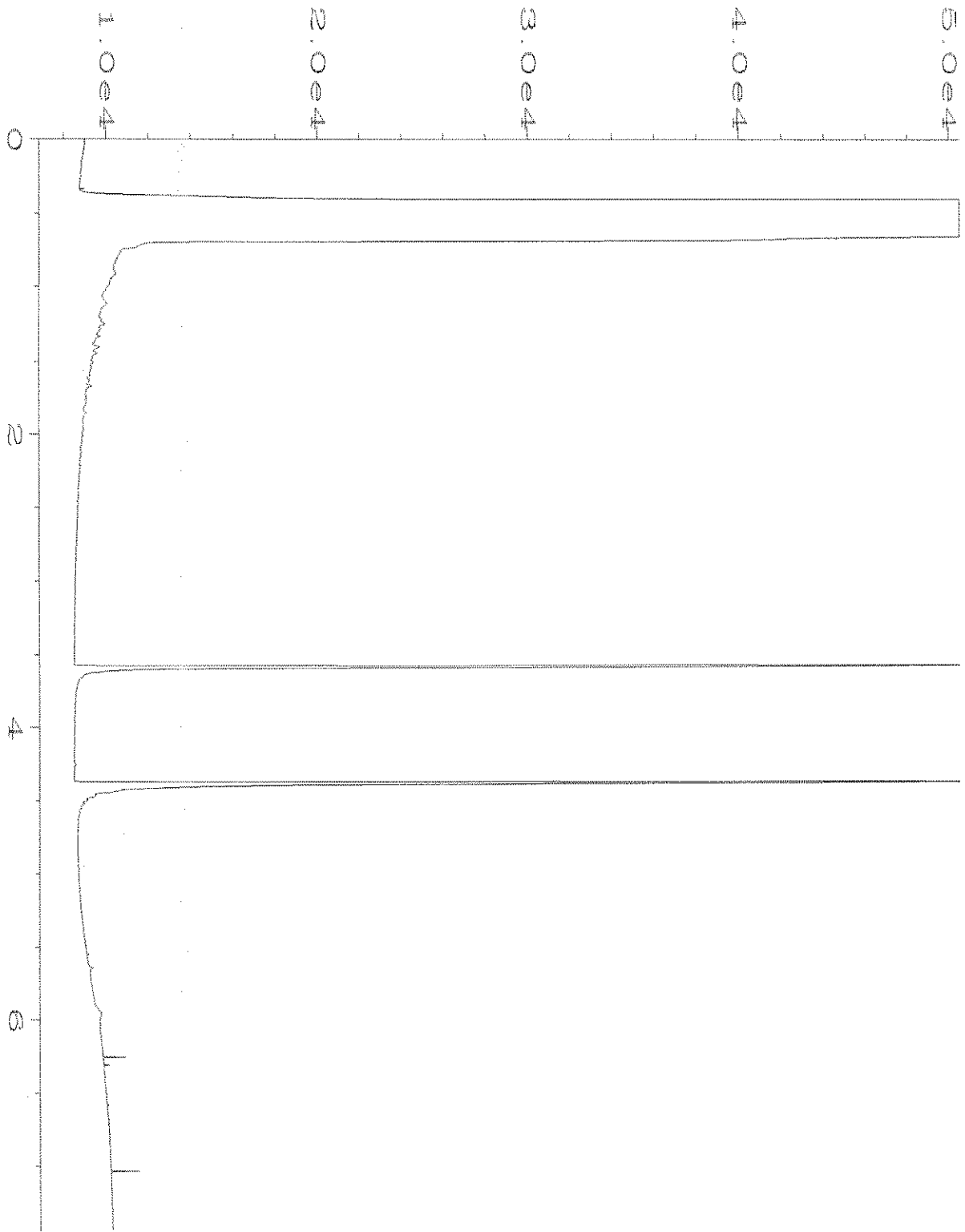
Data File Name	: C:\HPCHEM\1\DATA\05-05-21\011F0701.D	Page Number	: 1
Operator	: TL	Vial Number	: 11
Instrument	: GC1	Injection Number	: 1
Sample Name	: 104580-03	Sequence Line	: 7
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 05 May 21 01:55 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 09:10 AM		



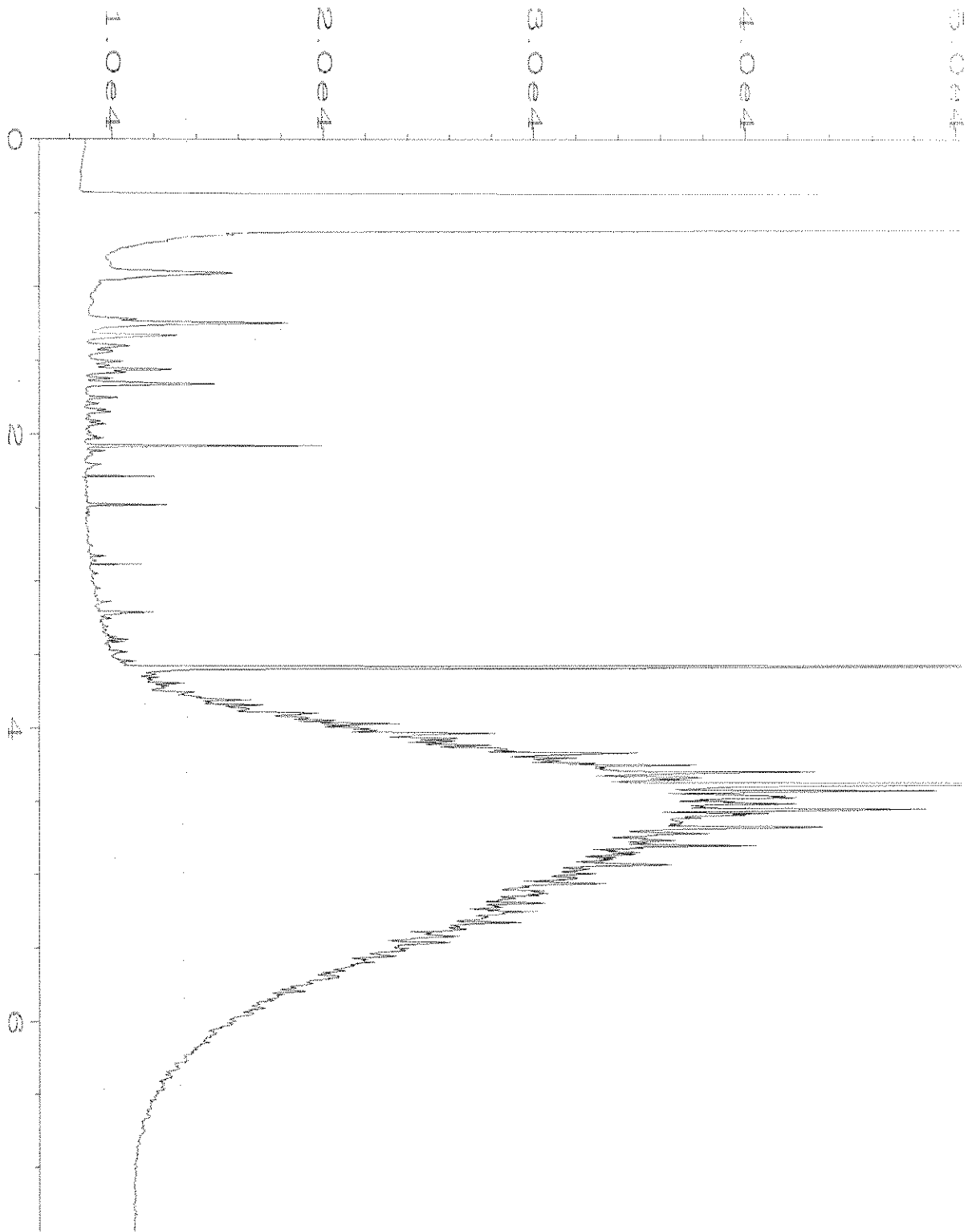
Data File Name	: C:\HPCHEM\1\DATA\05-05-21\012F0701.D	Page Number	: 1
Operator	: TL	Vial Number	: 12
Instrument	: GC1	Injection Number	: 1
Sample Name	: 104580-04	Sequence Line	: 7
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 05 May 21 02:07 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 09:10 AM		



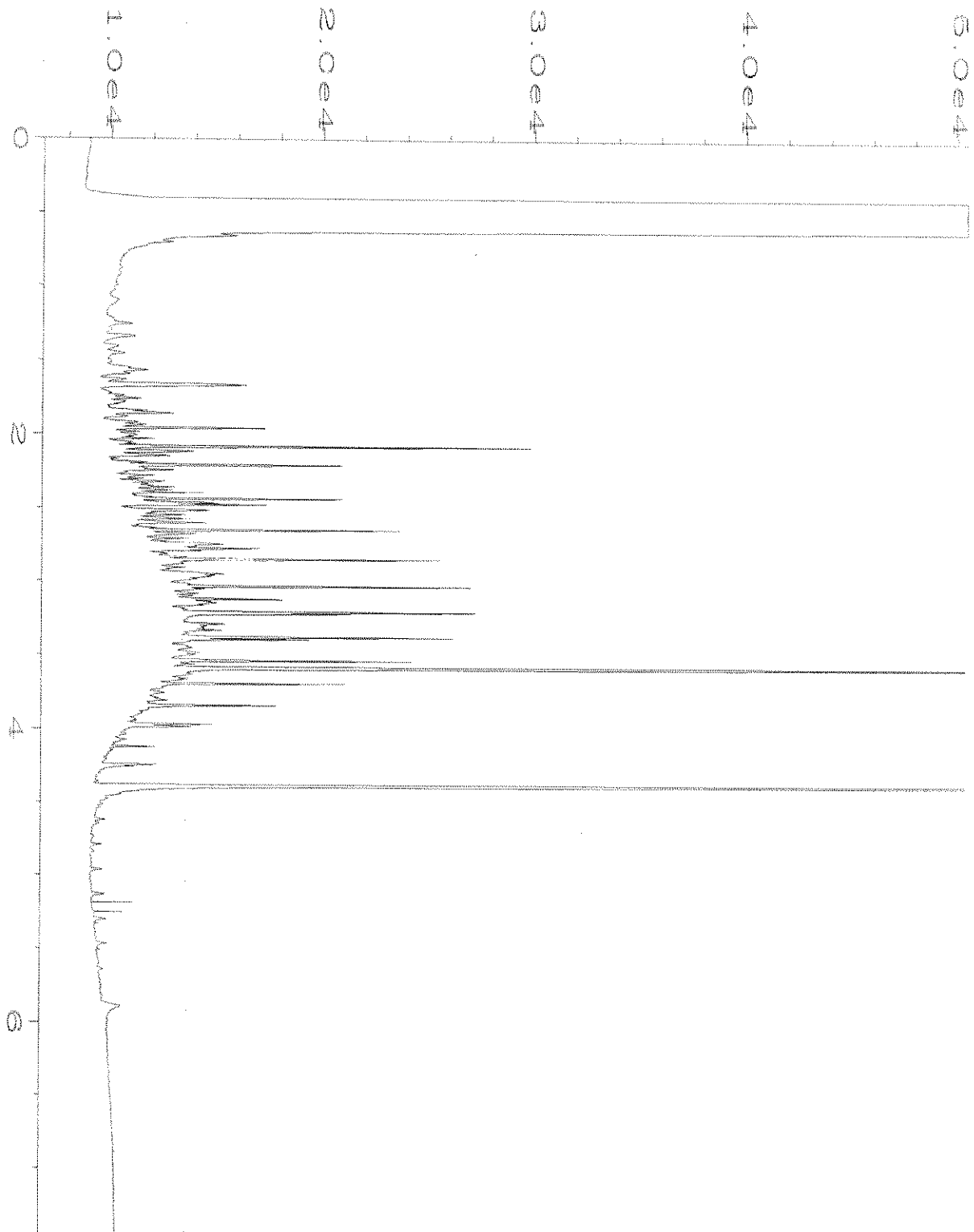
Data File Name	: C:\HPCHEM\1\DATA\05-05-21\012F0701.D	Page Number	: 1
Operator	: TL	Vial Number	: 12
Instrument	: GC1	Injection Number	: 1
Sample Name	: 104580-04	Sequence Line	: 7
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 05 May 21 02:07 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 09:11 AM		



Data File Name	: C:\HPCHEM\1\DATA\05-05-21\006F0401.D	Page Number	: 1
Operator	: TL	Vial Number	: 6
Instrument	: GC1	Injection Number	: 1
Sample Name	: 01-1089 mb	Sequence Line	: 4
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 05 May 21 10:37 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 08:58 AM		



Data File Name	: C:\HPCHEM\1\DATA\05-05-21\096F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 96
Instrument	: GC1	Injection Number	: 1
Sample Name	: HCIDs G/M 63-83A	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 05 May 21 10:17 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 08:58 AM		



Data File Name	: C:\HPCHEM\1\DATA\05-05-21\097F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 97
Instrument	: GC1	Injection Number	: 1
Sample Name	: HCIDs Dx 62-142G	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 05 May 21 10:26 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	06 May 21 08:58 AM		

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 12, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on May 10, 2021 from the 12th and Yesler WES 1591, F&BI 105143 project. There are 6 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  
WES0512R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 10, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 105143 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
105143 -01	STK-3-S
105143 -02	STK-3-NE
105143 -03	STK-3-W

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/12/21

Date Received: 05/10/21

Project: 12th and Yesler WES 1591, F&BI 105143

Date Extracted: 05/10/21

Date Analyzed: 05/10/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-132)
STK-3-S pc 105143-01	<0.02	0.10	0.035	0.12	11	77
STK-3-NE pc 105143-02	<0.02	0.097	0.036	0.11	14	75
STK-3-W pc 105143-03	<0.02	<0.02	<0.02	<0.06	<5	77
Method Blank 01-1002 MB	<0.02	<0.02	<0.02	<0.06	<5	76

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/12/21

Date Received: 05/10/21

Project: 12th and Yesler WES 1591, F&BI 105143

Date Extracted: 05/10/21

Date Analyzed: 05/10/21

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
STK-3-S 105143-01	<50	<250	80
STK-3-NE 105143-02	<50	<250	89
STK-3-W 105143-03	<50	<250	90
Method Blank 01-1105 MB	<50	<250	91

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/12/21

Date Received: 05/10/21

Project: 12th and Yesler WES 1591, F&BI 105143

**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: 105135-01 (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	0.025	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	102	66-121
Toluene	mg/kg (ppm)	0.5	102	72-128
Ethylbenzene	mg/kg (ppm)	0.5	99	69-132
Xylenes	mg/kg (ppm)	1.5	99	69-131
Gasoline	mg/kg (ppm)	20	95	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/12/21

Date Received: 05/10/21

Project: 12th and Yesler WES 1591, F&BI 105143

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 105131-01 (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	2,100	90	84	73-135	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	94	74-139

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte may be due to carryover from previous sample injections.
- cf - The sample was centrifuged prior to analysis.
- d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.
- dv - Insufficient sample volume was available to achieve normal reporting limits.
- f - The sample was laboratory filtered prior to analysis.
- fb - The analyte was detected in the method blank.
- fc - The 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.



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 13, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on May 7, 2021 from the 12th and Yesler WES 1591, F&BI 105135 project. There are 6 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  
WES0513R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 7, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 105135 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
105135 -01	Main STK-E
105135 -02	Main STK-E2
105135 -03	Main STK-S
105135 -04	Main STK-S2
105135 -05	Main STK-N
105135 -06	STK-2-S
105135 -07	STK-2-W

Samples were not received in 5035 sampling containers. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/13/21  
 Date Received: 05/07/21  
 Project: 12th and Yesler WES 1591, F&BI 105135  
 Date Extracted: 05/10/21  
 Date Analyzed: 05/10/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-132)
Main STK-E pc 105135-01	<0.02	<0.02	<0.02	<0.06	<5	76
Main STK-E2 pc 105135-02	<0.02	<0.02	<0.02	<0.06	<5	76
Main STK-S pc 105135-03	<0.02	<0.02	<0.02	<0.06	<5	75
Main STK-S2 pc 105135-04	<0.02	0.027	<0.02	<0.06	6.2	76
Main STK-N pc 105135-05	<0.02	0.091	<0.02	0.073	9.6	73
STK-2-S pc 105135-06	<0.02	0.11	0.029	0.10	9.0	77
STK-2-W pc 105135-07	<0.02	0.21	0.051	0.15	13	77
Method Blank 01-1002 MB	<0.02	<0.02	<0.02	<0.06	<5	76

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/13/21

Date Received: 05/07/21

Project: 12th and Yesler WES 1591, F&BI 105135

Date Extracted: 05/10/21

Date Analyzed: 05/10/21

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 53-144)
Main STK-E 105135-01	<50	<250	92
Main STK-E2 105135-02	<50	<250	101
Main STK-S 105135-03	<50	<250	101
Main STK-S2 105135-04	<50	560	90
Main STK-N 105135-05	<50	<250	100
STK-2-S 105135-06	<50	<250	97
STK-2-W 105135-07	<50	<250	98
Method Blank 01-1104 MB	<50	<250	93

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/13/21

Date Received: 05/07/21

Project: 12th and Yesler WES 1591, F&BI 105135

**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: 105135-01 (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	0.025	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	102	66-121
Toluene	mg/kg (ppm)	0.5	102	72-128
Ethylbenzene	mg/kg (ppm)	0.5	99	69-132
Xylenes	mg/kg (ppm)	1.5	99	69-131
Gasoline	mg/kg (ppm)	20	95	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/13/21

Date Received: 05/07/21

Project: 12th and Yesler WES 1591, F&BI 105135

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 105137-01 (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	86	92	64-133	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	88	58-147

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

105135

SAMPLE CHAIN OF CUSTODY

05-07-21

AD2

SAMPLERS (signature)

PROJECT NAME

FRM 4/10/16

PO#

0605  
1591

REMARKS

INVOICE TO

Report To: [Signature]  
 Company: W. M. S. S. S.  
 Address: 515 1st Ave NE  
 City, State, ZIP: Seattle, WA 98119-2029  
 Phone: \_\_\_\_\_ Email: [Signature]

Project specific RIs? - Yes / No

Page # \_\_\_\_\_ of \_\_\_\_\_

TURNAROUND TIME

Standard turnaround  
 RUSH W. M. S. S. S.  
 Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples  
 Other \_\_\_\_\_

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082			
MD SK-E	01	5-7-21	PM	SOIL	1	X	X								
MD SK-ER	02				1										
11-11-S	03				1										
11-11-SR	04				1										
11-11-N	05				1										
SK-R-5	06				1										
SK-R-00	07				1										

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	<u>Eric Down</u>	<u>W. M. S. S. S.</u>	<u>5/7/21</u>	<u>5:08</u>
<u>[Signature]</u>	<u>Eric Down</u>	<u>W. M. S. S. S.</u>	<u>5/7/21</u>	<u>17:08</u>
Received by:				

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

Samples received at 4 07

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 20, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on May 13, 2021 from the 12th and Yesler WES-1591, F&BI 105244 project. There are 6 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  
WES0520R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 13, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 105244 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
105244 -01	S STK-N
105244 -02	S STK-E
105244 -03	S STK-W

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/20/21

Date Received: 05/13/21

Project: 12th and Yesler WES-1591, F&BI 105244

Date Extracted: 05/14/21

Date Analyzed: 05/17/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-132)
S STK-N <sub>pc</sub> 105244-01 1/10	<0.2	0.25	<0.2	2.5	310	77
S STK-E <sub>pc</sub> 105244-02 1/5	<0.02 j	0.24	3.9	3.5	580	84
S STK-W <sub>pc</sub> 105244-03	<0.02	<0.02	0.40	0.38	100	81
Method Blank 01-1011 MB	<0.02	<0.02	<0.02	<0.06	<5	88

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/20/21

Date Received: 05/13/21

Project: 12th and Yesler WES-1591, F&BI 105244

Date Extracted: 05/14/21

Date Analyzed: 05/14/21

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
S STK-N 105244-01	250 x	<250	82
S STK-E 105244-02	870 x	1,100	82
S STK-W 105244-03	<50	<250	83
Method Blank 01-1126 MB	<50	<250	87

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/20/21

Date Received: 05/13/21

Project: 12th and Yesler WES-1591, F&BI 105244

**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: 105246-01 (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)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	102	69-120
Toluene	mg/kg (ppm)	0.5	106	70-117
Ethylbenzene	mg/kg (ppm)	0.5	105	65-123
Xylenes	mg/kg (ppm)	1.5	107	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/20/21

Date Received: 05/13/21

Project: 12th and Yesler WES-1591, F&BI 105244

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 105213-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	94	94	73-135	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	94	74-139

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.



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 26, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on May 21, 2021 from the 12th + Yesler WES 1591, F&BI 105418 project. There are 7 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  
WES0526R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 21, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th + Yesler WES 1591, F&BI 105418 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
105418 -01	Main STK-NE
105418 -02	Main STK-SE
105418 -03	Main STK-SW
105418 -04	SEG STK-NW
105418 -05	SEG STK-SE
105418 -06	SEG STK-SW
105418 -07	SW STK-N
105418 -08	SW STK-S

The samples were not received in 5035 sampling containers. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/26/21  
Date Received: 05/21/21  
Project: 12th + Yesler WES 1591, F&BI 105418  
Date Extracted: 05/24/21  
Date Analyzed: 05/24/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
Main STK-NE pc 105418-01	<5	89
Main STK-SE pc 105418-02	<5	79
SEG STK-NW pc 105418-04	<5	71
SEG STK-SE pc 105418-05	<5	83
SEG STK-SW pc 105418-06	<5	82
SW STK-N pc 105418-07	<5	82
SW STK-S pc 105418-08	<5	73
Method Blank 01-1281 MB	<5	80

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/26/21  
Date Received: 05/21/21  
Project: 12th + Yesler WES 1591, F&BI 105418  
Date Extracted: 05/24/21  
Date Analyzed: 05/24/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
Main STK-SW pc 105418-03	<0.02	<0.02	<0.02	<0.06	6.7	91
Method Blank 01-1281 MB	<0.02	<0.02	<0.02	<0.06	<5	90

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/26/21  
Date Received: 05/21/21  
Project: 12th + Yesler WES 1591, F&BI 105418  
Date Extracted: 05/24/21  
Date Analyzed: 05/24/21

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 53-144)
Main STK-NE 105418-01	<50	<250	93
Main STK-SE 105418-02	<50	<250	93
Main STK-SW 105418-03	<50	<250	91
SEG STK-NW 105418-04	<50	<250	90
SEG STK-SE 105418-05	<50	<250	91
SEG STK-SW 105418-06	<50	<250	94
SW STK-N 105418-07	<50	<250	95
SW STK-S 105418-08	<50	<250	100
Method Blank 01-1310 MB	<50	<250	94

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/26/21

Date Received: 05/21/21

Project: 12th + Yesler WES 1591, F&BI 105418

**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: 105418-01 (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)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	90	69-120
Toluene	mg/kg (ppm)	0.5	94	70-117
Ethylbenzene	mg/kg (ppm)	0.5	92	65-123
Xylenes	mg/kg (ppm)	1.5	93	66-120
Gasoline	mg/kg (ppm)	20	80	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/26/21

Date Received: 05/21/21

Project: 12th + Yesler WES 1591, F&BI 105418

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 105418-01 (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	92	94	64-133	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	82	58-147

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **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.

105418

SAMPLE CHAIN OF CUSTODY

05-21-21

CT2

Page # of

Report To: [Signature]  
 Company: CHI-MAN BAY SERVICES  
 Address: 8512 16th Ave NE  
 City, State, ZIP: Seattle, WA 98119  
 Phone: \_\_\_\_\_ Email: \_\_\_\_\_

SAMPLERS (signature)	PROJECT NAME	PO #
<u>[Signature]</u>	<u>13th + 45th</u>	<u>035</u>
REMARKS	INVOICE TO	
<u>Project specific RI's? - Yes / No</u>	<u>1591</u>	

TURNAROUND TIME

Standard turnaround  
 RUSH [Signature]  
 Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples  
 Other \_\_\_\_\_  
 Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		
<u>SSK-NE 01</u>		<u>5-21</u>	<u>PM</u>	<u>Soil</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							
<u>11 -SE 02</u>						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							
<u>11 -SD 03</u>							<input checked="" type="checkbox"/>							
<u>SSK-NW 04</u>														
<u>11 -SE 05</u>														
<u>11 -SD 06</u>														
<u>SSK-NW 07</u>														
<u>11 -S 08</u>														

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

Relinquished by: <u>[Signature]</u>	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Received by: <u>[Signature]</u>		<u>VINET</u>	<u>035</u>	<u>5/24/21</u>	<u>4:15</u>
Relinquished by:					
Received by:					

per DW on 3-day TAT to 5/24/21

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 10, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on June 7, 2021 from the 12th and Yesler WES 1591, F&BI 106104 project. There are 6 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  
WES0610R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 7, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 106104 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
106104 -01	C2STK-NE
106104 -02	C2STK-SW

Samples were not received in 5035 sampling containers. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/10/21

Date Received: 06/07/21

Project: 12th and Yesler WES 1591, F&BI 106104

Date Extracted: 06/09/21

Date Analyzed: 06/09/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
C2STK-NE pc 106104-01	<0.02	0.095	<0.02	<0.06	<5	92
C2STK-SW pc 106104-02	<0.02	<0.02	<0.02	<0.06	<5	94
Method Blank 01-1299 MB	<0.02	<0.02	<0.02	<0.06	<5	93

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/10/21

Date Received: 06/07/21

Project: 12th and Yesler WES 1591, F&BI 106104

Date Extracted: 06/08/21

Date Analyzed: 06/08/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 53-144)
C2STK-NE 106104-01	<50	<250	93
C2STK-SW 106104-02	<50	<250	101
Method Blank 01-1368 MB	<50	<250	91

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/10/21

Date Received: 06/07/21

Project: 12th and Yesler WES 1591, F&BI 106104

**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: 106104-01 (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)	0.095	0.081	16
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	96	69-120
Toluene	mg/kg (ppm)	0.5	100	70-117
Ethylbenzene	mg/kg (ppm)	0.5	98	65-123
Xylenes	mg/kg (ppm)	1.5	100	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/10/21

Date Received: 06/07/21

Project: 12th and Yesler WES 1591, F&BI 106104

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 106100-01 (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	92	94	64-133	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	86	58-147

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

106104

SAMPLE CHAIN OF CUSTODY ME 06/07/01

co 1

Report To [Signature]  
 Company BRIDGE ENV SERVICES  
 Address 512 5th Ave NE  
 City, State, ZIP SEATTLE, WA  
 Phone [Signature] Email [Signature]

SAMPLERS (signature) \_\_\_\_\_

PROJECT NAME 17th + 6th PO # 065  
 REMARKS SMPS INVOICE TO 1591

Project specific RIs? - Yes / No

Page # \_\_\_\_\_ of \_\_\_\_\_

TURNAROUND TIME  
 Standard turnaround  
 RUSH [Signature]  
 Rush charges authorized by [Signature]

SAMPLE DISPOSAL  
 Archive samples  
 Other \_\_\_\_\_  
 Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		
<u>CRSKE-01E</u>	<u>01</u>	<u>6-4</u>	<u>PM</u>	<u>soil</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
<u>CRSKE-02D</u>	<u>02</u>	<u>11</u>	<u>11</u>	<u>soil</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						

Samples received at OC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	<u>Ktari Horng</u>	<u>CBES</u>	<u>6-7-01</u>	<u>11:11</u>
<u>[Signature]</u>	<u>[Signature]</u>	<u>EBT</u>	<u>6-7-01</u>	<u>16:11</u>
<u>[Signature]</u>				

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 11, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on June 8, 2021 from the 12th and Yesler WES 1591, F&BI 106117 project. There are 6 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  
WES0611R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 8, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 106117 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
106117 -01	Main STK-E
106117 -02	Main STK-Top
106117 -03	C2STK-NE
106117 -04	C2STK-W
106117 -05	C2STK-S
106117 -06	S15-W2-194
106117 -07	S16.5-W3-194

Samples were not received in 5035 sampling containers. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/11/21  
 Date Received: 06/08/21  
 Project: 12th and Yesler WES 1591, F&BI 106117  
 Date Extracted: 06/10/21  
 Date Analyzed: 06/10/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
Main STK-E pc 106117-01	<0.02	<0.02	<0.02	<0.06	<5	76
Main STK-Top pc 106117-02	<0.02	<0.02	<0.02	<0.06	<5	95
C2STK-NE pc 106117-03	<0.02	<0.02	<0.02	<0.06	<5	93
C2STK-W pc 106117-04	<0.02	<0.02	<0.02	<0.06	<5	83
C2STK-S pc 106117-05	<0.02	<0.02	<0.02	<0.06	<5	94
S15-W2-194 pc 106117-06	<0.02	<0.02	0.15	0.20	120	101
S16.5-W3-194 pc 106117-07	<0.02	<0.02	<0.02	<0.06	7.2	75
Method Blank 01-1300 MB	<0.02	<0.02	<0.02	<0.06	<5	95

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/11/21

Date Received: 06/08/21

Project: 12th and Yesler WES 1591, F&BI 106117

Date Extracted: 06/08/21

Date Analyzed: 06/08/21

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
S15-W2-194 106117-06	330 x	<250	85
S16.5-W3-194 106117-07	<50	<250	88
Method Blank 01-1368 MB	<50	<250	91

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/11/21

Date Received: 06/08/21

Project: 12th and Yesler WES 1591, F&BI 106117

**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: 106117-01 (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)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	92	69-120
Toluene	mg/kg (ppm)	0.5	96	70-117
Ethylbenzene	mg/kg (ppm)	0.5	94	65-123
Xylenes	mg/kg (ppm)	1.5	93	66-120
Gasoline	mg/kg (ppm)	20	90	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/11/21

Date Received: 06/08/21

Project: 12th and Yesler WES 1591, F&BI 106117

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 106100-01 (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	92	94	64-133	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	86	58-147

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

106117

SAMPLE CHAIN OF CUSTODY ME 06/08/21

002

Report To: [Signature]  
 Company: CHRISTMAS CIVIL SERVICES  
 Address: 3015 16th Ave West  
 City, State, ZIP: Seattle, WA 98119  
 Phone: \_\_\_\_\_  
 Email: christmas@christmascivil.com

SAMPLERS (signature) \_\_\_\_\_  
 PROJECT NAME: FRUIT VENDOR  
 REMARKS: \_\_\_\_\_  
 PO #: 1085  
 INVOICE TO: 1591

Page # \_\_\_\_\_ of \_\_\_\_\_  
 TURNAROUND TIME: \_\_\_\_\_  
 Standard turnaround  
 RUSH [Signature]  
 Rush charges authorized by: \_\_\_\_\_  
 SAMPLE DISPOSAL  
 Archive samples  
 Other \_\_\_\_\_  
 Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED						Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270		PCBs EPA 8082
<u>MIDSTK-E</u>	<u>01</u>	<u>6-8-21</u>		<u>SOIL</u>	<u>1</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	
<u>MIDSTK-SP</u>	<u>02</u>				<u>1</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	
<u>CRSTK-WE</u>	<u>03</u>				<u>1</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	
<u>CRSTK-D</u>	<u>04</u>				<u>1</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	
<u>CRSTK-S</u>	<u>05</u>				<u>1</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	
<u>S/5-028-194</u>	<u>06</u>				<u>1</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>NOT RUSH</u>
<u>S/6-5-023-194</u>	<u>07</u>				<u>1</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	<u>[Signature]</u>	<u>FBT</u>	<u>6/8/21</u>	<u>15:05</u>
<u>[Signature]</u>	<u>KHOI HOANG</u>	<u>FBT</u>		
Received by:				
Relinquished by:				

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

Samples received at 927  
06  
121

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 12, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on June 21, 2021 from the 12th and Yesler WES 1591, F&BI 106360 project. There is 1 page 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  
WES0712R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 21, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 106360 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
106360 -01	ORG-1
106360 -02	ORG-2
106360 -03	ORG-3
106360 -04	S8.5-SW-6'

The samples were sent to Amtest for organic matter analysis. Review of the enclosed report indicates that all quality assurance were acceptable.

106360

SAMPLE CHAIN OF CUSTODY

06-21-21

Page # of

Report To *[Signature]*

Company *CBES*

Address \_\_\_\_\_

City, State, ZIP \_\_\_\_\_

Phone \_\_\_\_\_

Email *[Signature]*

SAMPLERS (signature)

PROJECT NAME

REMARKS *Remix / Resizer*

PO #

INVOICE TO

Protect specific RI's? - Yes / No

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082			
<i>086-1</i>	<i>01</i>	<i>6-21</i>	<i>PM</i>	<i>soil</i>	<i>1</i>										
<i>086-2</i>	<i>02</i>	<i>N</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>										
<i>086-3</i>	<i>03</i>	<i>S/18</i>	<i>✓</i>	<i>Soil</i>	<i>1</i>										<i>added from</i>
<i>S8.5-SW-61</i>	<i>04</i>	<i>S/18</i>	<i>✓</i>	<i>Soil</i>	<i>1</i>										<i>Project 10625</i>
															<i>2014 MS 6/21/11</i>

TURNAROUND TIME *CDY*

Standard turnaround

RUSH

Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples

Other \_\_\_\_\_

Default: Dispose after 30 days

SIGNATURE

PRINT NAME

COMPANY

DATE TIME

Relinquished by:

*[Signature]*

*CBES*

*6/21/21 7:17*

Received by:

*[Signature]*

*CBES*

*6/21/21 11:13*

Relinquished by:

*[Signature]*

*CBES*

*6/21/21 11:13*

Received by:

*[Signature]*

*CBES*

*6/21/21 11:13*

Friedman & Bryner, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

**Am Test Inc.**  
13600 NE 126TH PL  
Suite C  
Kirkland, WA 98034  
(425) 885-1664

*Professional  
Analytical  
Services*

Jul 8 2021  
Friedman & Bruya, Inc.  
3012 16th Avenue West  
Seattle, WA 98119-2029  
Attention: MICHAEL ERDAHL

Dear MICHAEL ERDAHL:

Enclosed please find the analytical data for your project.

The following is a cross correlation of client and laboratory identifications for your convenience.

CLIENT ID	MATRIX	AMTEST ID	TEST
ORG-1	Soil	21-A008750	OM std mth
ORG-2	Soil	21-A008751	OM std mth
ORG-3	Soil	21-A008752	OM std mth
S8.5-SW-6'	Soil	21-A008753	OM std mth

Your samples were received on Wednesday, June 23, 2021. At the time of receipt, the samples were logged in and properly maintained prior to the subsequent analysis.

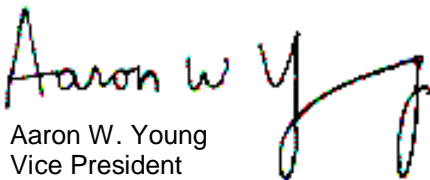
The analytical procedures used at AmTest are well documented and are typically derived from the protocols of the EPA, USDA, FDA or the Army Corps of Engineers.

Following the analytical data you will find the Quality Control (QC) results.

Please note that the detection limits that are listed in the body of the report refer to the Practical Quantitation Limits (PQL's), as opposed to the Method Detection Limits (MDL's).

If you should have any questions pertaining to the data package, please feel free to contact me.

Sincerely,

  
Aaron W. Young  
Vice President

Project #: 106360  
PO Number: B-296

BACT = Bacteriological  
CONV = Conventional

MET = Metals  
ORG = Organics

NUT=Nutrients  
DEM=Demand

MIN=Minerals

Am Test Inc.  
13600 NE 126TH PL  
Suite C  
Kirkland, WA 98034  
(425) 885-1664  
www.amtestlab.com



*Professional  
Analytical  
Services*

## ANALYSIS REPORT

Friedman & Bruya, Inc.  
3012 16th Avenue West  
Seattle, WA 98119-2029  
Attention: MICHAEL ERDAHL  
Project #: 106360  
PO Number: B-296  
All results reported on an as received basis.

Date Received: 06/23/21  
Date Reported: 7/ 8/21

---

**AMTEST Identification Number** 21-A008750  
**Client Identification** ORG-1  
**Sampling Date** 06/21/21

### Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Organic Matter	9.3	%			SM 2540G	MD	06/25/21

---

**AMTEST Identification Number** 21-A008751  
**Client Identification** ORG-2  
**Sampling Date** 06/21/21

### Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Organic Matter	7.6	%			SM 2540G	MD	06/25/21

---

**AMTEST Identification Number** 21-A008752  
**Client Identification** ORG-3  
**Sampling Date** 06/21/21

Friedman & Bruya, Inc.  
Project Name:  
AmTest ID: 21-A008752

**Miscellaneous**

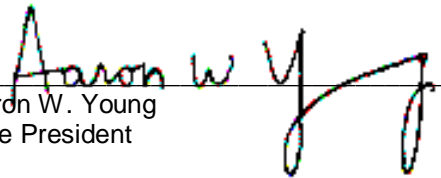
PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Organic Matter	12.5	%			SM 2540G	MD	06/25/21

---

**AMTEST Identification Number**      21-A008753  
**Client Identification**                S8.5-SW-6'  
**Sampling Date**                            05/18/21

**Miscellaneous**

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Organic Matter	6.8	%			SM 2540G	MD	06/25/21

  
Aaron W. Young  
Vice President

**Am Test Inc.**  
13600 NE 126th PL  
Suite C  
Kirkland, WA, 98034  
(425) 885-1664  
www.amtestlab.com



*Professional  
Analytical  
Services*

**QC Summary for sample numbers: 21-A008750 to 21-A008753**

**DUPLICATES**

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
21-A008765	Organic Matter	%	1.0	1.0	0.00



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

July 12, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on July 8, 2021 from the 12th and Yesler WES-1591, F&BI 107105 project. There are 6 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  
WES0712R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 8, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES-1591, F&BI 107105 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
107105 -01	NESTK-NE
107105 -02	NESTK-CTR
107105 -03	NESTK-S

Samples were not received in 5035 sampling containers. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/12/21  
Date Received: 07/08/21  
Project: 12th and Yesler WES-1591, F&BI 107105  
Date Extracted: 07/08/21  
Date Analyzed: 07/08/21

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
NESTK-NE <sub>pc</sub> 107105-01	<0.02	0.032	0.040	0.14	17	98
NESTK-CTR <sub>pc</sub> 107105-02	<0.02	0.046	0.10	0.30	51	91
NESTK-S <sub>pc</sub> 107105-03	<0.02	<0.02	<0.02	<0.06	14	97
Method Blank 01-1435 MB	<0.02	<0.02	<0.02	<0.06	<5	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/12/21

Date Received: 07/08/21

Project: 12th and Yesler WES-1591, F&BI 107105

Date Extracted: 07/08/21

Date Analyzed: 07/08/21

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-D<sub>x</sub>**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
NESTK-NE 107105-01	<50	350	97
NESTK-CTR 107105-02	<50	360	99
NESTK-S 107105-03	<50	300	98
Method Blank 01-1558 MB	<50	<250	95

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/12/21

Date Received: 07/08/21

Project: 12th and Yesler WES-1591, F&BI 107105

**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: 107093-02 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	92	69-120
Toluene	mg/kg (ppm)	0.5	97	70-117
Ethylbenzene	mg/kg (ppm)	0.5	96	65-123
Xylenes	mg/kg (ppm)	1.5	98	66-120
Gasoline	mg/kg (ppm)	20	85	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/12/21

Date Received: 07/08/21

Project: 12th and Yesler WES-1591, F&BI 107105

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 107084-01 (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	104	104	73-135	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	102	74-139

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

107105

SAMPLE CHAIN OF CUSTODY

ME 07/08/21

CI

SAMPLERS (signature)

Page # \_\_\_\_\_ of \_\_\_\_\_

Report To: *M. Friedman*

Company: *California Earth Sciences*

Address: *818 15th Ave NE*

City, State, ZIP: *Seattle, WA 98115*

Phone: \_\_\_\_\_ Email: *m.friedman@ces.com*

PROJECT NAME

PO #

*13th + 15th*

*665-1591*

REMARKS

INVOICE TO

TURNAROUND TIME

Standard turnaround  
 RUSH *13th Ave NE*  
Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples  
 Other \_\_\_\_\_  
Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes			
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082				
<i>WESTK-NE</i>	<i>01</i>	<i>7-8</i>	<i>AM</i>	<i>soil</i>	<i>1</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
<i>WESTK-NE</i>	<i>02</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
<i>WESTK-S</i>	<i>03</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								

Samples received at 22 °C

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

*[Signature]*

*M. Friedman*

*[Signature]*

*[Signature]*

*M. Friedman*

*Megan Pham*

*[Signature]*

*[Signature]*

*DES*

*FBI*

*[Signature]*

*[Signature]*

*7/8/21 1:19*

*7/8/21 1319*

*[Signature]*

*[Signature]*

# **APPENDIX D**

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## ***Soil Disposal Documentation***

***Waste Management Inc.  
PCE and Lead Contaminated Soil Disposal Manifests***



**Customer ID:**

**24-73813-43006**

Customer Name:

12TH & YESLER OWNER LLC

Service Period:

Invoice Date:

05/25/2021

Invoice Number:

0025477-2236-9

**DETAILS OF SERVICE - continued**

**Details for Service Location:**

**12th & Yesler Owner Llc, 1420 5th Ave 2200, Seattle WA 98101-1346**

**Customer ID: 24-73813-43006**

**PO#: OR347011**

Description	Date	Ticket	Quantity	Unit of Measure	Rate	Amount
\$20/TON ODEQ						449.60
RCRA Haz Waste - Disposal			22.48	TON	115.00	2,585.20
RENT PER DAY			13.00	ECH	15.00	195.00
Profile # :OR347011						0.00
Generator #:TD AUTO BODY AND REPAIR 1209 E FIR ST SEATT						0.00
Manifest # :019234653JJK						0.00
PO# :OR347011						0.00
<b>Ticket Total</b>						<b>6,046.13</b>
WASTE WATER MANAGEMENT	05/20/21	39988	1.00	PCT	4.75	94.61
LINER PER EACH			1.00	ECH	75.00	75.00
TRANS EACH			1.00	ECH	400.00	400.00
RAIL EA			1.00	ECH	925.00	925.00
CERTIFICATE DISPOSAL 35			1.00	ECH	35.00	35.00
Standard Environmental Fee - Percent (Landfill)			1.00	PCT	17.50	654.75
e-Manifest (Landfill)			1.00	ECH	25.00	25.00
\$20/TON ODEQ						346.40
RCRA Haz Waste - Disposal			17.32	TON	115.00	1,991.80
RENT PER DAY			13.00	ECH	15.00	195.00
Profile # :OR347011						0.00
Generator #:TD AUTO BODY AND REPAIR 1209 E FIR ST SEATT						0.00
Manifest # :019234655JJK						0.00
PO# :OR347011						0.00
<b>Ticket Total</b>						<b>4,742.56</b>
<b>Total Current Charges</b>						<b>10,788.69</b>

**THINK GREEN®**



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0000349-0000002-0600774

481534

Please print or type.

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number WAH000058700	2. Page 1 of 2	3. Emergency Response Phone (800)424-9300	4. Manifest Tracking Number 019234653 JJK					
5. Generator's Name and Mailing Address TD AUTO BODY & REPAIR 1209 E FIR ST SEATTLE WA 98122 Generator's Phone: (206)459-5415				Generator's Site Address (if different than mailing address)						
6. Transporter 1 Company Name R TRANSPORT				U.S. EPA ID Number WAH000028338						
7. Transporter 2 Company Name UPRR				U.S. EPA ID Number NED001792910						
8. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT, INC. 17029 CEDAR SPRINGS LANE ARLINGTON OR 97812-9709 Facility's Phone: (541)454-2843				U.S. EPA ID Number ORD089452353						
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers		11. Total Quantity	12. Unit WL/Vol.	13. Waste Codes		
	X	1. NA3077, HAZARDOUS WASTE, SOLID, N.O.S. (CONTAMINATED SOIL), 9, PGIII OR347011		1	CM	50000 44960 SW	P	F002		
		2.								
		3.								
		4.								
14. Special Handling Instructions and Additional Information 1. OR347011  300056 44960 P										
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true. Generator's/Contributor's/Typed Name: WGC Signature: [Signature] Month: 4 Day: 28 Year: 21										
TRANSPORTER	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____ Transporter signature (for exports only): _____									
	17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name: [Signature] Signature: [Signature] Month: 4 Day: 28 Year: 21 Transporter 2 Printed/Typed Name: JR Signature: [Signature] Month: 4 Day: 28 Year: 21									
DESIGNATED FACILITY	18. Discrepancy 18a. Discrepancy Indication Space <input checked="" type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Weight correction per Luke/development manager - phone conversation SW 5/10/21									
	18b. Alternate Facility (or Generator) _____ U.S. EPA ID Number _____ Facility's Phone: _____									
	18c. Signature of Alternate Facility (or Generator) _____ Month: _____ Day: _____ Year: _____									
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1. H132 2. 3. 4.										
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name: Morgan [Signature] Signature: [Signature] Month: 15 Day: 14 Year: 21										



Please print or type.

Form Approved. OMB No. 2050-0039

481535

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number WAH000058700	2. Page 1 of 2	3. Emergency Response Phone (800) 424-9300	4. Manifest Tracking Number 019234655 JJK		
5. Generator's Name and Mailing Address TD AUTO BODY & REPAIR 1209 E FIR ST SEATTLE WA 98122 Generator's Phone: (206) 454-5415				Generator's Site Address (if different than mailing address)			
6. Transporter 1 Company Name R TRANSPORT				U.S. EPA ID Number WAH000028338			
7. Transporter 2 Company Name LIPRR				U.S. EPA ID Number NE0001792910			
8. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT, INC. 17829 CEDAR SPRINGS LANE ARLINGTON OR 97812-9709 Facility's Phone: (541) 454-2843				U.S. EPA ID Number ORD089452353			
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
		No.	Type				
X	1. NA3077, HAZARDOUS WASTE, SOLID, N.O.S. (CONTAMINATED SOIL), 9, PGIII OR347011	1	CM	50000 34640 SW	P	F002	
	2.						
	3.						
	4.						
14. Special Handling Instructions and Additional Information 1. OR347011 3000044 34640P							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offeror's Printed/Typed Name <i>[Signature]</i>				Signature DANIEL WILLIAMS		Month Day Year 14/8/21	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____							
17. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name Tanner Bruffie				Signature <i>[Signature]</i>		Month Day Year 4/28/21	
Transporter 2 Printed/Typed Name JR				Signature <i>[Signature]</i>		Month Day Year 4/28/21	
18. Discrepancy							
18a. Discrepancy Indication Space <input checked="" type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Weight correction per Luke / development party phone conversation 4/25/21							
18b. Alternate Facility (or Generator) _____ U.S. EPA ID Number _____							
18c. Signature of Alternate Facility (or Generator) _____ Month Day Year _____							
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1. H132		2.		3.		4.	
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name Morgan N. [Signature]				Signature Morgan N. [Signature]		Month Day Year 5/4/21	

Please print or type.

481535

Form Approved OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator ID Number	22. Page	23. Manifest Tracking Number
	WAH000058700	2 of 2	019234655JK

24. Generator's Name **TD AUTO BODY & REPAIR**

25. Transporter **COLUMBIA RIDGE LANDFILL** U.S. EPA ID Number **ORD987173457**

26. Transporter Company Name U.S. EPA ID Number

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers		29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes		
		No.	Type					

32. Special Handling Instructions and Additional Information  
**WMXU 300044**

GENERATOR  
TRANSPORTER  
DESIGNATED FACILITY

33. Transporter Acknowledgment of Receipt of Materials  
Printed/Typed Name **Brittney Hawkins** Signature *[Signature]* Month **15** Day **3** Year **12**

34. Transporter Acknowledgment of Receipt of Materials  
Printed/Typed Name \_\_\_\_\_ Signature \_\_\_\_\_ Month \_\_\_\_\_ Day \_\_\_\_\_ Year \_\_\_\_\_

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

## ***Contaminated Soil Disposal Summary***

12th and Yesler					
Contaminated Soil Disposal Tickets					
	Date	Ticket #	Weight in Tons	Disposal Facility	Loads
4	04/20/21	994068	27.33	Republic	1
	04/20/21	994072	30.66	Republic	1
	04/20/21	15583	28.82	Iron Mt.	1
	04/20/21	15709	26.54	Iron Mt.	1
7	04/29/21	994417	31.67	Republic	1
	04/29/21	994418	29.33	Republic	1
	04/29/21	994421	26.67	Republic	1
	04/29/21	994422	29.89	Republic	1
	04/29/21	994423	28.14	Republic	1
	04/29/21	994424	25.81	Republic	1
	04/29/21	994425	27.74	Republic	1
7	05/03/21	994495	13.49	Republic	1
	05/03/21	994501	16.01	Republic	1
	05/03/21	994505	14.36	Republic	1
	05/03/21	994514	13.76	Republic	1
	05/03/21	994524	16.82	Republic	1
	05/03/21	994518	16.63	Republic	1
	05/03/21	994527	16.27	Republic	1
9	05/05/21	994593	15.15	Republic	1
	05/05/21	994598	13.77	Republic	1
	05/05/21	994604	12.96	Republic	1
	05/05/21	994608	12.56	Republic	1
	05/05/21	994611	12.72	Republic	1
	05/05/21	994620	14.95	Republic	1
	05/05/21	994624	12.99	Republic	1
	05/05/21	994627	13.31	Republic	1
	05/05/21	994646	14.34	Republic	1
10	05/06/21	994651	16.31	Republic	1
	05/06/21	994659	15.93	Republic	1
	05/06/21	994667	18.07	Republic	1
	05/06/21	994671	17.06	Republic	1
	05/06/21	994678	18.23	Republic	1
	05/06/21	994681	16.98	Republic	1
	05/06/21	994684	18.56	Republic	1
	05/06/21	994686	17.55	Republic	1
	05/06/21	994687	18.76	Republic	1
	05/06/21	994688	17.86	Republic	1
11	05/07/21	18664	29.69	Iron Mt.	1
	05/07/21	18594	25.70	Iron Mt.	1
	05/07/21	18557	32.43	Iron Mt.	1
	05/07/21	18633	27.09	Iron Mt.	1
	05/07/21	18697	30.84	Iron Mt.	1
	05/07/21	18706	28.93	Iron Mt.	1
	05/07/21	18574	27.42	Iron Mt.	1
	05/07/21	18649	29.10	Iron Mt.	1
	05/07/21	18684	31.18	Iron Mt.	1
	05/07/21	18554	28.59	Iron Mt.	1
	05/07/21	18618	28.19	Iron Mt.	1
	05/10/21	18956	29.57	Iron Mt.	1
	05/10/21	18847	25.49	Iron Mt.	1

Lead and Petroleum  
Contaminated Soil

Petroleum Contaminated Soil

Lead and  
Petroleum  
Contaminated  
Soil

Petroleum  
Contaminated  
Soil

28	05/10/21	<b>18790</b>	26.11	Iron Mt.	1	
	05/10/21	<b>18792</b>	24.92	Iron Mt.	1	
	05/10/21	<b>18849</b>	25.58	Iron Mt.	1	
	05/10/21	<b>18799</b>	29.67	Iron Mt.	1	
	05/10/21	<b>18870</b>	33.64	Iron Mt.	1	
	05/10/21	<b>18797</b>	28.11	Iron Mt.	1	
	05/10/21	<b>18866</b>	28.72	Iron Mt.	1	
	05/10/21	<b>18879</b>	30.56	Iron Mt.	1	
	05/10/21	<b>18808</b>	32.46	Iron Mt.	1	
	05/10/21	<b>18882</b>	29.67	Iron Mt.	1	
	05/10/21	<b>18804</b>	29.29	Iron Mt.	1	
	05/10/21	<b>18821</b>	32.17	Iron Mt.	1	
	05/10/21	<b>18886</b>	27.18	Iron Mt.	1	
	05/10/21	<b>18810</b>	31.34	Iron Mt.	1	
	05/10/21	<b>18891</b>	31.72	Iron Mt.	1	
	05/10/21	<b>18892</b>	30.95	Iron Mt.	1	
	05/10/21	<b>18914</b>	29.61	Iron Mt.	1	
	05/10/21	<b>18919</b>	28.32	Iron Mt.	1	
	05/10/21	<b>18936</b>	30.92	Iron Mt.	1	
	05/10/21	<b>18931</b>	30.39	Iron Mt.	1	
	05/10/21	<b>18942</b>	30.66	Iron Mt.	1	
	05/10/21	<b>18963</b>	30.52	Iron Mt.	1	
	05/10/21	<b>18964</b>	32.19	Iron Mt.	1	
	05/10/21	<b>18951</b>	26.92	Iron Mt.	1	
	05/10/21	<b>18911</b>	28.04	Iron Mt.	1	
	05/10/21	<b>18818</b>	30.24	Iron Mt.	1	
	1	05/11/21	<b>18979</b>	34.31	Iron Mt.	1
	5	05/13/21	<b>19395</b>	15.63	Iron Mt.	1
05/13/21		<b>19398</b>	13.78	Iron Mt.	1	
05/13/21		<b>19444</b>	0.00	Iron Mt.	1	
05/13/21		<b>19513</b>	18.43	Iron Mt.	1	
05/13/21		<b>19450</b>	15.63	Iron Mt.	1	
6	05/14/21	<b>19628</b>	12.18	Iron Mt.	1	
	05/14/21	<b>19676</b>	13.71	Iron Mt.	1	
	05/14/21	<b>19577</b>	11.59	Iron Mt.	1	
	05/14/21	<b>19580</b>	11.82	Iron Mt.	1	
	05/14/21	<b>19634</b>	13.13	Iron Mt.	1	
	05/14/21	<b>19657</b>	30.54	Iron Mt.	1	
12	05/24/21	<b>20921</b>	21.55	Iron Mt.	1	
	05/24/21	<b>20926</b>	20.76	Iron Mt.	1	
	05/24/21	<b>20937</b>	19.32	Iron Mt.	1	
	05/24/21	<b>20935</b>	18.93	Iron Mt.	1	
	05/24/21	<b>20947</b>	20.85	Iron Mt.	1	
	05/24/21	<b>20970</b>	21.65	Iron Mt.	1	
	05/24/21	<b>20972</b>	19.80	Iron Mt.	1	
	05/24/21	<b>20964</b>	21.98	Iron Mt.	1	
	05/24/21	<b>20963</b>	22.61	Iron Mt.	1	
	05/24/21	<b>20983</b>	16.74	Iron Mt.	1	
	05/24/21	<b>20977</b>	26.11	Iron Mt.	1	
	05/24/21	<b>20993</b>	20.74	Iron Mt.	1	
	05/25/21	<b>21100</b>	27.90	Iron Mt.	1	
	05/25/21	<b>21171</b>	29.48	Iron Mt.	1	
	05/25/21	<b>21172</b>	29.09	Iron Mt.	1	
	05/25/21	<b>21106</b>	29.78	Iron Mt.	1	
	05/25/21	<b>21177</b>	31.62	Iron Mt.	1	

Petroleum  
Contaminated  
Soil

23	05/25/21	<b>21113</b>	27.50	Iron Mt.	1
	05/25/21	<b>21119</b>	28.56	Iron Mt.	1
	05/25/21	<b>21190</b>	29.38	Iron Mt.	1
	05/25/21	<b>21206</b>	29.36	Iron Mt.	1
	05/25/21	<b>21121</b>	28.86	Iron Mt.	1
	05/25/21	<b>21205</b>	29.86	Iron Mt.	1
	05/25/21	<b>21130</b>	25.41	Iron Mt.	1
	05/25/21	<b>21133</b>	28.09	Iron Mt.	1
	05/25/21	<b>21212</b>	27.72	Iron Mt.	1
	05/25/21	<b>21225</b>	29.42	Iron Mt.	1
	05/25/21	<b>21154</b>	29.23	Iron Mt.	1
	05/25/21	<b>21221</b>	27.18	Iron Mt.	1
	05/25/21	<b>21136</b>	27.58	Iron Mt.	1
	05/25/21	<b>21138</b>	26.87	Iron Mt.	1
	05/25/21	<b>21216</b>	26.78	Iron Mt.	1
	05/25/21	<b>21137</b>	27.48	Iron Mt.	1
05/25/21	<b>21220</b>	27.22	Iron Mt.	1	
05/25/21	<b>21120</b>	28.59	Iron Mt.	1	
21	05/26/21	<b>21306</b>	30.26	Iron Mt.	1
	05/26/21	<b>21363</b>	34.43	Iron Mt.	1
	05/26/21	<b>21313</b>	26.85	Iron Mt.	1
	05/26/21	<b>21376</b>	31.71	Iron Mt.	1
	05/26/21	<b>21316</b>	29.93	Iron Mt.	1
	05/26/21	<b>21369</b>	35.12	Iron Mt.	1
	05/26/21	<b>21374</b>	30.62	Iron Mt.	1
	05/26/21	<b>21314</b>	30.88	Iron Mt.	1
	05/26/21	<b>21377</b>	28.89	Iron Mt.	1
	05/26/21	<b>21319</b>	24.47	Iron Mt.	1
	05/26/21	<b>21378</b>	32.40	Iron Mt.	1
	05/26/21	<b>21318</b>	27.56	Iron Mt.	1
	05/26/21	<b>21398</b>	24.74	Iron Mt.	1
	05/26/21	<b>21402</b>	32.01	Iron Mt.	1
	05/26/21	<b>21329</b>	32.76	Iron Mt.	1
	05/26/21	<b>21401</b>	37.41	Iron Mt.	1
	05/26/21	<b>21336</b>	32.13	Iron Mt.	1
	05/26/21	<b>21419</b>	32.11	Iron Mt.	1
05/26/21	<b>21341</b>	33.43	Iron Mt.	1	
05/26/21	<b>21340</b>	29.90	Iron Mt.	1	
05/26/21	<b>21418</b>	30.73	Iron Mt.	1	
12	05/27/21	<b>21590</b>	33.47	Iron Mt.	1
	05/27/21	<b>21528</b>	30.26	Iron Mt.	1
	05/27/21	<b>21589</b>	26.07	Iron Mt.	1
	05/27/21	<b>21530</b>	32.78	Iron Mt.	1
	05/27/21	<b>21585</b>	28.54	Iron Mt.	1
	05/27/21	<b>21516</b>	29.21	Iron Mt.	1
	05/27/21	<b>21587</b>	30.88	Iron Mt.	1
	05/27/21	<b>21517</b>	29.07	Iron Mt.	1
	05/27/21	<b>21531</b>	27.97	Iron Mt.	1
	05/27/21	<b>21533</b>	27.93	Iron Mt.	1
	05/27/21	<b>21546</b>	32.40	Iron Mt.	1
	05/27/21	<b>21542</b>	34.29	Iron Mt.	1
1	06/11/21	<b>995750</b>	18.75	Republic	1
2	06/14/21	<b>995806</b>	14.97	Republic	1
	06/14/21	<b>995799</b>	16.52	Republic	1
	07/13/21	<b>27490</b>	11.89	Iron Mt.	1

Petroleum  
Contaminated  
Soil

9	07/13/21	<b>27551</b>	14.86	Iron Mt.	1
	07/13/21	<b>27497</b>	16.62	Iron Mt.	1
	07/13/21	<b>27493</b>	14.64	Iron Mt.	1
	07/13/21	<b>27559</b>	17.10	Iron Mt.	1
	07/13/21	<b>27604</b>	17.97	Iron Mt.	1
	07/13/21	<b>27609</b>	16.65	Iron Mt.	1
	07/13/21	<b>27607</b>	13.49	Iron Mt.	1
	07/13/21	<b>27553</b>	18.01	Iron Mt.	1
6	07/15/21	<b>27786</b>	13.95	Iron Mt.	1
	07/15/21	<b>27787</b>	16.56	Iron Mt.	1
	07/15/21	<b>27828</b>	14.88	Iron Mt.	1
	07/15/21	<b>27829</b>	16.04	Iron Mt.	1
	07/15/21	<b>27883</b>	18.08	Iron Mt.	1
	07/15/21	<b>27877</b>	14.05	Iron Mt.	1
6	07/16/21	<b>28033</b>	15.95	Iron Mt.	1
	07/16/21	<b>27940</b>	16.70	Iron Mt.	1
	07/16/21	<b>28031</b>	13.14	Iron Mt.	1
	07/16/21	<b>27939</b>	14.07	Iron Mt.	1
	07/16/21	<b>27984</b>	13.37	Iron Mt.	1
	07/16/21	<b>27989</b>	16.01	Iron Mt.	1
2	07/19/21	<b>28139</b>	9.82	Iron Mt.	1
	07/19/21	<b>28169</b>	8.05	Iron Mt.	1

Petroleum  
Contaminated  
Soil

**4360.22      Total**



***Regional Disposal Intermodal  
Petroleum and Metals Contaminated Soil Disposal Tickets***

<b>SITE</b> REGIONAL DISPOSAL INTERMODAL 425-977-4127 3rd and lander Seattle, WA
<b>CUSTOMER</b> 333695 Trent Development DBA 12th & Yesler Owner LLC Seattle, WA 98101 Contract:TB-25165

<b>SITE</b> 01	<b>TICKET #</b> 994072	<b>CELL</b>
<b>WEIGHMASTER</b>		
<b>DATE/TIME IN</b> Karyn B. 4/20/21 10:59 am		<b>DATE/TIME OUT</b> 4/20/21 10:59 am
<b>VEHICLE</b> 169 SILVER STREAK		<b>CONTAINER</b>
<b>REFERENCE</b>		
<b>BILL OF LADING</b>		

SCALE IN GROSS WEIGHT	103,780	NET TONS	30.66	INBOUND
TARE OUT TARE WEIGHT	42,460	NET WEIGHT	61,320	INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
30.66	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				

Signature \_\_\_\_\_

<b>NET AMOUNT</b>
*
<b>TENDERED</b>
<b>CHANGE</b>
<b>CHECK#</b>

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RS-F042UPR (07/12)

SIGNATURE \_\_\_\_\_

SITE  
**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander Seattle, WA**

CUSTOMER 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101  
 Contract:TB-25165

SITE 01	TICKET # 994068	CELL
WEIGHMASTER IN - Karyn B. OUT - Timothy T.		
DATE/TIME IN 4/20/21 9:54 am		DATE/TIME OUT 4/20/21 10:21 am
VEHICLE 169 SILVER STREAK		CONTAINER
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT	97,120	NET TONS	27.33	INBOUND
SCALE OUT TARE WEIGHT	42,460	NET WEIGHT	54,660	INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
27.33	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander Seattle, WA

CUSTOMER 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101  
 Contract:TB-25165

SITE 01	TICKET # 994424	CELL
WEIGHMASTER IN - Karyn B. OUT - Timothy T.		
DATE/TIME IN 4/29/21 9:21 am	DATE/TIME OUT 4/29/21 9:31 am	
VEHICLE 167 SILVER STREAK	CONTAINER	
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 95,960 NET TONS 25.81 INBOUND  
 SCALE OUT TARE WEIGHT 44,340 NET WEIGHT 51,620 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
25.81	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander -Seattle, WA

CUSTOMER 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101  
 Contract:TB-25165

SITE 01	TICKET # 994424	CELL
WEIGHMASTER IN - Karyn B. OUT - Timothy T.		
DATE/TIME IN 4/29/21 9:21 am	DATE/TIME OUT 4/29/21 9:31 am	
VEHICLE 167 SILVER STREAK	CONTAINER	
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 95,960 NET TONS 25.81 INBOUND  
 SCALE OUT TARE WEIGHT 44,340 NET WEIGHT 51,620 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
25.81	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#


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**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander Seattle, WA**  
 CUSTOMER 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101  
 Contract:TB-25165

SITE 01	TICKET # 994423	CELL
WEIGHMASTER IN - Karyn B. OUT - Timothy T.		
DATE/TIME IN 4/29/21 9:06 am	DATE/TIME OUT 4/29/21 9:18 am	
VEHICLE 422 CTI	CONTAINER	
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 97,720 NET TONS 28.14 INBOUND  
 SCALE OUT TARE WEIGHT 41,440 NET WEIGHT 56,280 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
28.14	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
		Signature 				

NET AMOUNT
TENDERED
CHANGE
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RS-F042UPR (07/12)

SIGNATURE \_\_\_\_\_

REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander Seattle, WA

CUSTOMER  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994422	
WEIGHMASTER Karyn B.		
DATE/TIME IN 4/29/21 8:47 am		DATE/TIME OUT 4/29/21 8:47 am
VEHICLE	183 SILVER STREAK	CONTAINER
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 101,100 NET TONS 29.89 INBOUND  
 TARE OUT TARE WEIGHT 41,320 NET WEIGHT 59,780 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
29.89	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
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CHANGE
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3-F042UPR (07/12) SIGNATURE \_\_\_\_\_

REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander -Seattle, WA

CUSTOMER 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994422	
WEIGHMASTER Karyn B.		
DATE/TIME IN 4/29/21 8:47 am		DATE/TIME OUT 4/29/21 8:47 am
VEHICLE	183 SILVER STREAK	CONTAINER
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 101,100 NET TONS 29.89 INBOUND  
 TARE OUT TARE WEIGHT 41,320 NET WEIGHT 59,780 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
29.89	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
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3-F042UPR (07/12) SIGNATURE \_\_\_\_\_

**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander -Seattle, WA**

STOMER333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101  
 Contract:TB-25165

SITE 01	TICKET #	994421	CELL
WEIGHMASTER		IN - Karyn B. OUT - Timothy T.	
DATE/TIME IN		4/29/21 8:24 am	DATE/TIME OUT 4/29/21 8:31 am
VEHICLE		161 SILVER STREAK	CONTAINER
REFERENCE			
BILL OF LADING			

SCALE IN GROSS WEIGHT	94,140	NET TONS	26.67	INBOUND
SCALE OUT TARE WEIGHT	40,800	NET WEIGHT	53,340	INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
26.67	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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:S-F042UPR (07/12)

SIGNATURE \_\_\_\_\_

TE REGIONAL DISPOSAL INTERMODAL 425-977-4127  
3rd and lander Seattle, WA

USTOMER 333695  
Trent Development  
DBA 12th & Yesler Owner LLC  
Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994418	
WEIGHMASTER Karyn B.		
DATE/TIME IN	DATE/TIME OUT	
4/29/21 8:17 am	4/29/21 8:28 am	
VEHICLE	CONTAINER	
51 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 101,260 NET TONS 29.33 INBOUND  
SCALE OUT TARE WEIGHT 42,600 NET WEIGHT 58,660 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
29.33	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
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CHANGE
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TE REGIONAL DISPOSAL INTERMODAL 425-977-4127  
3rd and lander -Seattle, WA

USTOMER 333695  
Trent Development  
DBA 12th & Yesler Owner LLC  
Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994418	
WEIGHMASTER Karyn B.		
DATE/TIME IN	DATE/TIME OUT	
4/29/21 8:17 am	4/29/21 8:28 am	
VEHICLE	CONTAINER	
51 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 101,260 NET TONS 29.33 INBOUND  
SCALE OUT TARE WEIGHT 42,600 NET WEIGHT 58,660 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
29.33	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
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CHANGE
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REGIONAL DISPOSAL INTERMODAL 425-977-4127

3rd and lander Seattle, WA

CUSTOMER 333695

Trent Development  
DBA 12th & Yesler Owner LLC  
Seattle, WA 98101  
Contract:TB-25165

SITE 01	TICKET # 994417	CELL
WEIGHMASTER IN - Karyn B. OUT - Timothy T.		
DATE/TIME IN 4/29/21 7:38 am	DATE/TIME OUT 4/29/21 7:58 am	
VEHICLE 183 SILVER STREAK	CONTAINER	
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 104,660 NET TONS 31.67  
 SCALE OUT TARE WEIGHT 41,320 NET WEIGHT 63,340

INBOUND  
INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
31.67	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature						

NET AMOUNT

TENDERED

CHANGE

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3-F042UPR (07/12)

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REGIONAL DISPOSAL INTERMODAL 425-977-4127

3rd and lander -Seattle, WA

CUSTOMER 333695

Trent Development  
DBA 12th & Yesler Owner LLC  
Seattle, WA 98101  
Contract:TB-25165

SITE 01	TICKET # 994417	CELL
WEIGHMASTER IN - Karyn B. OUT - Timothy T.		
DATE/TIME IN 4/29/21 7:38 am	DATE/TIME OUT 4/29/21 7:58 am	
VEHICLE 183 SILVER STREAK	CONTAINER	
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 104,660 NET TONS 31.67  
 SCALE OUT TARE WEIGHT 41,320 NET WEIGHT 63,340

INBOUND  
INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
31.67	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature						

NET AMOUNT

TENDERED

CHANGE

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SIGNATURE \_\_\_\_\_

**SITE**  
**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander Seattle, WA**

**CUSTOMER** 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101  
 Contract:TB-25165

<b>SITE</b> 01	<b>TICKET #</b> 994425	<b>CELL</b>
<b>WEIGHMASTER</b> IN - Karyn B. OUT - Timothy T.		
<b>DATE/TIME IN</b> 4/29/21 9:24 am	<b>DATE/TIME OUT</b> 4/29/21 9:47 am	
<b>VEHICLE</b> 425 CTI	<b>CONTAINER</b>	
<b>REFERENCE</b>		
<b>BILL OF LADING</b>		

SCALE IN GROSS WEIGHT 97,120 NET TONS 27.74 INBOUND  
 SCALE OUT TARE WEIGHT 41,640 NET WEIGHT 55,480 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
27.74	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature						

NET AMOUNT
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CHANGE
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**SITE**  
**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander -Seattle, WA**

**CUSTOMER** 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101  
 Contract:TB-25165

<b>SITE</b> 01	<b>TICKET #</b> 994425	<b>CELL</b>
<b>WEIGHMASTER</b> IN - Karyn B. OUT - Timothy T.		
<b>DATE/TIME IN</b> 4/29/21 9:24 am	<b>DATE/TIME OUT</b> 4/29/21 9:47 am	
<b>VEHICLE</b> 425 CTI	<b>CONTAINER</b>	
<b>REFERENCE</b>		
<b>BILL OF LADING</b>		

SCALE IN GROSS WEIGHT 97,120 NET TONS 27.74 INBOUND  
 SCALE OUT TARE WEIGHT 41,640 NET WEIGHT 55,480 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
27.74	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature						

NET AMOUNT
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REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander Seattle, WA

Customer: 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract: TB-25165

SITE 01	TICKET # 994495	CELL
WEIGHMASTER IN - Timothy T. OUT - LARRY C.		
DATE/TIME IN 5/3/21 8:11 am	DATE/TIME OUT 5/3/21 8:23 am	
VEHICLE 51 SILVER STREAK	CONTAINER	
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 55,340 NET TONS 13.49 INBOUND  
 SCALE OUT TARE WEIGHT 28,360 NET WEIGHT 26,980 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
13.49	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
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CHECK#

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RS-F042UPR (04/19) SIGNATURE \_\_\_\_\_

REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander -Seattle, WA

Customer: 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract: TB-25165

SITE 01	TICKET # 994495	CELL
WEIGHMASTER IN - Timothy T. OUT - LARRY C.		
DATE/TIME IN 5/3/21 8:11 am	DATE/TIME OUT 5/3/21 8:23 am	
VEHICLE 51 SILVER STREAK	CONTAINER	
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 55,340 NET TONS 13.49 INBOUND  
 SCALE OUT TARE WEIGHT 28,360 NET WEIGHT 26,980 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
13.49	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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RS-F042UPR (04/19) SIGNATURE \_\_\_\_\_

REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander Seattle, WA

Customer: 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994501	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/3/21 9:04 am	5/3/21 9:04 am	
VEHICLE	CONTAINER	
51 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 60,380 NET TONS 16.01 INBOUND  
 TARE OUT TARE WEIGHT 28,360 NET WEIGHT 32,020 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
16.01	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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SIGNATURE \_\_\_\_\_

REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander -Seattle, WA

Customer: 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994501	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/3/21 9:04 am	5/3/21 9:04 am	
VEHICLE	CONTAINER	
51 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 60,380 NET TONS 16.01 INBOUND  
 TARE OUT TARE WEIGHT 28,360 NET WEIGHT 32,020 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
16.01	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
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RS-F042UPR (04/19)

SIGNATURE \_\_\_\_\_

FE  
**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander Seattle, WA**

CUSTOMER  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994505	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/3/21 10:13 am	5/3/21 10:13 am	
VEHICLE	CONTAINER	
51 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 57,080 NET TONS 14.36 INBOUND  
 TARE OUT TARE WEIGHT 28,360 NET WEIGHT 28,720 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
14.36	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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**3rd and lander -Seattle, WA**

CUSTOMER 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994505	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/3/21 10:13 am	5/3/21 10:13 am	
VEHICLE	CONTAINER	
51 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 57,080 NET TONS 14.36 INBOUND  
 TARE OUT TARE WEIGHT 28,360 NET WEIGHT 28,720 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
14.36	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
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REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander Seattle, WA

CUSTOMER  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994514	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/3/21 11:48 am	5/3/21 11:48 am	
VEHICLE	CONTAINER	
51 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 55,880 NET TONS 13.76 INBOUND  
 TARE OUT TARE WEIGHT 28,360 NET WEIGHT 27,520 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
13.76	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
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 3rd and lander -Seattle, WA

CUSTOMER 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994514	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/3/21 11:48 am	5/3/21 11:48 am	
VEHICLE	CONTAINER	
51 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 55,880 NET TONS 13.76 INBOUND  
 TARE OUT TARE WEIGHT 28,360 NET WEIGHT 27,520 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
13.76	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
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**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander Seattle, WA**

CUSTOMER  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994518	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/3/21 12:39 pm	5/3/21 12:39 pm	
VEHICLE	CONTAINER	
51 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 61,620 NET TONS 16.63 INBOUND  
 TARE OUT TARE WEIGHT 28,360 NET WEIGHT 33,260 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
16.63	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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RS-F042UPR (04/19)

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TE  
**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander -Seattle, WA**

CUSTOMER 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994518	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/3/21 12:39 pm	5/3/21 12:39 pm	
VEHICLE	CONTAINER	
51 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 61,620 NET TONS 16.63 INBOUND  
 TARE OUT TARE WEIGHT 28,360 NET WEIGHT 33,260 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
16.63	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

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**3rd and lander Seattle, WA**

CUSTOMER  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994524	PO#W210824733
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/3/21 1:22 pm	5/3/21 1:22 pm	
VEHICLE	CONTAINER	
51 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 62,000 NET TONS 16.82 INBOUND  
 TARE OUT TARE WEIGHT 28,360 NET WEIGHT 33,640 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
16.82	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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**3rd and lander -Seattle, WA**

CUSTOMER 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994524	PO#W21082473
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/3/21 1:22 pm	5/3/21 1:22 pm	
VEHICLE	CONTAINER	
51 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 62,000 NET TONS 16.82 INBOUND  
 TARE OUT TARE WEIGHT 28,360 NET WEIGHT 33,640 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
16.82	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
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**SITE**  
**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander Seattle, WA**

**CUSTOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994527	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/3/21 2:00 pm	5/3/21 2:00 pm	
VEHICLE	CONTAINER	
51 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 60,900 NET TONS 16.27 INBOUND  
 TARE OUT TARE WEIGHT 28,360 NET WEIGHT 32,540 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
16.27	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				

Signature \_\_\_\_\_

<b>NET AMOUNT</b>
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**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander -Seattle, WA**

**CUSTOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994527	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/3/21 2:00 pm	5/3/21 2:00 pm	
VEHICLE	CONTAINER	
51 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 60,900 NET TONS 16.27 INBOUND  
 TARE OUT TARE WEIGHT 28,360 NET WEIGHT 32,540 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
16.27	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				

Signature \_\_\_\_\_

<b>NET AMOUNT</b>
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SITE REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander Seattle, WA

CUSTOMER333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE 01	TICKET # 994593	CELL
WEIGHMASTER Karyn B.		
DATE/TIME IN 5/5/21 7:39 am	DATE/TIME OUT 5/5/21 7:47 am	
VEHICLE 4 STRAKA	CONTAINER	
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 58,220 NET TONS 15.15 INBOUND  
 SCALE OUT TARE WEIGHT 27,920 NET WEIGHT 30,300 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
15.15	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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RS-F042UPR (07/12)

SIGNATURE \_\_\_\_\_

SITE REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander -Seattle, WA

CUSTOMER333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE 01	TICKET # 994593	CELL
WEIGHMASTER Karyn B.		
DATE/TIME IN 5/5/21 7:39 am	DATE/TIME OUT 5/5/21 7:47 am	
VEHICLE 4 STRAKA	CONTAINER	
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 58,220 NET TONS 15.15 INBOUND  
 SCALE OUT TARE WEIGHT 27,920 NET WEIGHT 30,300 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
15.15	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
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**SITE**  
**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander Seattle, WA**

**CUSTOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994598	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/5/21 8:25 am	5/5/21 8:25 am	
VEHICLE	CONTAINER	
4 STRAKA		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 55,460 NET TONS 13.77 INBOUND  
 TARE OUT TARE WEIGHT 27,920 NET WEIGHT 27,540 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
13.77	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				

Signature \_\_\_\_\_

NET AMOUNT
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CHANGE
CHECK#

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**SITE**  
**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander -Seattle, WA**

**CUSTOMER** 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994598	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/5/21 8:25 am	5/5/21 8:25 am	
VEHICLE	CONTAINER	
4 STRAKA		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 55,460 NET TONS 13.77 INBOUND  
 TARE OUT TARE WEIGHT 27,920 NET WEIGHT 27,540 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
13.77	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				

Signature \_\_\_\_\_

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**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander Seattle, WA**

**CUSTOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994604	
WEIGHMASTER		
Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/5/21 9:11 am	5/5/21 9:11 am	
VEHICLE	CONTAINER	
4 STRAKA		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 53,840 NET TONS 12.96 INBOUND  
 TARE OUT TARE WEIGHT 27,920 NET WEIGHT 25,920 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
12.96	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
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CHECK#

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**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander -Seattle, WA**

**CUSTOMER** 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994604	
WEIGHMASTER		
Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/5/21 9:11 am	5/5/21 9:11 am	
VEHICLE	CONTAINER	
4 STRAKA		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 53,840 NET TONS 12.96 INBOUND  
 TARE OUT TARE WEIGHT 27,920 NET WEIGHT 25,920 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
12.96	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
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**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander Seattle, WA**

**CUSTOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994608	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/5/21 10:07 am	5/5/21 10:07 am	
VEHICLE	CONTAINER	
4 STRAKA		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 53,040 NET TONS 12.56 INBOUND  
 TARE OUT TARE WEIGHT 27,920 NET WEIGHT 25,120 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
12.56	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
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CHANGE
CHECK#

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**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander -Seattle, WA**

**CUSTOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994608	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/5/21 10:07 am	5/5/21 10:07 am	
VEHICLE	CONTAINER	
4 STRAKA		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 53,040 NET TONS 12.56 INBOUND  
 TARE OUT TARE WEIGHT 27,920 NET WEIGHT 25,120 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
12.56	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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**SITE**  
 REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander Seattle, WA  
**CUSTOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101  
 Contract:TB-25165

SITE	TICKET #	CELL
01	994611	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/5/21 10:48 am	5/5/21 10:48 am	
VEHICLE	CONTAINER	
4 STRAKA		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT	53,360	NET TONS	12.72	INBOUND
TARE OUT TARE WEIGHT	27,920	NET WEIGHT	25,440	INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
12.72	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

The undersigned individual signing this document on behalf of Customer acknowledges that he or she has read and understands the terms and conditions on the reverse side and that he or she has the authority to sign this document on behalf of the customer.

RS-F042UPR (07/12)

SIGNATURE \_\_\_\_\_

**SITE**  
 REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander -Seattle, WA  
**CUSTOMER** 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101  
 Contract:TB-25165

SITE	TICKET #	CELL
01	994611	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/5/21 10:48 am	5/5/21 10:48 am	
VEHICLE	CONTAINER	
4 STRAKA		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT	53,360	NET TONS	12.72	INBOUND
TARE OUT TARE WEIGHT	27,920	NET WEIGHT	25,440	INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
12.72	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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RS-F042UPR (07/12)

SIGNATURE \_\_\_\_\_

**SITE**  
 REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander Seattle, WA

**CUSTOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994620	
WEIGHMASTER		
Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/5/21 11:36 am	5/5/21 11:36 am	
VEHICLE	CONTAINER	
4 STRAKA		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT	57,820	NET TONS	14.95	INBOUND
TARE OUT TARE WEIGHT	27,920	NET WEIGHT	29,900	INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
14.95	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT

TENDERED

CHANGE

CHECK#

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RS-F042UPR (07/12) SIGNATURE \_\_\_\_\_

**SITE**  
 REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander -Seattle, WA

**CUSTOMER** 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994620	
WEIGHMASTER		
Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/5/21 11:36 am	5/5/21 11:36 am	
VEHICLE	CONTAINER	
4 STRAKA		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT	57,820	NET TONS	14.95	INBOUND
TARE OUT TARE WEIGHT	27,920	NET WEIGHT	29,900	INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
14.95	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT

TENDERED

CHANGE

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RS-F042UPR (07/12) SIGNATURE \_\_\_\_\_

**SITE**  
**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander Seattle, WA**

**CUSTOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

<b>SITE</b> 01	<b>TICKET #</b> 994624	<b>CELL</b>
<b>WEIGHMASTER</b> Timothy T.		
<b>DATE/TIME IN</b> 5/5/21 12:13 pm	<b>DATE/TIME OUT</b> 5/5/21 12:13 pm	
<b>VEHICLE</b> 4 STRAKA	<b>CONTAINER</b>	
<b>REFERENCE</b>		
<b>BILL OF LADING</b>		

SCALE IN GROSS WEIGHT 53,900 NET TONS 12.99 INBOUND  
 TARE OUT TARE WEIGHT 27,920 NET WEIGHT 25,980 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
12.99	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

<b>NET AMOUNT</b>
<b>TENDERED</b>
<b>CHANGE</b>
<b>CHECK#</b>

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RS-F042UPR (07/12) SIGNATURE \_\_\_\_\_

**SITE**  
**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander -Seattle, WA**

**CUSTOMER** 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

<b>SITE</b> 01	<b>TICKET #</b> 994624	<b>CELL</b>
<b>WEIGHMASTER</b> Timothy T.		
<b>DATE/TIME IN</b> 5/5/21 12:13 pm	<b>DATE/TIME OUT</b> 5/5/21 12:13 pm	
<b>VEHICLE</b> 4 STRAKA	<b>CONTAINER</b>	
<b>REFERENCE</b>		
<b>BILL OF LADING</b>		

SCALE IN GROSS WEIGHT 53,900 NET TONS 12.99 INBOUND  
 TARE OUT TARE WEIGHT 27,920 NET WEIGHT 25,980 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
12.99	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

<b>NET AMOUNT</b>
<b>TENDERED</b>
<b>CHANGE</b>
<b>CHECK#</b>

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RS-F042UPR (07/12) SIGNATURE \_\_\_\_\_

**SITE**  
 REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander Seattle, WA

**CUSTOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994627	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/5/21 1:10 pm	5/5/21 1:10 pm	
VEHICLE	CONTAINER	
4 STRAKA		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 54,540 NET TONS 13.31 INBOUND  
 TARE OUT TARE WEIGHT 27,920 NET WEIGHT 26,620 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
13.31	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100*				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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RS-F042UPR (07/12)

SIGNATURE \_\_\_\_\_

**SITE**  
 REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander -Seattle, WA

**CUSTOMER** 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994627	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/5/21 1:10 pm	5/5/21 1:10 pm	
VEHICLE	CONTAINER	
4 STRAKA		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 54,540 NET TONS 13.31 INBOUND  
 TARE OUT TARE WEIGHT 27,920 NET WEIGHT 26,620 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
13.31	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100*				
Signature _____						

NET AMOUNT
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CHANGE
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RS-F042UPR (07/12)

SIGNATURE \_\_\_\_\_

REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander Seattle, WA

STOMER333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE 01	TICKET #	994651	CELL
WEIGHMASTER		Karyn B.	
DATE/TIME IN		5/6/21 7:29 am	DATE/TIME OUT 5/6/21 7:39 am
VEHICLE		187 SILVER STREAK	CONTAINER
REFERENCE			
BILL OF LADING			

SCALE IN GROSS WEIGHT 60,940 NET TONS 16.31 INBOUND  
 SCALE OUT TARE WEIGHT 28,320 NET WEIGHT 32,620 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
16.31	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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RS-F042UPR (04/19)

SIGNATURE \_\_\_\_\_

REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander -Seattle, WA

STOMER333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE 01	TICKET #	994651	CELL
WEIGHMASTER		Karyn B.	
DATE/TIME IN		5/6/21 7:29 am	DATE/TIME OUT 5/6/21 7:39 am
VEHICLE		187 SILVER STREAK	CONTAINER
REFERENCE			
BILL OF LADING			

SCALE IN GROSS WEIGHT 60,940 NET TONS 16.31 INBOUND  
 SCALE OUT TARE WEIGHT 28,320 NET WEIGHT 32,620 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
16.31	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
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CHANGE
CHECK#

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RS-F042UPR (04/19)

SIGNATURE 

**E**  
**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander Seattle, WA**

**STOMER** 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994659	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/6/21 8:13 am	5/6/21 8:13 am	
VEHICLE	CONTAINER	
187 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 60,180 NET TONS 15.93 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 31,860 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
15.93	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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RS-F042UPR (04/19) SIGNATURE \_\_\_\_\_

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**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander -Seattle, WA**

**STOMER** 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994659	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/6/21 8:13 am	5/6/21 8:13 am	
VEHICLE	CONTAINER	
187 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 60,180 NET TONS 15.93 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 31,860 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
15.93	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
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CHANGE
CHECK#

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RS-F042UPR (04/19) SIGNATURE \_\_\_\_\_

**E**  
 REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander Seattle, WA

**STOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994667	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/6/21 8:56 am	5/6/21 8:56 am	
VEHICLE	CONTAINER	
187 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 64,460 NET TONS 18.07 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 36,140 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
18.07	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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RS-F042UPR (04/19) SIGNATURE \_\_\_\_\_

**E**  
 REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander -Seattle, WA

**STOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994667	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/6/21 8:56 am	5/6/21 8:56 am	
VEHICLE	CONTAINER	
187 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 64,460 NET TONS 18.07 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 36,140 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
18.07	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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 REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander Seattle, WA

**STOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994671	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/6/21 9:45 am	5/6/21 9:45 am	
VEHICLE	CONTAINER	
187 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 62,440 NET TONS 17.06 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 34,120 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
17.06	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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IS-F042UPR (04/19)

SIGNATURE \_\_\_\_\_

**E**  
 REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander -Seattle, WA

**STOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994671	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/6/21 9:45 am	5/6/21 9:45 am	
VEHICLE	CONTAINER	
187 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 62,440 NET TONS 17.06 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 34,120 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
17.06	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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SIGNATURE \_\_\_\_\_

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 3rd and lander Seattle, WA

STOMER 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994678	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/6/21 10:23 am	5/6/21 10:23 am	
VEHICLE	CONTAINER	
187 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 64,780 NET TONS 18.23 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 36,460 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
18.23	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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 3rd and lander -Seattle, WA

STOMER 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994678	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/6/21 10:23 am	5/6/21 10:23 am	
VEHICLE	CONTAINER	
187 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 64,780 NET TONS 18.23 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 36,460 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
18.23	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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**E**  
 REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander Seattle, WA

**STOMER** 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994681	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/6/21 11:10 am	5/6/21 11:10 am	
VEHICLE	CONTAINER	
187 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 62,280 NET TONS 16.98 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 33,960 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
16.98	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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SIGNATURE \_\_\_\_\_

**E**  
 REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander -Seattle, WA

**STOMER** 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE	TICKET #	CELL
01	994681	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/6/21 11:10 am	5/6/21 11:10 am	
VEHICLE	CONTAINER	
187 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 62,280 NET TONS 16.98 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 33,960 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
16.98	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander Seattle, WA

STOMER333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE 01	TICKET #	994684	CELL
WEIGHMASTER		Karyn B.	
DATE/TIME IN		5/6/21 11:49 am	DATE/TIME OUT 5/6/21 11:49 am
VEHICLE		187 SILVER STREAK	CONTAINER
REFERENCE			
BILL OF LADING			

SCALE IN GROSS WEIGHT 65,440 NET TONS 18.56 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 37,120 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
18.56	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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SIGNATURE \_\_\_\_\_

REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander -Seattle, WA

STOMER333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101

Contract:TB-25165

SITE 01	TICKET #	994684	CELL
WEIGHMASTER		Karyn B.	
DATE/TIME IN		5/6/21 11:49 am	DATE/TIME OUT 5/6/21 11:49 am
VEHICLE		187 SILVER STREAK	CONTAINER
REFERENCE			
BILL OF LADING			

SCALE IN GROSS WEIGHT 65,440 NET TONS 18.56 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 37,120 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
18.56	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

The undersigned individual signing this document on behalf of Customer acknowledges that he or she has read and understands the terms and conditions on the reverse side and that he or she has the authority to sign this document on behalf of the customer.

RS-F042UPR (04/19)

SIGNATURE \_\_\_\_\_

**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander Seattle, WA**

**STOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101  
 Contract:TB-25165

SITE	TICKET #	CELL
01	994686	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/6/21 12:31 pm	5/6/21 12:31 pm	
VEHICLE	CONTAINER	
187 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 63,420 NET TONS 17.55 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 35,100 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
17.55	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

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RS-F042UPR (04/19) SIGNATURE \_\_\_\_\_

**REGIONAL DISPOSAL INTERMODAL 425-977-4127**  
**3rd and lander -Seattle, WA**

**STOMER**  
 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101  
 Contract:TB-25165

SITE	TICKET #	CELL
01	994686	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/6/21 12:31 pm	5/6/21 12:31 pm	
VEHICLE	CONTAINER	
187 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 63,420 NET TONS 17.55 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 35,100 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
17.55	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

The undersigned individual signing this document on behalf of Customer acknowledges that he or she has read and understands the terms and conditions on the reverse side and that he or she has the authority to sign this document on behalf of the customer.

RS-F042UPR (04/19) SIGNATURE \_\_\_\_\_

**E**  
 REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander Seattle, WA  
 STOMER 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101  
 Contract:TB-25165

SITE	TICKET #	CELL
01	994687	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/6/21 1:06 pm	5/6/21 1:06 pm	
VEHICLE	CONTAINER	
187 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 65,840 NET TONS 18.76 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 37,520 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
18.76	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

The undersigned individual signing this document on behalf of Customer acknowledges that he or she has read and understands the terms and conditions on the reverse side and that he or she has the authority to sign this document on behalf of the customer.

RS-F042UPR (04/19)

SIGNATURE \_\_\_\_\_

**E**  
 REGIONAL DISPOSAL INTERMODAL 425-977-4127  
 3rd and lander -Seattle, WA  
 STOMER 333695  
 Trent Development  
 DBA 12th & Yesler Owner LLC  
 Seattle, WA 98101  
 Contract:TB-25165

SITE	TICKET #	CELL
01	994687	
WEIGHMASTER Timothy T.		
DATE/TIME IN	DATE/TIME OUT	
5/6/21 1:06 pm	5/6/21 1:06 pm	
VEHICLE	CONTAINER	
187 SILVER STREAK		
REFERENCE		
BILL OF LADING		

SCALE IN GROSS WEIGHT 65,840 NET TONS 18.76 INBOUND  
 TARE OUT TARE WEIGHT 28,320 NET WEIGHT 37,520 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	Tracking QTY				
18.76	tn	SW-CONT W/FUEL Origin:SEATTLE/KING 100%				
Signature _____						

NET AMOUNT
TENDERED
CHANGE
CHECK#

The undersigned individual signing this document on behalf of Customer acknowledges that he or she has read and understands the terms and conditions on the reverse side and that he or she has the authority to sign this document on behalf of the customer.

RS-F042UPR (04/19)

SIGNATURE \_\_\_\_\_

***Iron Mountain Quarry, LLC  
Petroleum Contaminated Soil Disposal Tickets***

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 4/20/2021 Time: 1:15:10PM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **28.82** Ton

Carrier : 791 SILVER STREAK INC  
Vehicle : SS169 Silver Streak

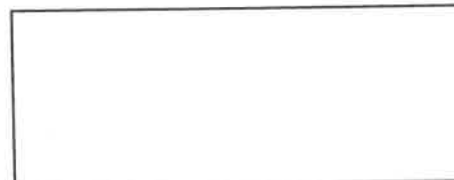
Received : \_\_\_\_\_

COPY 1 CARRIER

Ticket No.: **15583**

	<u>Pounds</u>	<u>Tons</u>
Gross	100540 m	50.27m
Tare	42900 *	21.45 *
Net	57640 m	28.82m

m Manual Weight, \* Manual P.T.



Weighmaster: Brad

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **15709**

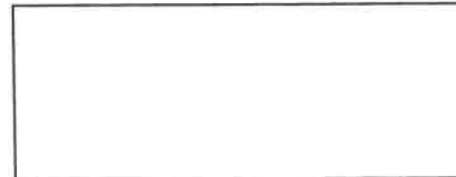
Date : 4/21/2021 Time: 9:31:33AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **26.54** Ton

	<u>Pounds</u>	<u>Tons</u>
Gross	93940 m	46.97 m
Tare	40860 *	20.43 *
Net	53080 m	26.54 m

m Manual Weight, \* Manual P.T.

Carrier : 3051 CITY TRANSFER  
Vehicle : CTI422 CTI CITY TRANSFER

Received : \_\_\_\_\_



Weighmaster: Brad

**COPY 2 CUSTOMER**

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/7/2021 Time: 3:16:08PM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL 28.93 Ton

Carrier : 1225 PLANET EARTH TRANSFER  
Vehicle : PET17 Planet Earth Transfer

Received : \_\_\_\_\_

COPY 1 CARRIER

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/7/2021 Time: 3:16:08PM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPFSTRY PROJ.FCT

Ticket No.: **18706**

	<u>Pounds</u>	<u>Tons</u>
Gross	94860	47.43
Tare	37000 *	18.50 *
Net	57860	28.93

\* Manual P. T.



Weighmaster: Brad

Ticket No.: **18706**

	<u>Pounds</u>	<u>Tons</u>
Gross	94860	47.43
Tare	37000 *	18.50 *
Net	57860	28.93

#2

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 10:57:19AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL 25.49 Ton

Carrier : 1624 BOBBY WOLFORD TRUCKING  
Vehicle : BW23 Bobby Wolford Trucking

Received : \_\_\_\_\_

COPY 1 CARRIER

**Iron Mountain Quarry, LLC**

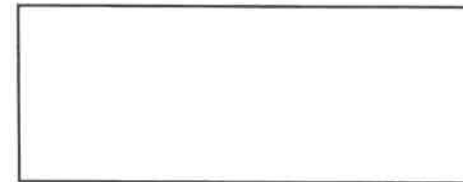
22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 10:57:19AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **18847**

	<u>Pounds</u>	<u>Tons</u>
Gross	91960	45.98
Tare	40980 *	20.49 *
Net	50980	25.49

\* Manual P. T.



Weighmaster: Brad

Ticket No.: **18847**

	<u>Pounds</u>	<u>Tons</u>
Gross	91960	45.98
Tare	40980 *	20.49 *
Net	50980	25.49

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **18790**

Date: 5/10/2021 Time: 8:33:18AM  
Location: **Granite Falls Quarry**  
Customer: 1402 12TH AND YESLER OWNER LLC  
Order: 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product: 510 CLASS 3 CONTAMINATED SOIL **26.11 Ton**

	<u>Pounds</u>	<u>Tons</u>
Gross	93200	46.60
Tare	40980 *	20.49 *
Net	52220	26.11

\* Manual P. T.

Carrier: 1624 BOBBY WOLFORD TRUCKING  
Vehicle: BW23 Bobby Wolford Trucking



Received: \_\_\_\_\_

Weighmaster: Brad

COPY 1 CARRIER

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **18790**

Date: 5/10/2021 Time: 8:33:18AM  
Location: **Granite Falls Quarry**  
Customer: 1402 12TH AND YESLER OWNER LLC  
Order: 1 104- 12TH AVE TAPESTRY PROJECT

	<u>Pounds</u>	<u>Tons</u>
Gross	93200	46.60
Tare	40980 *	20.49 *
Net	52220	26.11

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 8:35:16AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **24.92** Ton

Carrier : 1624 BOBBY WOLFORD TRUCKING  
Vehicle : BW6 Bobby Wolford Trucking

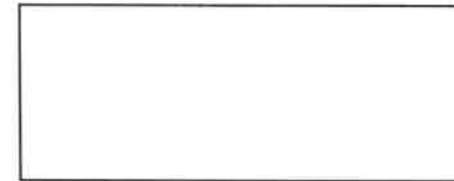
Received : \_\_\_\_\_

COPY 1 CARRIER

Ticket No.: **18792**

	<u>Pounds</u>	<u>Tons</u>
Gross	90800	45.40
Tare	40960 *	20.48 *
Net	49840	24.92

\* Manual P. T.



Weighmaster: Brad

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 8:35:16AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **18792**

	<u>Pounds</u>	<u>Tons</u>
Gross	90800	45.40
Tare	40960 *	20.48 *
Net	49840	24.92

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **18849**

Date : 5/10/2021 Time: 10:58:47AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **25.58** Ton

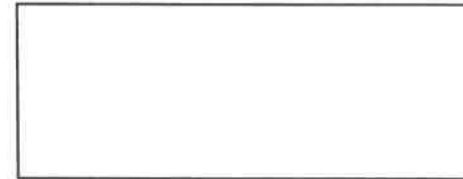
	<u>Pounds</u>	<u>Tons</u>
Gross	92120	46.06
Tare	40960 *	20.48 *
Net	51160	25.58

\* Manual P. T.

Carrier : 1624 BOBBY WOLFORD TRUCKING  
Vehicle : BW6 Bobby Wolford Trucking

Received : \_\_\_\_\_

COPY 1 CARRIER



Weighmaster: Brad

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **18849**

Date : 5/10/2021 Time: 10:58:47AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

	<u>Pounds</u>	<u>Tons</u>
Gross	92120	46.06
Tare	40960 *	20.48 *
Net	51160	25.58

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 8:48:00AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL 29.67 Ton

Carrier : 619 AERO CONSTRUCTION  
Vehicle : A20 Aero Construction

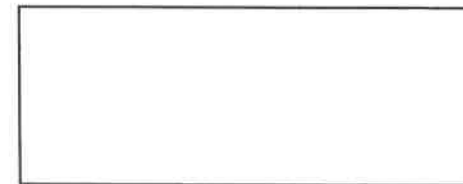
Received : \_\_\_\_\_

COPY 1 CARRIER

Ticket No.: **18799**

	<u>Pounds</u>	<u>Tons</u>
Gross	101840	50.92
Tare	42500 *	21.25 *
Net	59340	29.67

\* Manual P. T.



Weighmaster: Brad

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 8:48:00AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **18799**

	<u>Pounds</u>	<u>Tons</u>
Gross	101840	50.92
Tare	42500 *	21.25 *
Net	59340	29.67

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date: 5/10/2021 Time: 11:27:24AM  
Location: **Granite Falls Quarry**  
Customer: 1402 12TH AND YESLER OWNER LLC  
Order: 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product: 510 CLASS 3 CONTAMINATED SOIL **33.64** Ton

Carrier: 619 AERO CONSTRUCTION  
Vehicle: A20 Aero Construction

Received: \_\_\_\_\_

COPY 1 CARRIER

**Iron Mountain Quarry, LLC**

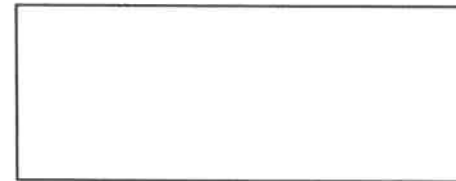
22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date: 5/10/2021 Time: 11:27:24AM  
Location: **Granite Falls Quarry**  
Customer: 1402 12TH AND YESLER OWNER LLC  
Order: 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **18870**

	<u>Pounds</u>	<u>Tons</u>
Gross	109780	54.89
Tare	42500 *	21.25 *
Net	67280	33.64

\* Manual P. T.



Weighmaster: Brad

Ticket No.: **18870**

	<u>Pounds</u>	<u>Tons</u>
Gross	109780	54.89
Tare	42500 *	21.25 *
Net	67280	33.64

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 8:44:46AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL 28.11 Ton

Carrier : 619 AERO CONSTRUCTION  
Vehicle : A17 Aero Construction

Received : \_\_\_\_\_

COPY 1 CARRIER

Ticket No.: **18797**

	<u>Pounds</u>	<u>Tons</u>
Gross	98320	49.16
Tare	42100 *	21.05 *
Net	56220	28.11

\* Manual P. T.



Weighmaster: Brad

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 8:44:46AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **18797**

	<u>Pounds</u>	<u>Tons</u>
Gross	98320	49.16
Tare	42100 *	21.05 *
Net	56220	28.11

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 11:22:29AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL 28.72 Ton

Carrier : 619 AERO CONSTRUCTION  
Vehicle : A17 Aero Construction

Received : \_\_\_\_\_

COPY 1 CARRIER

**Iron Mountain Quarry, LLC**

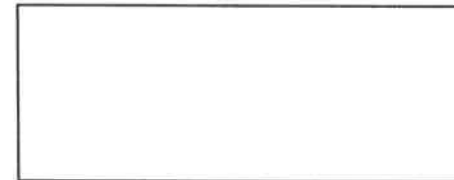
22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 11:22:29AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **18866**

	<u>Pounds</u>	<u>Tons</u>
Gross	99540	49.77
Tare	42100 *	21.05 *
Net	57440	28.72

\* Manual P. T.



Weighmaster: Brad

Ticket No.: **18866**

	<u>Pounds</u>	<u>Tons</u>
Gross	99540	49.77
Tare	42100 *	21.05 *
Net	57440	28.72

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 11:48:19AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL 30.56 Ton

Carrier : 619 AERO CONSTRUCTION  
Vehicle : A16 Aero Construction

Received : \_\_\_\_\_

COPY 1 CARRIER

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 11:48:19AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **18879**

	<u>Pounds</u>	<u>Tons</u>
Gross	100400	50.20
Tare	39280 *	19.64 *
Net	61120	30.56

\* Manual P. T.



Weighmaster: Brad

Ticket No.: **18879**

	<u>Pounds</u>	<u>Tons</u>
Gross	100400	50.20
Tare	39280 *	19.64 *
Net	61120	30.56

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 9:02:11AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **32.46** Ton

Carrier : 619 AERO CONSTRUCTION  
Vehicle : A16 Aero Construction

Received : \_\_\_\_\_

COPY 1 CARRIER

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 9:02:11AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **18808**

	<u>Pounds</u>	<u>Tons</u>
Gross	104200	52.10
Tare	39280 *	19.64 *
Net	64920	32.46

\* Manual P. T.



Weighmaster: Brad

Ticket No.: **18808**

	<u>Pounds</u>	<u>Tons</u>
Gross	104200	52.10
Tare	39280 *	19.64 *
Net	64920	32.46

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 11:57:21AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL 29.67 Ton

Carrier : 1225 PLANET EARTH TRANSFER  
Vehicle : PET17 Planet Earth Transfer

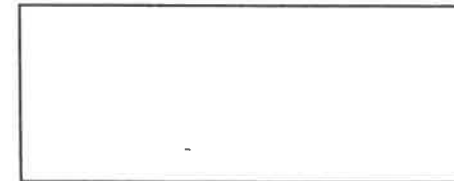
Received : \_\_\_\_\_

COPY 1 CARRIER

Ticket No.: **18882**

	<u>Pounds</u>	<u>Tons</u>
Gross	96340	48.17
Tare	37000 *	18.50 *
Net	59340	29.67

\* Manual P. T.



Weighmaster: Brad

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 11:57:21AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **18882**

	<u>Pounds</u>	<u>Tons</u>
Gross	96340	48.17
Tare	37000 *	18.50 *
Net	59340	29.67

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 8:58:28AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL 29.29 Ton

Carrier : 1225 PLANET EARTH TRANSFER  
Vehicle : PET17 Planet Earth Transfer

Received : \_\_\_\_\_

COPY 1 CARRIER

**Iron Mountain Quarry, LLC**

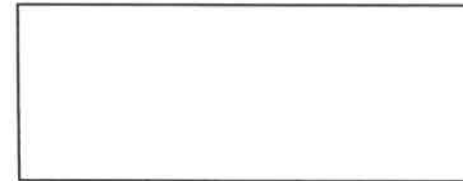
22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 8:58:28AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **18804**

	<u>Pounds</u>	<u>Tons</u>
Gross	95580	47.79
Tare	37000 *	18.50 *
Net	58580	29.29

\* Manual P. T.



Weighmaster: Brad

Ticket No.: **18804**

	<u>Pounds</u>	<u>Tons</u>
Gross	95580	47.79
Tare	37000 *	18.50 *
Net	58580	29.29

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 9:36:37AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. : Pending  
Product : 510 CLASS 3 CONTAMINATED SOIL 32.17 Ton

#1

Carrier : 619 AERO CONSTRUCTION  
Vehicle : A35 AERO COSTRUCTION

Received : \_\_\_\_\_

COPY 1 CARRIER

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 9:36:37AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **18821**

	<u>Pounds</u>	<u>Tons</u>
Gross	106020	53.01
Tare	41680 *	20.84 *
Net	64340	32.17

\* P. T.



Weighmaster: Brad

Ticket No.: **18821**

	<u>Pounds</u>	<u>Tons</u>
Gross	106020	53.01
Tare	41680 *	20.84 *
Net	64340	32.17

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **18886**

Date : 5/10/2021 Time: 12:08:30PM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **27.18 Ton**

	<u>Pounds</u>	<u>Tons</u>
Gross	96040	48.02
Tare	41680 *	20.84 *
Net	54360	27.18

\* P. T.

*AL*

Carrier : 619 AERO CONSTRUCTION  
Vehicle : A35 AERO COSTRUCTION



Received : \_\_\_\_\_

Weighmaster: Brad

COPY 1 CARRIER

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **18886**

Date : 5/10/2021 Time: 12:08:30PM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

	<u>Pounds</u>	<u>Tons</u>
Gross	96040	48.02
Tare	41680 *	20.84 *
Net	54360	27.18

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 9:12:08AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL 31.34 Ton

Carrier : 619 AERO CONSTRUCTION  
Vehicle : A12 AERO CONSTRUCTION

Received : \_\_\_\_\_

COPY 1 CARRIER

**Iron Mountain Quarry, LLC**

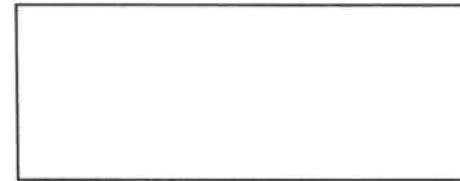
22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 9:12:08AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **18810**

	<u>Pounds</u>	<u>Tons</u>
Gross	102500	51.25
Tare	39820 *	19.91*
Net	62680	31.34

\* P. T.



Weighmaster: Brad

Ticket No.: **18810**

	<u>Pounds</u>	<u>Tons</u>
Gross	102500	51.25
Tare	39820 *	19.91*
Net	62680	31.34

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 12:19:06PM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **31.72 Ton**

Carrier : 619 AERO CONSTRUCTION  
Vehicle : A12 AERO CONSTRUCTION

Received : \_\_\_\_\_

COPY 1 CARRIER

**Iron Mountain Quarry, LLC**

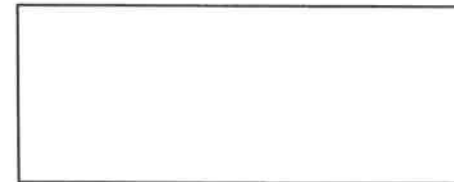
22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 12:19:06PM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **18891**

	<u>Pounds</u>	<u>Tons</u>
Gross	103260	51.63
Tare	39820 *	19.91*
Net	63440	31.72

\* P. T.



Weighmaster: Brad

Ticket No.: **18891**

	<u>Pounds</u>	<u>Tons</u>
Gross	103260	51.63
Tare	39820 *	19.91*
Net	63440	31.72

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 12:20:40PM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL 30.95 Ton

Carrier : 619 AERO CONSTRUCTION  
Vehicle : A11 AERO CONSTRUCTION

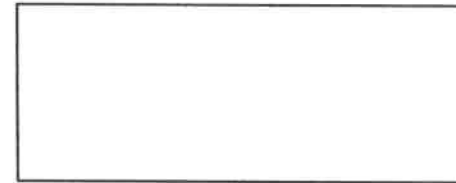
Received : \_\_\_\_\_

COPY 1 CARRIER

Ticket No.: **18892**

	<u>Pounds</u>	<u>Tons</u>
Gross	104240	52.12
Tare	42340 *	21.17 *
Net	61900	30.95

\* P. T.



Weighmaster: Brad

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 12:20:40PM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **18892**

	<u>Pounds</u>	<u>Tons</u>
Gross	104240	52.12
Tare	42340 *	21.17 *
Net	61900	30.95

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 9:33:01AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. : Pending  
Product : 510 CLASS 3 CONTAMINATED SOIL **30.24** Ton

Carrier : 619 AERO CONSTRUCTION  
Vehicle : A11 AERO CONSTRUCTION

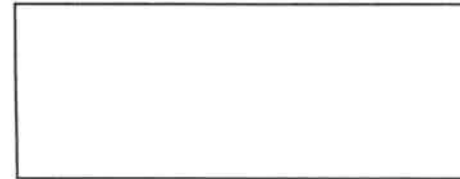
Received : \_\_\_\_\_

COPY 1 CARRIER

Ticket No.: **18818**

	<u>Pounds</u>	<u>Tons</u>
Gross	102820	51.41
Tare	42340 *	21.17 *
Net	60480	30.24

\* P. T.



Weighmaster: Brad

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/10/2021 Time: 9:33:01AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **18818**

	<u>Pounds</u>	<u>Tons</u>
Gross	102820	51.41
Tare	42340 *	21.17 *
Net	60480	30.24

D.B.M

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/13/2021 Time: 9:24:02AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **15.63** Ton

Carrier : HARLOW HARLOW CONSTRUCTION  
Vehicle : H21S Harlow Construction  
Received : \_\_\_\_\_

COPY 1 CARRIER

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/13/2021 Time: 9:24:02AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **19395**

REPRINT

	<u>Pounds</u>	<u>Tons</u>
Gross	55760	27.88
Tare	24500 *	12.25 *
Net	31260	15.63

\* Manual P. T.



Weighmaster: Brad

Ticket No.: **19395**

REPRINT

	<u>Pounds</u>	<u>Tons</u>
Gross	55760	27.88
Tare	24500 *	12.25 *
Net	31260	15.63

D.B.M

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **19398**

Date : 5/13/2021 Time: 9:40:18AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **13.78** Ton

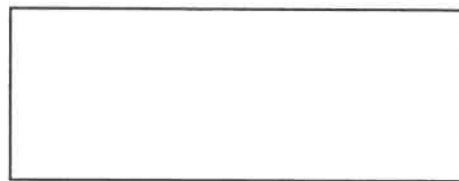
	<u>Pounds</u>	<u>Tons</u>
Gross	54180	27.09
Tare	26620 *	13.31*
Net	27560	13.78

\* Manual P. T.

Carrier : 1624 BOBBY WOLFORD TRUCKING  
Vehicle : BW4S Bobby Wolford Trucking

Received : \_\_\_\_\_

COPY 2 CUSTOMER



Weighmaster: Brad

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/13/2021 Time: 11:57:30AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **15.63** Ton

Carrier : HARLOW HARLOW CONSTRUCTION  
Vehicle : H21S Harlow Construction

Received : \_\_\_\_\_

COPY 1 CARRIER

**Iron Mountain Quarry, LLC**

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 5/13/2021 Time: 11:57:30AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT

Ticket No.: **19450**

	<u>Pounds</u>	<u>Tons</u>
Gross	55760 *	27.88 *
Tare	24500 *	12.25 *
Net	31260 *	15.63 *

\* Manual Weight



Weighmaster: Brad

Ticket No.: **19450**

	<u>Pounds</u>	<u>Tons</u>
Gross	55760 *	27.88 *
Tare	24500 *	12.25 *
Net	31260 *	15.63 *

# Iron Mountain Quarry, LLC

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **27490**

REPRINT

Date : 7/13/2021 Time: 8:36:08AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **11.89** Ton

	<u>Pounds</u>	<u>Tons</u>
Gross	49840 *	24.92 *
Tare	26060	13.03
Net	23780 *	11.89 *

\* Manual Weight

Carrier : SANTANA SANTANA TRUCKING  
Vehicle : S1143 Santana Trucking

Received : \_\_\_\_\_

Weighmaster: Brad

COPY 2 CUSTOMER

# Iron Mountain Quarry, LLC

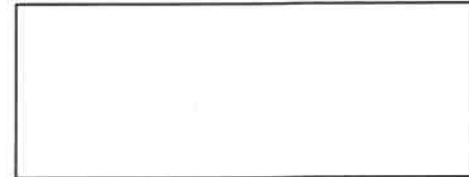
22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **27551**

Date : 7/13/2021 Time: 11:14:18AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **14.86** Ton

	<u>Pounds</u>	<u>Tons</u>
Gross	55780	27.89
Tare	26060 *	13.03 *
Net	29720	14.86

\* P. T.



Carrier : SANTANA SANTANA TRUCKING  
Vehicle : S1143 Santana Trucking  
Received : \_\_\_\_\_

Weighmaster: Brad

COPY 2 CUSTOMER

# Iron Mountain Quarry, LLC

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 7/13/2021 Time: 8:49:28AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **16.62** Ton

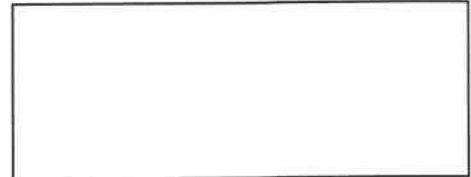
Carrier : SANTANA SANTANA TRUCKING  
Vehicle : S1146S SANTANA TRUCKING  
Received : \_\_\_\_\_

Ticket No.: **27497**

REPRINT

	<u>Pounds</u>	<u>Tons</u>
Gross	62940 m	31.47 m
Tare	29700 *	14.85 *
Net	33240 m	16.62 m

m Manual Weight, \* Manual P.T.



Weighmaster: Brad

COPY 2 CUSTOMER

# Iron Mountain Quarry, LLC

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date : 7/13/2021 Time: 8:41:44AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **14.64** Ton

Carrier : DOUGS DOUG'S TRUCKING  
Vehicle : DOUGS Dougs Trucking

Received : \_\_\_\_\_

Ticket No.: **27493**

REPRINT

	<u>Pounds</u>	<u>Tons</u>
Gross	54080	27.04
Tare	24800 *	12.40 *
Net	29280	14.64

\* Manual P. T.



Weighmaster: Brad

COPY 2 CUSTOMER

# Iron Mountain Quarry, LLC

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **27559**

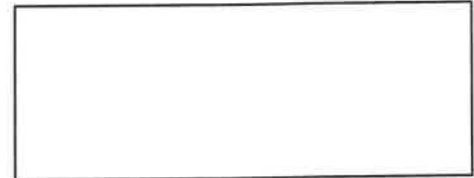
Date : 7/13/2021 Time: 11:28:18AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **17.10 Ton**

	<u>Pounds</u>	<u>Tons</u>
Gross	59000	29.50
Tare	24800 *	12.40 *
Net	34200	17.10

\* Manual P. T.

Carrier : DOUGS DOUG'S TRUCKING  
Vehicle : DOUGS Dougs Trucking

Received : \_\_\_\_\_



Weighmaster: Brad

COPY 1 CARRIER

# Iron Mountain Quarry, LLC

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **27553**

Date : 7/13/2021 Time: 11:17:53AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **18.01 Ton**

	<u>Pounds</u>	<u>Tons</u>
Gross	65720	32.86
Tare	29700 *	14.85 *
Net	36020	18.01

\* Manual P. T.



Carrier : SANTANA SANTANA TRUCKING  
Vehicle : S1146S SANTANA TRUCKING  
Received : \_\_\_\_\_

Weighmaster: Brad

COPY 2 CUSTOMER

# Iron Mountain Quarry, LLC

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **27828**

Date: 7/15/2021 Time: 10:57:40AM  
Location: **Granite Falls Quarry**  
Customer: 1402 12TH AND YESLER OWNER LLC  
Order: 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product: 510 CLASS 3 CONTAMINATED SOIL **14.88** Ton

	<u>Pounds</u>	<u>Tons</u>
Gross	55820	27.91
Tare	26060 *	13.03 *
Net	29760	14.88

\* P. T.

Carrier: SANTANA SANTANA TRUCKING  
Vehicle: S1143 Santana Trucking  
Received: \_\_\_\_\_



Weighmaster: Brad

COPY 2 CUSTOMER

# Iron Mountain Quarry, LLC

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **27786**

Date: 7/15/2021 Time: 8:22:49AM  
Location: **Granite Falls Quarry**  
Customer: 1402 12TH AND YESLER OWNER LLC  
Order: 1 104- 12TH AVE TAPESTRY PROJECT  
P.O.:  
Product: 510 CLASS 3 CONTAMINATED SOIL **13.95** Ton

	<u>Pounds</u>	<u>Tons</u>
Gross	53960	26.98
Tare	26060 *	13.03 *
Net	27900	13.95

\* P. T.



Weighmaster: Brad

Carrier: SANTANA SANTANA TRUCKING  
Vehicle: S1143 Santana Trucking  
Received: \_\_\_\_\_

COPY 1 CARRIER

# Iron Mountain Quarry, LLC

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **27883**

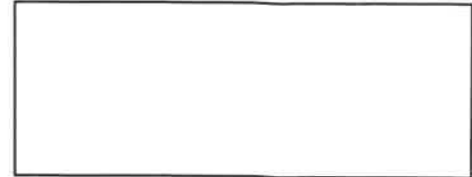
Date : 7/15/2021 Time: 1:51:56PM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **18.08** Ton

	<u>Pounds</u>	<u>Tons</u>
Gross	60960	30.48
Tare	24800 *	12.40 *
Net	36160	18.08

\* Manual P. T.

Carrier : DOUGS DOUG'S TRUCKING  
Vehicle : DOUGS Dougs Trucking

Received : \_\_\_\_\_



Weighmaster: Brad

**COPY 2 CUSTOMER**

# Iron Mountain Quarry, LLC

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date: 7/15/2021 Time: 11:04:25AM  
Location: **Granite Falls Quarry**  
Customer: 1402 12TH AND YESLER OWNER LLC  
Order: 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product: 510 CLASS 3 CONTAMINATED SOIL **16.04 Ton**

Carrier: DOUGS DOUG'S TRUCKING  
Vehicle: DOUGS Dougs Trucking

Received: \_\_\_\_\_

COPY 1 CARRIER

Ticket No.: **27829**

	<u>Pounds</u>	<u>Tons</u>
Gross	56880	28.44
Tare	24800 *	12.40 *
Net	32080	16.04

\* Manual P. T.



Weighmaster: Brad

Ticket No.: **27829**

# Iron Mountain Quarry, LLC

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date: 7/15/2021 Time: 11:04:25AM  
Location: **Granite Falls Quarry**  
Customer: 1402 12TH AND YESLER OWNER LLC  
Order: 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product: 510 CLASS 3 CONTAMINATED SOIL **16.04 Ton**

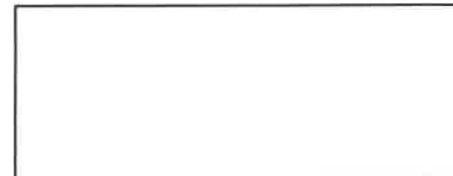
Carrier: DOUGS DOUG'S TRUCKING  
Vehicle: DOUGS Dougs Trucking

Received: \_\_\_\_\_

COPY 2 CUSTOMER

	<u>Pounds</u>	<u>Tons</u>
Gross	56880	28.44
Tare	24800 *	12.40 *
Net	32080	16.04

\* Manual P. T.



Weighmaster: Brad

# Iron Mountain Quarry, LLC

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date: 7/15/2021 Time: 8:23:59AM  
Location: **Granite Falls Quarry**  
Customer: 1402 12TH AND YESLER OWNER LLC  
Order: 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product: 510 CLASS 3 CONTAMINATED SOIL **16.56 Ton**

Carrier: DOUGS DOUG'S TRUCKING  
Vehicle: DOUGS Dougs Trucking

Received: \_\_\_\_\_

COPY 1 CARRIER

# Iron Mountain Quarry, LLC

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Date: 7/15/2021 Time: 8:23:59AM  
Location: **Granite Falls Quarry**  
Customer: 1402 12TH AND YESLER OWNER LLC  
Order: 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product: 510 CLASS 3 CONTAMINATED SOIL **16.56 Ton**

Carrier: DOUGS DOUG'S TRUCKING  
Vehicle: DOUGS Dougs Trucking

Received: \_\_\_\_\_

COPY 2 CUSTOMER

Ticket No.: **27787**

	<u>Pounds</u>	<u>Tons</u>
Gross	57920	28.96
Tare	24800 *	12.40 *
Net	33120	16.56

\* Manual P. T.



Weighmaster: Brad

Ticket No.: **27787**

	<u>Pounds</u>	<u>Tons</u>
Gross	57920	28.96
Tare	24800 *	12.40 *
Net	33120	16.56

\* Manual P. T.



Weighmaster: Brad

# Iron Mountain Quarry, LLC

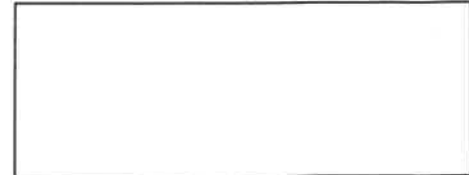
22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

Ticket No.: **28139**

Date: 7/19/2021 Time: 8:28:37AM  
Location: **Granite Falls Quarry**  
Customer: 1402 12TH AND YESLER OWNER LLC  
Order: 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product: 510 CLASS 3 CONTAMINATED SOIL **9.82 Ton**

	<u>Pounds</u>	<u>Tons</u>
Gross	45700	22.85
Tare	26060 *	13.03 *
Net	19640	9.82

\* P. T.



Carrier: SANTANA SANTANA TRUCKING  
Vehicle: S1143 Santana Trucking  
Received: \_\_\_\_\_

Weighmaster: Sabrina

COPY 1 CARRIER

# Iron Mountain Quarry, LLC

22121 17th Ave SE STE 117  
Bothell, WA 98021  
425-481-0999

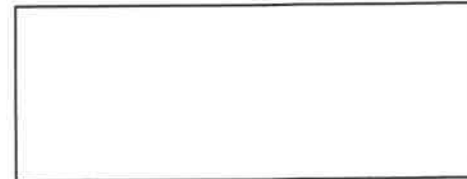
Date : 7/19/2021 Time: 10:49:41AM  
Location : **Granite Falls Quarry**  
Customer : 1402 12TH AND YESLER OWNER LLC  
Order : 1 104- 12TH AVE TAPESTRY PROJECT  
P.O. :  
Product : 510 CLASS 3 CONTAMINATED SOIL **8.05 Ton**

Carrier : SANTANA SANTANA TRUCKING  
Vehicle : S1143 Santana Trucking  
Received : \_\_\_\_\_

Ticket No.: **28169**

	<u>Pounds</u>	<u>Tons</u>
Gross	42160	21.08
Tare	26060 *	13.03 *
Net	16100	8.05

\* P. T.



Weighmaster: Sabrina

COPY 1 CARRIER

# **APPENDIX E**

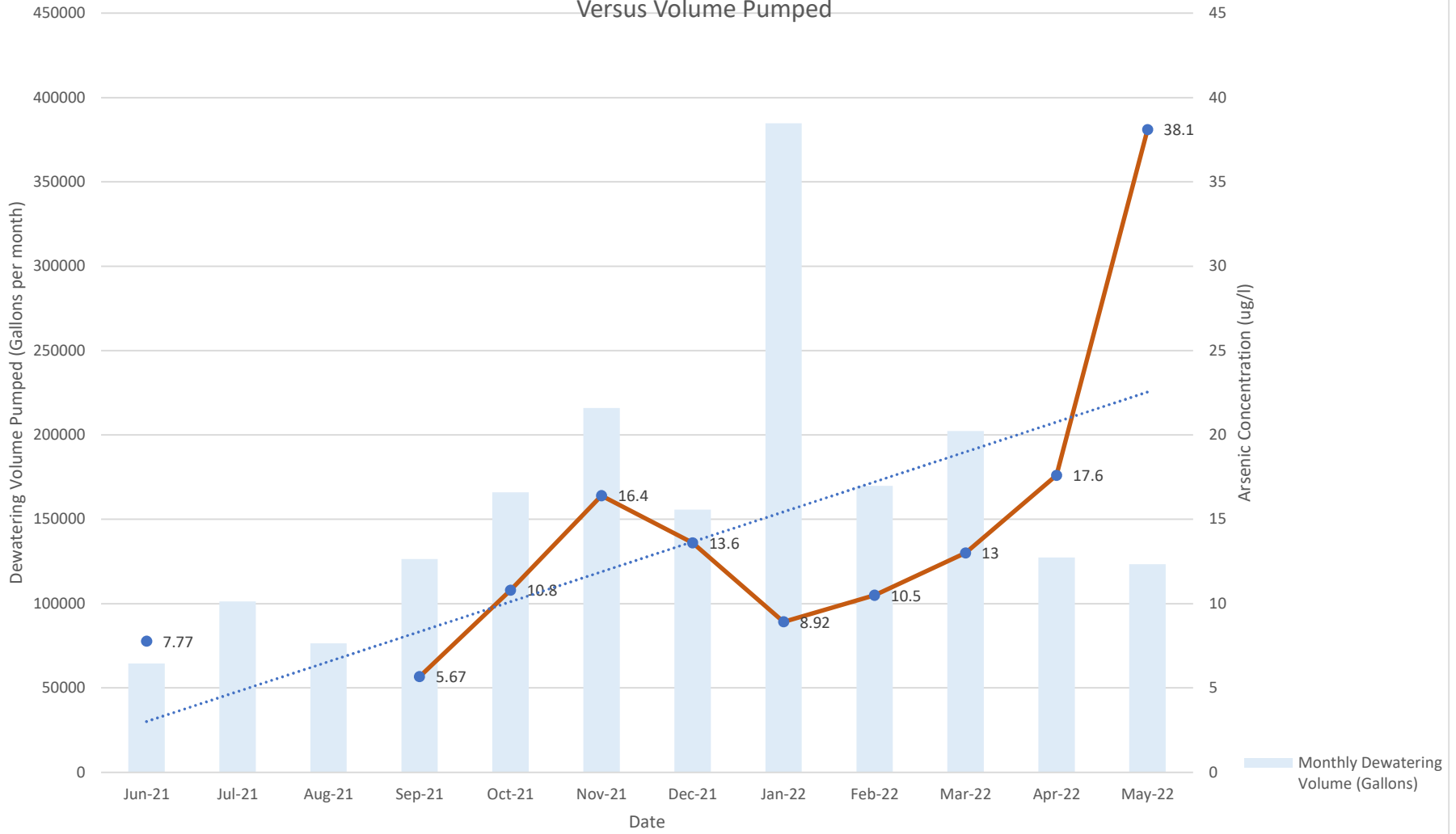
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## ***Construction De-Watering Monitoring Data***

**Table E1  
De-Watering Monitoring Data Summary  
12<sup>th</sup> & Yesler Redevelopment**

<b>Sample ID</b>	<b>Sample Date</b>	<b>Arsenic (ug/l)</b>	<b>VOCs (ug/l)</b>	<b>Other Analyses</b>	<b>Monthly Volume Pumped (gallons)</b>
DW-6-22	6/22/2021	7.77 (total)	ND (all)	Settleable Solids (daily field test) 0 Fats Oil & Grease ND (<3 mg/l) Cadmium (total) ND (<1 ug/l) Chromium (total) 12 ug/l Copper (total) ND (<5 ug/l) Lead (total) ND (<1 ug/l) Mercury (total) ND (<1 ug/l) Nickel (total) 11.3 ug/l Silver (total) ND (<1 ug/l) Zinc (total) 6.47 ug/l Cyanide (total) ND (<0.05 mg/l)	64,379
DW-7-21	7/21/2021	NA	ND (all)	Settleable Solids (daily field test) 0	101,250
DW-8-24	8/24/2021	NA	ND (all)	Settleable Solids (daily field test) 0	76,476
DW-9-21	9/21/2021	5.67 (dissolved)	ND (all)	Settleable Solids (daily field test) 0	126,396
DW-10-24	10/24/2021	10.4 (dissolved)	ND (all)	Settleable Solids (daily field test) 0	165,963
DW-11-4	11/4/2021	16.4 (total)	MEK 21 ND (all other)	Settleable Solids (daily field test) 0	215,922
DW-12-4	12/4/2021	13.6 (dissolved)	ND (all)	Settleable Solids (daily field test) 0	155,691
DW-1-17	1/17/2022	8.92 (dissolved)	ND (all)	Settleable Solids (daily field test) 0	384,781
DW-2-15	2/15/2022	10.5 (total)	ND (all)	Settleable Solids (daily field test) 0	169,833
DW-3-9	3/9/2022	13.0 (dissolved)	ND (all)	Settleable Solids (daily field test) 0	202,387
DW-4-8	4/8/2022	17.6 (dissolved)	ND (all)	Settleable Solids (daily field test) 0	127,388
DW-5-11	5/11/2022	38.1 (dissolved) 35.6 (total)	ND (all)	Settleable Solids (daily field test) 0	123,349
DW-6-23	6/23/2022	NA	ND (all)	Settleable Solids (daily field test) 0	79,610
<b>Total Volume Discharged to Metro Sewer System:</b>					<b>1,993,425</b>

Dewatering Arsenic Concentration over Time (ug/l)  
Versus Volume Pumped





King County

# Industrial Waste Program Monthly Self-Monitoring Report

Send to: King County Industrial Waste Program  
201 S. Jackson Street, Suite 513  
Seattle, WA 98104-3855  
Phone 206-477-5300 / FAX 206-263-3001  
Email: [info.KCIW@kingcounty.gov](mailto:info.KCIW@kingcounty.gov)

Company Name: 12th & Yesler Venture, LLC - 12th & Yesler

Sample Site No. IW1488A

Permit/DA No.: 4544-01

Please Specify Month & Year: Month: June 20 21

This form is available at [www.kingcounty.gov/industrialwaste](http://www.kingcounty.gov/industrialwaste).

Sample Date (circle)	Grab pH (s.u.) LIMITS 5.0/12.0	Settleable solids (m/L) LIMIT 7.0	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1,2-Tri Chloroethylene [TCE] (µg/L)	1,2 Dichloroethane (µg/L)	Tetra- Chloroethylene [PCE] (µg/L)	Vinyl Chloride	Discharge Flow Rate (gpm) LIMIT 290	Daily Flow (GPD) Industrial LIMIT 270,000	Notes (indicate Batch Discharge where applicable)	
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17		0									1.03	1489		
18	8.85	0									1.81	6547		
19												GPD rate		
20												included in 6/22		
21		0									4.51	13321		
22		0	ND <0.35	ND <1	ND <1	ND <3	ND <1	ND <1	ND <1	ND <0.2	3.5	5530	FOG <3, other	
23		0									0.41	4930	VOCs all ND,	
24		0									3.20	4880	cyanide < 0.05,	
25		0									3.57	4718	metals analyzed	
26												GPD rate		
27												included in 6/28	and are within	
28		0									3.35	14193	discharge limits.	
29		0									3.34	4351		
30		0									3.49	4420		
31														
											pH <u>8.85</u> & Date <u>6/18/21</u>		Total Monthly Flow (gallons) <u>64379</u>	
											Maximum Daily Flow <u>6547</u>		& Date <u>6/18/21</u>	

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

7/7/21

Date

Caleb Pasquez

Signature of Principal Executive or Authorized Agent

PLEASE CIRCLE ALL PERMIT VIOLATIONS

**Due Date:** Monthly report is due by the 15th each month.



King County

# Industrial Waste Program Monthly Self-Monitoring Report

Send to: King County Industrial Waste Program  
201 S. Jackson Street, Suite 513  
Seattle, WA 98104-3855  
Phone 206-477-5300 / FAX 206-263-3001  
Email: [info.KCIW@kingcounty.gov](mailto:info.KCIW@kingcounty.gov)

Company Name: 12th & Yesler Venture, LLC - 12th & Yesler

Sample Site No. IW1488A

Permit/DA No.: 4544-01

Please Specify Month & Year: Month: July 20 21

This form is available at [www.kingcounty.gov/industrialwaste](http://www.kingcounty.gov/industrialwaste).

Sample Date (circle)	Grab pH (s.u.) LIMITS 5.0/12.0	Settleable solids (m/L) LIMIT 7.0	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1,2-Tri Chloroethylene [TCE] (µg/L)	1,2 Dichloroethane (µg/L)	Tetra- Chloroethylene [PCE] (µg/L)	Vinyl Chloride	Discharge Flow Rate (gpm) LIMIT 290	Daily Flow (GPD) Industrial LIMIT 270,000	Notes (indicate Batch Discharge where applicable)
1		0									2.38	4221	
2		0									2.70	4376	
3													
4													
5													
6		0									0.70	3430	
7		0.1									1.62	3429	
8		0									2.07	3627	
9		0									2.23	3058	
10													
11													
12		0									2.68	3092	
13	8.45	0									2.64	3105	
14		0									1.83	3228	
15		0									1.89	3471	
16		0									1.76	3725	
17													
18													
19		0									2.31	3347	
20		0									5.92	3368	
21		0	<0.35	<1	<1	<1	<1	<1	<1	<0.2	1.85	3712	
22		0									0.79	2814	
23		0									1.46	2940	
24													
25													
26		0									2.80	3683	
27		0									1.53	2662	
28		0									2.50	6570	
29		0									5.62	4123	
30		5									2.50	2957	
31													

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

*Caleb Vasquez*  
Signature of Principal Executive or Authorized Agent  
08/06/21  
Date

pH 8.45 & Date 07/13/21

Total Monthly Flow (gallons) 101250  
Maximum Daily Flow 6570 & Date 07/28/21

**PLEASE CIRCLE ALL PERMIT VIOLATIONS**

**Due Date:** Monthly report is due by the 15th each month.



King County

# Industrial Waste Program Monthly Self-Monitoring Report

Send to: King County Industrial Waste Program  
201 S. Jackson Street, Suite 513  
Seattle, WA 98104-3855  
Phone 206-477-5300 / FAX 206-263-3001  
Email: [info.KCIW@kingcounty.gov](mailto:info.KCIW@kingcounty.gov)

Company Name: 12th & Yesler Venture, LLC - 12th & Yesler

Sample Site No. IW1488A

Permit/DA No.: 4544-01

Please Specify Month & Year: Month: July 20 21

This form is available at [www.kingcounty.gov/industrialwaste](http://www.kingcounty.gov/industrialwaste).

Sample Date (circle)	Grab pH (s.u.) LIMITS 5.0/12.0	Settleable solids (m/L) LIMIT 7.0	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1,2-Tri Chloroethylene [TCE] (µg/L)	1,2 Dichloroethane (µg/L)	Tetra- Chloroethylene [PCE] (µg/L)	Vinyl Chloride	Discharge Flow Rate (gpm) LIMIT 290	Daily Flow (GPD) Industrial LIMIT 270,000	Notes (indicate Batch Discharge where applicable)			
1																
2		0									1.88	2690	177919			
3		0									2.34	2345	180264			
4		0									1.71	2456	182720			
5		0.1									1.82	2488	185208			
6		0									2.92	2738	187946			
7																
8																
9		0									2.76	3193	197525			
10		0									2.03	3168	200693			
11		0									2.68	3219	203912			
12		0									2.22	3300	207212			
13		0									1.53	2531	209743			
14																
15																
16		0									1.49	2717	217895			
17		0									2.51	2784	220679			
18		0									1.02	2706	22345			
19		0									2.36	2709	226154			
20		0									2.25	2892	229046			
21																
22																
23		0									0.00	1544	233678			
24		0	<.03	<.05	<.05	<.05	<.05	<.05	<.-25	<.05	1.90	2722	236450			
25		0									1.34	2902	239352			
26		0									1.36	2600	241952			
27		0									1.95	2720	244672			
28																
29																
30		0									1.24	2383	251820			
31		0									1.32	2575	254395			
pH											8.55	& Date	08/16/21	Total Monthly Flow (gallons)	76476	
Maximum Daily Flow											3300	& Date	08/12/21			

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

*Caleb Vasquez*  
Signature of Principal Executive or Authorized Agent  
Date 09/14/21

PLEASE CIRCLE ALL PERMIT VIOLATIONS

**Due Date:** Monthly report is due by the 15th each month.



King County

# Industrial Waste Program Monthly Self-Monitoring Report

Send to: King County Industrial Waste Program  
201 S. Jackson Street, Suite 513  
Seattle, WA 98104-3855  
Phone 206-477-5300 / FAX 206-263-3001  
Email: [info.KCIW@kingcounty.gov](mailto:info.KCIW@kingcounty.gov)

Company Name: 12th & Yesler Venture, LLC - 12th & Yesler

Sample Site No. IW1488A

Permit/DA No.: 4544-01

Please Specify Month & Year: Month: September 2021

This form is available at [www.kingcounty.gov/industrialwaste](http://www.kingcounty.gov/industrialwaste).

Sample Date (circle)	Grab pH (s.u.) LIMITS 5.0/12.0	Settleable solids (m/L) LIMIT 7.0	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1,2-Tri- Chloroethylene [TCE] (µg/L)	1,2- Dichloroethane (µg/L)	Tetra- Chloroethylene [PCE] (µg/L)	Vinyl Chloride	Discharge Flow Rate (gpm) LIMIT 290	Daily Flow (GPD) Industrial LIMIT 270,000	Notes (indicate Batch Discharge where applicable)
1		0									0.52	4393	
2		0									2.10	4743	
3		0									1.89	2130	
4													
5													
6													
7		0									1.31	2030	
8		0									2.52	4033	
9		0									2.92	3800	
10		0									2.62	3795	
11													
12													
13											1.63	2713	
14		0									1.93	3401	
15	8.52	0									2.25	3636	
16		0									2.83	3030	
17		0									2.13	2940	
18		0											
19													
20											0.00		Generator ran out of gas
21		0									19.15	11329	
22		0									6.24	6349	
23		0									2.20		
24		0									2.97	3906	
25													
26													
27		0									13.72	5279	
28		0									7.88	9682	
29		0									1.98	4131	
30		0	<0.35	<1	<1	<2	<1	<1	<1	<0.2	7.33	4371	
31													

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

10/11/21

*Caleb Vasquez*

Signature of Principal Executive or Authorized Agent

Date

pH 8.52 & Date 9/15/21

Total Monthly Flow (gallons) 126396

Maximum Daily Flow 11329 GPD

& Date 09/21/2021

PLEASE CIRCLE ALL PERMIT VIOLATIONS

**Due Date:** Monthly report is due by the 15th each month.



King County

# Industrial Waste Program Monthly Self-Monitoring Report

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201 S. Jackson Street, Suite 513  
Seattle, WA 98104-3855  
Phone 206-477-5300 / FAX 206-263-3001  
Email: [info.KCIW@kingcounty.gov](mailto:info.KCIW@kingcounty.gov)

Company Name: 12th & Yesler Venture, LLC - 12th & Yesler

Sample Site No. IW1488A

Permit/DA No.: 4544-01

Please Specify Month & Year: Month: October 20 21

This form is available at [www.kingcounty.gov/industrialwaste](http://www.kingcounty.gov/industrialwaste).

Sample Date (circle)	Grab pH (s.u.) LIMITS 5.0/12.0	Settleable solids (m/L) LIMIT 7.0	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1,2-Tri Chloroethylene [TCE] (µg/L)	1,2 Dichloroethane (µg/L)	Tetra- Chloroethylene [PCE] (µg/L)	Vinyl Chloride	Discharge Flow Rate (gpm) LIMIT 290	Daily Flow (GPD) Industrial LIMIT 270,000	Notes (indicate Batch Discharge where applicable)
1		0									2.54		I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.
2													
3													
4		0									3.81	6053	
5		0									2.73	2101	
6		0									2.16	1901	
7		0									1.63	2793	
8		0									1.53	3659	
9													
10													
11		0									12.94	5121	
12	8.87	0									2.28	4508	
13		0									1.81	3051	
14		0									1.74	5609	
15		0									1.30	4744	
16													
17													
18		0									2.78	2749	
19		0									4.52	4618	
20		0									3.34	3978	
21		0									2.23	4171	
22		0	ND <0.35	ND <1	ND <1	ND <3	ND <0.5	ND <1	ND <1	ND <0.02	5.68	7565	
23													
24													
25													
26		0									1.59	7496	
27		0									7.84	5720	
28		0									10.37	4799	
29		0									33.44	34990	
30													
31													

pH 8.87 & Date 10/12/21

Total Monthly Flow (gallons) 165963  
Maximum Daily Flow 34990 & Date 10/29/21

**PLEASE CIRCLE ALL PERMIT VIOLATIONS**

**Due Date:** Monthly report is due by the 15th each month.

Signature of Principal Executive or Authorized Agent  
*Caleb Vasquez*  
Date  
10/29/21



King County

# Industrial Waste Program Monthly Self-Monitoring Report

Send to: King County Industrial Waste Program  
201 S. Jackson Street, Suite 513  
Seattle, WA 98104-3855  
Phone 206-477-5300 / FAX 206-263-3001  
Email: [info.KCIW@kingcounty.gov](mailto:info.KCIW@kingcounty.gov)

Company Name: 12th & Yesler Venture, LLC - 12th & Yesler

Sample Site No. IW1488A

Permit/DA No.: 4544-01

Please Specify Month & Year: Month: November 20 21

This form is available at [www.kingcounty.gov/industrialwaste](http://www.kingcounty.gov/industrialwaste).

Sample Date (circle)	Grab pH (s.u.) LIMITS 5.0/12.0	Settleable solids (m/L) LIMIT 7.0	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1,2-Tri Chloroethylene [TCE] (µg/L)	1,2 Dichloroethane (µg/L)	Tetra- Chloroethylene [PCE] (µg/L)	Vinyl Chloride	Discharge Flow Rate (gpm) LIMIT 290	Daily Flow (GPD) Industrial LIMIT 270,000	Notes (indicate Batch Discharge where applicable)
1		0									2.73	11432	
2		0									3.78	5864	
3		0									8.41	4296	
4		0									17.62	8419	
5		0									11.34	19165	
6													
7													
8		0									30.62	6847	
9		0	ND <0.35	ND <1	ND <1	ND <2	ND <0.5	ND <0.2	ND <1	ND <0.02	8.73	21739	
10		0									7.27	13502	
11		0									9.86	6522	
12		0									16.01	24643	
13													
14													
15	8.25	0									9.42	9980	
16		0									0.81	5958	
17		0									5.61	6164	
18		0									3.47	5051	
19		0									1.02	3479	
20													
21													
22		0									5.20	6104	
23		0									0.00	4965	
24		0									3.37	1713	
25													
26													
27													
28													
29		0									37.23	3057	
30		0									1.89	3417	
31													
pH <u>8.25</u> & Date <u>11/16/21</u>											Total Monthly Flow (gallons) <u>215922</u>		I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.
											Maximum Daily Flow <u>24643</u> & Date <u>11/12/21</u>		

Signature of Principal Executive or Authorized Agent  
*Caleb Vasquez*  
Date  
12/10/21

**PLEASE CIRCLE ALL PERMIT VIOLATIONS**

**Due Date:** Monthly report is due by the 15th each month.



King County

# Industrial Waste Program Monthly Self-Monitoring Report

Send to: King County Industrial Waste Program  
201 S. Jackson Street, Suite 513  
Seattle, WA 98104-3855  
Phone 206-477-5300 / FAX 206-263-3001  
Email: [info.KCIW@kingcounty.gov](mailto:info.KCIW@kingcounty.gov)

Company Name: 12th & Yesler Venture, LLC - 12th & Yesler

Sample Site No. IW1488A

Permit/DA No.: 4544-01

Please Specify Month & Year: Month: December 2021

This form is available at [www.kingcounty.gov/industrialwaste](http://www.kingcounty.gov/industrialwaste).

Sample Date (circle)	Grab pH (s.u.) LIMITS 5.0/12.0	Settleable solids (m/L) LIMIT 7.0	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1,2-Tri- Chloroethylene [TCE] (µg/L)	1,2- Dichloroethane (µg/L)	Tetra- Chloroethylene [PCE] (µg/L)	Vinyl Chloride	Discharge Flow Rate (gpm) LIMIT 290	Daily Flow (GPD) Industrial LIMIT 270,000	Notes (indicate Batch Discharge where applicable)
1		<1									.80	2936	Meter stopped working
2		<1									36.61	11088	
3		<1									0.00	5310	
4													
5													
6											0.00	0	
7			<.35	<1	<1	<2	<.5	<.2	<1	<.02	0.00	0	
8											0.00	0	
9											0.00	0	
10											0.00	0	
11													
12													
13		<1									5.32	8567	
14		<1									5.65	8595	
15													
16	8.26	<1									3.60	16423	
17		<1									3.64	5143	
18													
19													
20		<1									3.31	10485	
21		<1									0.90	1865	
22		<1									7.17	10849	
23		<1									18.83	20092	
24													
25													
26													
27													
28		<1									3.97	7255	
29													
30													
31													
pH <u>8.26</u> & Date <u>12/16</u>											Total Monthly Flow (gallons)	<u>155691</u>	Signature of Principal Executive or Authorized Agent  <i>Galeb Vasquez</i> Date <u>1/13/22</u>
											Maximum Daily Flow	<u>20092</u>	

PLEASE CIRCLE ALL PERMIT VIOLATIONS

**Due Date:** Monthly report is due by the 15th each month.



King County

# Industrial Waste Program Monthly Self-Monitoring Report

Send to: King County Industrial Waste Program  
201 S. Jackson Street, Suite 513  
Seattle, WA 98104-3855  
Phone 206-477-5300 / FAX 206-263-3001  
Email: [info.KCIW@kingcounty.gov](mailto:info.KCIW@kingcounty.gov)

Company Name: 12th & Yesler Venture, LLC - 12th & Yesler

Sample Site No. IW1488A

Permit/DA No.: 4544-01

Please Specify Month & Year: Month: January 2022

This form is available at [www.kingcounty.gov/industrialwaste](http://www.kingcounty.gov/industrialwaste).

Sample Date (circle)	Grab pH (s.u.) LIMITS 5.0/12.0	Settleable solids (m/L) LIMIT 7.0	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1,2-Tri- Chloroethylene [TCE] (µg/L)	1,2- Dichloroethane (µg/L)	Tetra- Chloroethylene [PCE] (µg/L)	Vinyl Chloride	Discharge Flow Rate (gpm) LIMIT 290	Daily Flow (GPD) Industrial LIMIT 270,000	Notes (indicate Batch Discharge where applicable)	
1													<p>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.</p> <p style="text-align: right;"><i>Galeb Pasquoz</i> Signature of Principal Executive or Authorized Agent</p>	
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12		<1									14.19			
13		<1									9.30	14703		
14	8.42	<1									7.84	7664		
15														
16														
17		<1									6.40	20832		
18		<1	<.35	<1	<1	<2	<.5	<.2	<1	<.02	3.12	5945		
19		<1									3.13	4884		
20		<1									3.91	5156		
21		<1									3.46	6210		
22		<1												
23														
24		<1									6.60	16102		
25		<1									9.08	5620		
26		<1									2.16	10015		
27		<1									2.59	4214		
28		<1									4.02	3770		
29														
30														
31		<1									6.05	9152		
pH		8.42		& Date		1/14/22	Total Monthly Flow (gallons)					384781		
							Maximum Daily Flow					14703	& Date	1/13/2022

PLEASE CIRCLE ALL PERMIT VIOLATIONS

**Due Date:** Monthly report is due by the 15th each month.



King County

# Industrial Waste Program Monthly Self-Monitoring Report

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201 S. Jackson Street, Suite 513  
Seattle, WA 98104-3855  
Phone 206-477-5300 / FAX 206-263-3001  
Email: [info.KCIW@kingcounty.gov](mailto:info.KCIW@kingcounty.gov)

Company Name: 12th & Yesler Venture, LLC - 12th & Yesler

Sample Site No. IW1488A

Permit/DA No.: 4544-01

Please Specify Month & Year: Month: February 2022

This form is available at [www.kingcounty.gov/industrialwaste](http://www.kingcounty.gov/industrialwaste).

Sample Date (circle)	Grab pH (s.u.) LIMITS 5.0/12.0	Settleable solids (m/L) LIMIT 7.0	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1,2-Tri- Chloroethylene [TCE] (µg/L)	1,2- Dichloroethane (µg/L)	Tetra- Chloroethylene [PCE] (µg/L)	Vinyl Chloride	Discharge Flow Rate (gpm) LIMIT 290	Daily Flow (GPD) Industrial LIMIT 270,000	Notes (indicate Batch Discharge where applicable)
1		<1									3.56	15078	<p>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.</p> <p style="text-align: right;"><i>Galeb Pasquez</i> Signature of Principal Executive or Authorized Agent</p>
2		<1									3.97	5412	
3		<1									3.54	5228	
4		<1									28.40	6728	
5													
6													
7		<1									3.48	13653	
8													
9		<1									3.17	8383	
10		<1									2.67	3805	
11		<1									2.39	3810	
12													
13													
14		<1									2.64	15088	
15	8.41	<1									2.69	4572	
16		<1									2.23	10324	
17		<1									2.21	4279	
18		<1	<0.35	<1	<1	<2	<0.5	<0.2	<1	<0.02	2.46	4533	
19													
20													
21		<1									3.38	14235	
22												8121	
23		<1									3.19	4785	
24		<1									2.46	4239	
25													
26													
27													
28		<1									94.42	53307	
29													
30													
31													

pH 8.41 & Date 02/15/2022

Total Monthly Flow (gallons) 169833

Maximum Daily Flow 53307

& Date 02/28/2022

PLEASE CIRCLE ALL PERMIT VIOLATIONS

**Due Date:** Monthly report is due by the 15th each month.

03/01/22

Date

*Galeb Pasquez*

Signature of Principal Executive or Authorized Agent



King County

# Industrial Waste Program Monthly Self-Monitoring Report

Send to: King County Industrial Waste Program  
201 S. Jackson Street, Suite 513  
Seattle, WA 98104-3855  
Phone 206-477-5300 / FAX 206-263-3001  
Email: [info.KCIW@kingcounty.gov](mailto:info.KCIW@kingcounty.gov)

Company Name: 12th & Yesler Venture, LLC - 12th & Yesler

Sample Site No. IW1488A

Permit/DA No.: 4544-01

Please Specify Month & Year: Month: March 2022

This form is available at [www.kingcounty.gov/industrialwaste](http://www.kingcounty.gov/industrialwaste).

Sample Date (circle)	Grab pH (s.u.) LIMITS 5.0/12.0	Settleable solids (m/L) LIMIT 7.0	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1,2-Tri- Chloroethylene [TCE] (µg/L)	1,2- Dichloroethane (µg/L)	Tetra- Chloroethylene [PCE] (µg/L)	Vinyl Chloride	Discharge Flow Rate (gpm) LIMIT 290	Daily Flow (GPD) Industrial LIMIT 270,000	Notes (indicate Batch Discharge where applicable)
1		<1									14.78	45917	
2		<1									5.47	10689	
3		<1									10.85	6457	
4													
5													
6													
7													
8		<1									5.27	28179	
9		<1									8.67	12002	
10		<1									7.48	5201	
11		<1	<0.35	<1	<1	<2	<0.5	<0.2	<1	<0.02	2.34	6014	
12													
13													
14		<1									1.30	9257	
15	8.32	<1									1.74	3546	
16		<1									4.11	4114	
17		<1									2.43	3858	
18		<1									2.40	4856	
19													
20													
21		<1									16.60	16430	
22		<1									2.73	4675	
23		<1									39.70	8931	
24		<1									4.46	44518	
25													
26													
27													
28		<1									3.25	17386	
29		<1									3.91	4342	
30		<1									3.45	5662	
31		<1									3.29	6320	
											Total Monthly Flow (gallons)	202387	
											Maximum Daily Flow	44518	& Date <u>3/24/22</u>

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

04/15/22

*Galeb Vasquez*

Signature of Principal Executive or Authorized Agent

Date

PLEASE CIRCLE ALL PERMIT VIOLATIONS

**Due Date:** Monthly report is due by the 15th each month.



King County

# Industrial Waste Program Monthly Self-Monitoring Report

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201 S. Jackson Street, Suite 513  
Seattle, WA 98104-3855  
Phone 206-477-5300 / FAX 206-263-3001  
Email: [info.KCIW@kingcounty.gov](mailto:info.KCIW@kingcounty.gov)

Company Name: 12th & Yesler Venture, LLC - 12th & Yesler

Sample Site No. IW1488A

Permit/DA No.: 4544-01

Please Specify Month & Year: Month: April 2022

This form is available at [www.kingcounty.gov/industrialwaste](http://www.kingcounty.gov/industrialwaste).

Sample Date (circle)	Grab pH (s.u.) LIMITS 5.0/12.0	Settleable solids (m/L) LIMIT 7.0	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1,2-Tri- Chloroethylene [TCE] (µg/L)	1,2- Dichloroethane (µg/L)	Tetra- Chloroethylene [PCE] (µg/L)	Vinyl Chloride	Discharge Flow Rate (gpm) LIMIT 290	Daily Flow (GPD) Industrial LIMIT 270,000	Notes (indicate Batch Discharge where applicable)
1		<1									5.97	4801	
2													
3													
4		<1									9.38	14604	
5		<1									3.07	8616	
6		<1									9.50	8890	
7		<1									9.44	12731	
8		<1									9.34	14339	
9													
10													
11		<1	<0.35	<1	<1	<2	<0.5	<0.2	<1	<0.02	4.24	22854	
12		<1									0.00	4773	
13		<1									16.27	4069	
14													
15	8.33	<1									2.69	13379	
16													
17													
18		<1									0.00	14061	
19		<1									0.00	0	
20		<1									2.38	4524	
21		<1									1.84	1611	
22		<1									.94	2682	
23													
24		<1											
25		<1									0.00	4026	
26											1.23	305	
27											.29	352	
28											0.00	381	
29											.07	199	
30													
31													
pH <u>8.33</u> & Date <u>4/15/22</u>											Total Monthly Flow (gallons) <u>127388</u>		Signature of Principal Executive or Authorized Agent  <i>Caleb Vasquez</i>
											Maximum Daily Flow <u>14339</u> & Date <u>4/8/2022</u>		

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

5/16/22

Date

Signature of Principal Executive or Authorized Agent

PLEASE CIRCLE ALL PERMIT VIOLATIONS

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King County

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Seattle, WA 98104-3855  
Phone 206-477-5300 / FAX 206-263-3001  
Email: [info.KCIW@kingcounty.gov](mailto:info.KCIW@kingcounty.gov)

Company Name: 12th & Yesler Venture, LLC - 12th & Yesler

Sample Site No. IW1488A

Permit/DA No.: 4544-01

Please Specify Month & Year: Month: May 2022

This form is available at [www.kingcounty.gov/industrialwaste](http://www.kingcounty.gov/industrialwaste).

Sample Date (circle)	Grab pH (s.u.) LIMITS 5.0/12.0	Settleable solids (m/L) LIMIT 7.0	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1,2-Tri- Chloroethylene [TCE] (µg/L)	1,2- Dichloroethane (µg/L)	Tetra- Chloroethylene [PCE] (µg/L)	Vinyl Chloride	Discharge Flow Rate (gpm) LIMIT 290	Daily Flow (GPD) Industrial LIMIT 270,000	Notes (indicate Batch Discharge where applicable)
1													
2		<1									11.49	24935	
3		<1									10.25	16510	
4		<1									7.42	12866	
5		<1									2.21	7795	
6													
7													
8		<1									0.00	14607	
9		<1									8.40	14271	
10		<1									0.00	472	
11		<1	<0.35	<1	<1	<2	<0.5	<0.2	<1	<0.02	0.17	1040	
12		<1									0.18	883	
13													
14													
15	8.29	<1									25.94	9806	
16		<1									24.23	30074	
17		<1									4.99	11277	
18		<1									0.00	3034	
19		<1									0.00	0	
20													
21		<1											
22		<1									0.00	313	
23		<1									1.04	85	
24		<1									1.11	59	
25		<1									.25	100	
26													
27													
28		<1									0.00	127	
29													
30													
31													
pH <u>8.29</u> & Date <u>4/15/22</u>											Total Monthly Flow (gallons) <u>123349</u>		Signature of Principal Executive or Authorized Agent  <i>Caleb Pasquez</i> Date <u>4/13/22</u>
											Maximum Daily Flow <u>30074</u> & Date <u>5/16/2022</u>		

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

PLEASE CIRCLE ALL PERMIT VIOLATIONS

**Due Date:** Monthly report is due by the 15th each month.



King County

# Industrial Waste Program Monthly Self-Monitoring Report

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Seattle, WA 98104-3855  
Phone 206-477-5300 / FAX 206-263-3001  
Email: [info.KCIW@kingcounty.gov](mailto:info.KCIW@kingcounty.gov)

Company Name: 12th & Yesler Venture, LLC - 12th & Yesler

Sample Site No. IW1488A

Permit/DA No.: 4544-01

Please Specify Month & Year: Month: June 2022

This form is available at [www.kingcounty.gov/industrialwaste](http://www.kingcounty.gov/industrialwaste).

Sample Date (circle)	Grab pH (s.u.) LIMITS 5.0/12.0	Settleable solids (m/L) LIMIT 7.0	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	1,1,2-Tri- Chloroethylene [TCE] (µg/L)	1,2- Dichloroethane (µg/L)	Tetra- Chloroethylene [PCE] (µg/L)	Vinyl Chloride	Discharge Flow Rate (gpm) LIMIT 290	Daily Flow (GPD) Industrial LIMIT 270,000	Notes (indicate Batch Discharge where applicable)
1		<1									0.55	827	
2		<1									0.79	194	
3											1.12	2372	
4													
5													
6		<1									11.87	7586	
7		<1									10.82	5436	
8	8.35	<1									0.00	886	Decomissioned
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													
31													

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

7/21/22

Galeb Vasquez

Signature of Principal Executive or Authorized Agent

Date

pH 8.35 & Date 6/8/22

Total Monthly Flow (gallons) 79610  
Maximum Daily Flow 7589 & Date 6/6/2022

PLEASE CIRCLE ALL PERMIT VIOLATIONS

**Due Date:** Monthly report is due by the 15th each month.

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 1, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on June 22, 2021 from the 12th and Yesler Dewatering WES 1591, F&BI 106381 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  
WES0701R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 22, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler Dewatering WES 1591, F&BI 106381 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Whitman Environmental Sciences</u>
106381 -01	DW-6-22
106381 -02	DW-6-22-FOG 1
106381 -03	DW-6-22-FOG 2
106381 -04	DW-6-22-FOG 3

Sample DW-6-22 was sent to Fremont Analytical for cyanide analysis. The report is enclosed.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/01/21

Date Received: 06/22/21

Project: 12th and Yesler Dewatering WES 1591, F&BI 106381

Date Extracted: 06/24/21

Date Analyzed: 06/25/21

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR OIL AND GREASE USING EPA METHOD 1664**

Results Reported as mg/L (ppm)

Sample ID

Oil and Grease

Laboratory ID

DW-6-22-FOG Composite

<3

106381-02,,04

Method Blank

<3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DW-6-22	Client:	Whitman Environmental Sciences
Date Received:	06/22/21	Project:	12th and Yesler Dewatering
Date Extracted:	06/28/21	Lab ID:	106381-01
Date Analyzed:	06/28/21	Data File:	106381-01.047
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	7.77
Cadmium	<1
Chromium	12.0
Copper	<5
Lead	<1
Mercury	<1
Nickel	11.3
Silver	<1
Zinc	6.47

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	NA	Project:	12th and Yesler Dewatering
Date Extracted:	06/28/21	Lab ID:	I1-402 mb
Date Analyzed:	06/28/21	Data File:	I1-402 mb.039
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Mercury	<1
Nickel	<1
Silver	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	DW-6-22	Client:	Whitman Environmental Sciences
Date Received:	06/22/21	Project:	12th and Yesler Dewatering
Date Extracted:	06/24/21	Lab ID:	106381-01
Date Analyzed:	06/24/21	Data File:	062415.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	126 vo	85	117
Toluene-d8	108	88	112
4-Bromofluorobenzene	105	90	111

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.2
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Trichloroethene	<1
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler Dewatering
Date Extracted:	06/24/21	Lab ID:	01-1233 mb
Date Analyzed:	06/24/21	Data File:	062405.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	85	117
Toluene-d8	97	88	112
4-Bromofluorobenzene	99	90	111

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.2
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Trichloroethene	<1
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/01/21

Date Received: 06/22/21

Project: 12th and Yesler Dewatering WES 1591, F&BI 106381

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR OIL AND GREASE  
USING EPA METHOD 1664**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 11)
Oil and Grease	mg/L (ppm)	40	97	92	78-114	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/01/21

Date Received: 06/22/21

Project: 12th and Yesler Dewatering WES 1591, F&BI 106381

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

Laboratory Code: 106462-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.69	102	100	70-130	2
Cadmium	ug/L (ppb)	5	<1	101	102	70-130	1
Chromium	ug/L (ppb)	20	<1	97	96	70-130	1
Copper	ug/L (ppb)	20	<5	88	89	70-130	1
Lead	ug/L (ppb)	10	<1	91	91	70-130	0
Mercury	ug/L (ppb)	5	<1	95	96	70-130	1
Nickel	ug/L (ppb)	20	5.58	92	93	70-130	1
Silver	ug/L (ppb)	5	<1	97	98	70-130	1
Zinc	ug/L (ppb)	50	<5	84	85	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	102	85-115
Cadmium	ug/L (ppb)	5	102	85-115
Chromium	ug/L (ppb)	20	97	85-115
Copper	ug/L (ppb)	20	100	85-115
Lead	ug/L (ppb)	10	102	85-115
Mercury	ug/L (ppb)	5	102	85-115
Nickel	ug/L (ppb)	20	99	85-115
Silver	ug/L (ppb)	5	108	85-115
Zinc	ug/L (ppb)	50	93	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/01/21

Date Received: 06/22/21

Project: 12th and Yesler Dewatering WES 1591, F&BI 106381

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

Laboratory Code: 106413-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Vinyl chloride	ug/L (ppb)	10	<0.2	85	85	36-166	0
Acetone	ug/L (ppb)	50	<50	56	51	10-182	9
2-Butanone (MEK)	ug/L (ppb)	50	<20	79	75	10-129	5
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<1	94	91	48-149	3
Benzene	ug/L (ppb)	10	<0.35	93	89	57-135	4
Trichloroethene	ug/L (ppb)	10	<1	100	92	66-135	8
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	102	92	10-185	10
Toluene	ug/L (ppb)	10	<1	98	97	50-137	1
Tetrachloroethene	ug/L (ppb)	10	<1	104	100	10-226	4
Ethylbenzene	ug/L (ppb)	10	<1	102	99	60-133	3
m,p-Xylene	ug/L (ppb)	20	<2	103	98	69-135	5
o-Xylene	ug/L (ppb)	10	<1	100	98	60-140	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Vinyl chloride	ug/L (ppb)	10	89	92	50-154	3
Acetone	ug/L (ppb)	50	50	52	22-155	4
2-Butanone (MEK)	ug/L (ppb)	50	76	76	37-150	0
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	93	93	66-129	0
Benzene	ug/L (ppb)	10	92	92	69-134	0
Trichloroethene	ug/L (ppb)	10	95	96	67-133	1
4-Methyl-2-pentanone	ug/L (ppb)	50	92	91	65-138	1
Toluene	ug/L (ppb)	10	98	96	72-122	2
Tetrachloroethene	ug/L (ppb)	10	105	100	76-121	5
Ethylbenzene	ug/L (ppb)	10	100	97	77-124	3
m,p-Xylene	ug/L (ppb)	20	102	99	81-112	3
o-Xylene	ug/L (ppb)	10	101	98	81-121	3

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.





3600 Fremont Ave. N.  
Seattle, WA 98103  
T: (206) 352-3790  
F: (206) 352-7178  
info@fremontanalytical.com

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

**RE: 106381**  
**Work Order Number: 2106431**

June 29, 2021

**Attention Michael Erdahl:**

Fremont Analytical, Inc. received 1 sample(s) on 6/23/2021 for the analyses presented in the following report.

***Cyanide by SM 4500-CN C, E***

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,

Brianna Barnes  
Project Manager

*DoD-ELAP Accreditation #79636 by PJLA, ISO/IEC 17025:2017 and QSM 5.3 for Environmental Testing  
ORELAP Certification: WA 100009 (NELAP Recognized) for Environmental Testing  
Washington State Department of Ecology Accredited for Environmental Testing, Lab ID C910*

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Original

[www.fremontanalytical.com](http://www.fremontanalytical.com)



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**CLIENT:** Friedman & Bruya  
**Project:** 106381  
**Work Order:** 2106431

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**Work Order Sample Summary**

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Date/Time Collected</b>	<b>Date/Time Received</b>
2106431-001	DW-6-22	06/22/2021 12:48 PM	06/23/2021 1:26 PM

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

**CLIENT:** Friedman & Bruya  
**Project:** 106381

---

**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
- 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
- DUP - Sample Duplicate
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MCL - Maximum Contaminant Level
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- REP - Sample Replicate
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



**Client:** Friedman & Bruya

**Collection Date:** 6/22/2021 12:48:00 PM

**Project:** 106381

**Lab ID:** 2106431-001

**Matrix:** Water

**Client Sample ID:** DW-6-22

**Analyses**

**Result**

**RL**

**Qual**

**Units**

**DF**

**Date Analyzed**

**Cyanide by SM 4500-CN C, E**

Batch ID: 32803

Analyst: LB

Cyanide, Total

ND

0.0500

mg/L

1

6/29/2021 11:28:00 AM

Work Order: 2106431  
 CLIENT: Friedman & Bruya  
 Project: 106381

**QC SUMMARY REPORT**  
**Cyanide by SM 4500-CN C, E**

Sample ID: <b>MB-32803</b>	SampType: <b>MBLK</b>	Units: <b>mg/L</b>	Prep Date: <b>6/28/2021</b>	RunNo: <b>68279</b>							
Client ID: <b>MBLKW</b>	Batch ID: <b>32803</b>		Analysis Date: <b>6/29/2021</b>	SeqNo: <b>1378812</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Cyanide, Total ND 0.0500

Sample ID: <b>LCS-32803</b>	SampType: <b>LCS</b>	Units: <b>mg/L</b>	Prep Date: <b>6/28/2021</b>	RunNo: <b>68279</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>32803</b>		Analysis Date: <b>6/29/2021</b>	SeqNo: <b>1378813</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Cyanide, Total 0.289 0.0500 0.2500 0 116 77.6 124

Sample ID: <b>2106419-001ADUP</b>	SampType: <b>DUP</b>	Units: <b>mg/L</b>	Prep Date: <b>6/28/2021</b>	RunNo: <b>68279</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>32803</b>		Analysis Date: <b>6/29/2021</b>	SeqNo: <b>1378815</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Cyanide, Total ND 0.0500 0 20

Sample ID: <b>2106419-001AMS</b>	SampType: <b>MS</b>	Units: <b>mg/L</b>	Prep Date: <b>6/28/2021</b>	RunNo: <b>68279</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>32803</b>		Analysis Date: <b>6/29/2021</b>	SeqNo: <b>1378816</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Cyanide, Total 0.272 0.0500 0.2500 0.03220 96.1 56 140

Sample ID: <b>2106419-001AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/L</b>	Prep Date: <b>6/28/2021</b>	RunNo: <b>68279</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>32803</b>		Analysis Date: <b>6/29/2021</b>	SeqNo: <b>1378817</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Cyanide, Total 0.291 0.0500 0.2500 0.03220 103 56 140 0.2725 6.43 30

Client Name: <b>FB</b>	Work Order Number: <b>2106431</b>
Logged by: <b>Gabrielle Coeuille</b>	Date Received: <b>6/23/2021 1:26:00 PM</b>

### Chain of Custody

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

### 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 Present
6. Was an attempt made to cool the samples?      Yes       No       NA
7. Were all items received at a temperature of >2°C to 6°C \*      Yes       No       NA
8. Sample(s) in proper container(s)?      Yes       No
9. Sufficient sample volume for indicated test(s)?      Yes       No
10. Are samples properly preserved?      Yes       No
11. Was preservative added to bottles?      Yes       No       NA
12. Is there headspace in the VOA vials?      Yes       No       NA
13. Did all samples containers arrive in good condition(unbroken)?      Yes       No
14. Does paperwork match bottle labels?      Yes       No
15. Are matrices correctly identified on Chain of Custody?      Yes       No
16. Is it clear what analyses were requested?      Yes       No
17. Were all holding times able to be met?      Yes       No

### Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

### Item Information

Item #	Temp °C
Sample 1	4.8

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



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

July 30, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on July 21, 2021 from the 12th and Yesler Dewatering WES-1591, F&BI 107351 project. There are 5 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  
WES0730R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 21, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler Dewatering WES-1591, F&BI 107351 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID  
107351 -01

Whitman Environmental Sciences  
DW-7-21

All quality control requirements were acceptable.

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	DW-7-21	Client:	Whitman Environmental Sciences
Date Received:	07/21/21	Project:	12th and Yesler Dewatering WES-1591
Date Extracted:	07/27/21	Lab ID:	107351-01
Date Analyzed:	07/27/21	Data File:	072719.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	86	113
Toluene-d8	97	88	114
4-Bromofluorobenzene	96	88	112

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.2
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Trichloroethene	<1
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler Dewatering WES-1591
Date Extracted:	07/27/21	Lab ID:	01-1702 mb
Date Analyzed:	07/27/21	Data File:	072708.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	86	113
Toluene-d8	97	88	114
4-Bromofluorobenzene	98	88	112

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.2
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Trichloroethene	<1
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/21

Date Received: 07/21/21

Project: 12th and Yesler Dewatering WES-1591, F&BI 107351

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

Laboratory Code: 107412-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Vinyl chloride	ug/L (ppb)	10	<0.2	89	36-166
Acetone	ug/L (ppb)	50	<50	58	10-182
2-Butanone (MEK)	ug/L (ppb)	50	<20	78	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<1	97	48-149
Benzene	ug/L (ppb)	10	<0.35	94	57-135
Trichloroethene	ug/L (ppb)	10	<1	96	66-135
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	100	10-185
Toluene	ug/L (ppb)	10	<1	95	50-137
Tetrachloroethene	ug/L (ppb)	10	<1	96	10-226
Ethylbenzene	ug/L (ppb)	10	<1	94	60-133
m,p-Xylene	ug/L (ppb)	20	<2	95	69-135
o-Xylene	ug/L (ppb)	10	<1	94	60-140

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	94	98	50-154	4
Acetone	ug/L (ppb)	50	60	57	22-155	5
2-Butanone (MEK)	ug/L (ppb)	50	77	68	37-150	12
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	98	97	66-129	1
Benzene	ug/L (ppb)	10	97	94	69-134	3
Trichloroethene	ug/L (ppb)	10	97	99	67-133	2
4-Methyl-2-pentanone	ug/L (ppb)	50	97	89	65-138	9
Toluene	ug/L (ppb)	10	96	94	72-122	2
Tetrachloroethene	ug/L (ppb)	10	95	94	76-121	1
Ethylbenzene	ug/L (ppb)	10	97	96	77-124	1
m,p-Xylene	ug/L (ppb)	20	98	97	81-112	1
o-Xylene	ug/L (ppb)	10	98	98	81-121	0

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

10234 (pp) 107351

SAMPLE CHAIN OF CUSTODY

ME 07/21/21

Page # \_\_\_\_\_ of \_\_\_\_\_ VV2

TURNAROUND TIME

- Standard turnaround
- RUSH
- Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

- Archive samples
- Other \_\_\_\_\_
- Default: Dispose after 30 days

SAMPLERS (signature) \_\_\_\_\_

PROJECT NAME \_\_\_\_\_

REMARKS \_\_\_\_\_

PO # \_\_\_\_\_

INVOICE TO \_\_\_\_\_

Project specific RI? - Yes / No \_\_\_\_\_

Report To: [Signature]

Company: WYMAN LOW STAINERS

Address: 5115 15th Ave NE

City, State, ZIP: Seattle, WA 98119

Phone: \_\_\_\_\_

Email: WYMAN@WYMAN.COM

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED						Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270		PCBs EPA 8082
<u>MD-7-R1</u>	<u>01A-C</u>	<u>7-21-21</u>	<u>1:00</u>	<u>3</u>									<u>Short List VOCs</u>
													<u>See attached</u>
													<u>P/DW 7/21/21 ME</u>
													<u>Samples received at 19</u>

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	<u>KNOI Hoang</u>	<u>FBI</u>	<u>7-21-21</u>	<u>3:52</u>
<u>[Signature]</u>				
Received by:				
Relinquished by:				

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 27, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on August 24, 2021 from the 12th and Yesler WES 1591, F&BI 108379 project. There are 5 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  
WES0827R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 24, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler WES 1591, F&BI 108379 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID

108379 -01

Whitman Environmental Sciences

DW-8-24

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	DW-8-24	Client:	Whitman Environmental Sciences
Date Received:	08/24/21	Project:	12th and Yesler WES 1591
Date Extracted:	08/25/21	Lab ID:	108379-01
Date Analyzed:	08/25/21	Data File:	082523.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	86	113
Toluene-d8	96	88	114
4-Bromofluorobenzene	99	88	112

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.2
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Trichloroethene	<1
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler WES 1591
Date Extracted:	08/25/21	Lab ID:	01-1862 mb
Date Analyzed:	08/25/21	Data File:	082507.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	86	113
Toluene-d8	98	88	114
4-Bromofluorobenzene	97	88	112

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.2
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Trichloroethene	<1
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/27/21

Date Received: 08/24/21

Project: 12th and Yesler WES 1591, F&BI 108379

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

Laboratory Code: 108379-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Vinyl chloride	ug/L (ppb)	10	<0.2	90	36-166
Bromomethane	ug/L (ppb)	10	<5	126	47-169
Acetone	ug/L (ppb)	50	<50	42	10-182
2-Butanone (MEK)	ug/L (ppb)	50	<20	63	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<1	94	48-149
Benzene	ug/L (ppb)	10	<0.35	93	57-135
Trichloroethene	ug/L (ppb)	10	<1	92	66-135
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	98	10-185
Toluene	ug/L (ppb)	10	<1	95	50-137
Tetrachloroethene	ug/L (ppb)	10	<1	98	10-226
Ethylbenzene	ug/L (ppb)	10	<1	95	60-133
m,p-Xylene	ug/L (ppb)	20	<2	97	69-135
o-Xylene	ug/L (ppb)	10	<1	95	60-140

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	94	95	50-154	1
Bromomethane	ug/L (ppb)	10	127	136	55-143	7
Acetone	ug/L (ppb)	50	44	44	22-155	0
2-Butanone (MEK)	ug/L (ppb)	50	65	66	37-150	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	95	95	66-129	0
Benzene	ug/L (ppb)	10	95	96	69-134	1
Trichloroethene	ug/L (ppb)	10	92	94	67-133	2
4-Methyl-2-pentanone	ug/L (ppb)	50	103	105	65-138	2
Toluene	ug/L (ppb)	10	96	97	72-122	1
Tetrachloroethene	ug/L (ppb)	10	101	101	76-121	0
Ethylbenzene	ug/L (ppb)	10	98	97	77-124	1
m,p-Xylene	ug/L (ppb)	20	100	100	81-112	0
o-Xylene	ug/L (ppb)	10	97	97	81-121	0

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.



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, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on September 30, 2021 from the 12th+Yesler Dewatering WES1591, F&BI 109594 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  
WES1008R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 30, 2020 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th+Yesler Dewatering WES1591, F&BI 109594 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID  
109594 -01

Whitman Environmental Sciences  
DW-9-21

The dissolved metals samples were filtered at Friedman and Bruya. The data were flagged accordingly.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	DW-9-21 f	Client:	Whitman Environmental Sciences
Date Received:	09/30/21	Project:	12th+Yesler Dewatering WES1591
Date Extracted:	10/04/21	Lab ID:	109594-01
Date Analyzed:	10/04/21	Data File:	109594-01.077
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	5.67
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank f	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th+Yesler Dewatering WES1591
Date Extracted:	10/04/21	Lab ID:	I1-621 mb
Date Analyzed:	10/04/21	Data File:	I1-621 mb.055
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	<1
---------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	DW-9-21	Client:	Whitman Environmental Sciences
Date Received:	09/30/21	Project:	12th+Yesler Dewatering WES1591
Date Extracted:	10/04/21	Lab ID:	109594-01
Date Analyzed:	10/04/21	Data File:	100416.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	98	88	112
4-Bromofluorobenzene	98	90	111

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.2
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Trichloroethene	<1
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th+Yesler Dewatering WES1591
Date Extracted:	10/04/21	Lab ID:	01-2216 mb
Date Analyzed:	10/05/21	Data File:	100518.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	85	117
Toluene-d8	100	88	112
4-Bromofluorobenzene	101	90	111

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.2
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Trichloroethene	<1
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/08/21

Date Received: 09/30/21

Project: 12th+Yesler Dewatering WES1591, F&BI 109594

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	95	92	80-120	3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/08/21

Date Received: 09/30/21

Project: 12th+Yesler Dewatering WES1591, F&BI 109594

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

Laboratory Code: 110023-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Vinyl chloride	ug/L (ppb)	10	<0.02	100	16-176
Acetone	ug/L (ppb)	50	<50	77	15-179
2-Butanone (MEK)	ug/L (ppb)	50	<20	95	34-168
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	98	50-150
Benzene	ug/L (ppb)	10	<0.35	95	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	93	43-133
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	104	50-150
Toluene	ug/L (ppb)	10	<1	92	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	94	50-150
Ethylbenzene	ug/L (ppb)	10	<1	94	50-150
m,p-Xylene	ug/L (ppb)	20	<2	96	50-150
o-Xylene	ug/L (ppb)	10	<1	93	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	103	97	70-130	6
Acetone	ug/L (ppb)	50	71	67	42-155	6
2-Butanone (MEK)	ug/L (ppb)	50	82	81	50-157	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	95	95	70-130	0
Benzene	ug/L (ppb)	10	93	93	70-130	0
Trichloroethene	ug/L (ppb)	10	89	90	70-130	1
4-Methyl-2-pentanone	ug/L (ppb)	50	106	102	70-130	4
Toluene	ug/L (ppb)	10	91	91	70-130	0
Tetrachloroethene	ug/L (ppb)	10	91	93	70-130	2
Ethylbenzene	ug/L (ppb)	10	94	94	70-130	0
m,p-Xylene	ug/L (ppb)	20	96	96	70-130	0
o-Xylene	ug/L (ppb)	10	94	94	70-130	0

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

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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.

109594

Report To *[Signature]*

Company *[Signature]*

Address *[Signature]*

City, State, ZIP *[Signature]*

Phone *[Signature]*

SAMPLERS (signature)		PROJECT NAME <i>[Signature]</i>	PO # <i>1591</i>
REMARKS <i>[Signature]</i>		INVOICE TO	
Project specific RIs? - Yes / No		ANALYSES REQUESTED	
<input checked="" type="checkbox"/> Standard turnaround <input type="checkbox"/> RUSH Rush charges authorized by:		<input type="checkbox"/> Archival samples <input type="checkbox"/> Other Default: Dispose after 30 days	

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	
<i>200-9-81</i>	<i>01A-D</i>	<i>9-28-81</i>	<i>9:10</i>	<i>water</i>	<i>4</i>					<i>X</i>			<i>Not Filtered</i>
													<i>OR RECOVERED</i>
													<i>* project spike</i>
													<i>list of Vol's per</i>
													<i>DV 10/11/21 ME</i>

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

Requished by:	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Received by:	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>9-30-81</i>	<i>5:27</i>
Requished by:		<i>Eric Down</i>	<i>FRB</i>	<i>9/30</i>	<i>1725</i>
Received by:					

Samples received at *1* of *0*

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 29, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on October 25, 2021 from the 12th + Yesler WES-1591, F&BI 110476 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  
WES1029R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 25, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th + Yesler WES-1591, F&BI 110476 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID

110476 -01

Whitman Environmental Sciences

DW-10-24

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	DW-10-24	Client:	Whitman Environmental Sciences
Date Received:	10/25/21	Project:	12th + Yesler WES-1591
Date Extracted:	10/27/21	Lab ID:	110476-01
Date Analyzed:	10/27/21	Data File:	110476-01.157
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	10.8
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th + Yesler WES-1591
Date Extracted:	10/27/21	Lab ID:	I1-690 mb
Date Analyzed:	10/27/21	Data File:	I1-690 mb.101
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	<1
---------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	DW-10-24	Client:	Whitman Environmental Sciences
Date Received:	10/25/21	Project:	12th + Yesler WES-1591
Date Extracted:	10/26/21	Lab ID:	110476-01
Date Analyzed:	10/26/21	Data File:	102609.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	113	85	117
Toluene-d8	98	88	112
4-Bromofluorobenzene	97	90	111

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th + Yesler WES-1591
Date Extracted:	10/26/21	Lab ID:	01-2399 mb
Date Analyzed:	10/26/21	Data File:	102607.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	85	117
Toluene-d8	98	88	112
4-Bromofluorobenzene	95	90	111

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/29/21

Date Received: 10/25/21

Project: 12th + Yesler WES-1591, F&BI 110476

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 110468-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.16	98	100	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	89	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/29/21

Date Received: 10/25/21

Project: 12th + Yesler WES-1591, F&BI 110476

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

Laboratory Code: 110476-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Vinyl chloride	ug/L (ppb)	10	<0.02	93	16-176
Acetone	ug/L (ppb)	50	<50	54	15-179
2-Butanone (MEK)	ug/L (ppb)	50	<20	92	34-168
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	103	50-150
Benzene	ug/L (ppb)	10	<0.35	99	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	98	43-133
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	106	50-150
Toluene	ug/L (ppb)	10	<1	107	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	99	50-150
Ethylbenzene	ug/L (ppb)	10	<1	99	50-150
m,p-Xylene	ug/L (ppb)	20	<2	103	50-150
o-Xylene	ug/L (ppb)	10	<1	101	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	93	92	70-130	1
Acetone	ug/L (ppb)	50	71	75	42-155	5
2-Butanone (MEK)	ug/L (ppb)	50	98	93	50-157	5
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	101	103	70-130	2
Benzene	ug/L (ppb)	10	98	99	70-130	1
Trichloroethene	ug/L (ppb)	10	93	96	70-130	3
4-Methyl-2-pentanone	ug/L (ppb)	50	98	99	70-130	1
Toluene	ug/L (ppb)	10	105	107	70-130	2
Tetrachloroethene	ug/L (ppb)	10	99	102	70-130	3
Ethylbenzene	ug/L (ppb)	10	97	99	70-130	2
m,p-Xylene	ug/L (ppb)	20	101	104	70-130	3
o-Xylene	ug/L (ppb)	10	99	102	70-130	3

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.



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

November 18, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on November 9, 2021 from the 12th + Yesler WES 1591, F&BI 111174 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  
WES1118R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 9, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th + Yesler WES 1591, F&BI 111174 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID

111174 -01

Whitman Environmental Sciences

DW-11-4

Acetone failed below the acceptance criteria in the matrix spike sample. 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.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	DW-11-4	Client:	Whitman Environmental Sciences
Date Received:	11/09/21	Project:	12th + Yesler WES 1591, F&BI
	111174		
Date Extracted:	11/11/21	Lab ID:	111174-01 x10
Date Analyzed:	11/12/21	Data File:	111174-01 x10.102
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	16.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th + Yesler WES 1591, F&BI
111174			
Date Extracted:	11/11/21	Lab ID:	I1-739 mb
Date Analyzed:	11/11/21	Data File:	I1-739 mb.096
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	DW-11-4	Client:	Whitman Environmental Sciences
Date Received:	11/09/21	Project:	12th + Yesler WES 1591, F&BI
	111174		
Date Extracted:	11/11/21	Lab ID:	111174-01
Date Analyzed:	11/11/21	Data File:	111117.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	78	126
Toluene-d8	100	87	115
4-Bromofluorobenzene	102	92	112

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	21
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th + Yesler WES 1591, F&BI
111174			
Date Extracted:	11/11/21	Lab ID:	01-2574 mb
Date Analyzed:	11/11/21	Data File:	111107.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	78	126
Toluene-d8	96	87	115
4-Bromofluorobenzene	100	92	112

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/18/21

Date Received: 11/09/21

Project: 12th + Yesler WES 1591, F&BI 111174

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 111150-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	2.06	88	92	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	91	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/18/21

Date Received: 11/09/21

Project: 12th + Yesler WES 1591, F&BI 111174

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

Laboratory Code: 111168-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Vinyl chloride	ug/L (ppb)	10	<0.02	128	50-150
Acetone	ug/L (ppb)	50	<50	38 vo	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	70	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	108	50-150
Benzene	ug/L (ppb)	10	<0.35	95	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	97	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	95	50-150
Toluene	ug/L (ppb)	10	<1	93	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	91	50-150
Ethylbenzene	ug/L (ppb)	10	<1	93	50-150
m,p-Xylene	ug/L (ppb)	20	<2	96	50-150
o-Xylene	ug/L (ppb)	10	<1	99	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	116	121	70-130	4
Acetone	ug/L (ppb)	50	42	42	10-140	0
2-Butanone (MEK)	ug/L (ppb)	50	72	73	17-154	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	114	112	70-130	2
Benzene	ug/L (ppb)	10	99	98	70-130	1
Trichloroethene	ug/L (ppb)	10	98	96	70-130	2
4-Methyl-2-pentanone	ug/L (ppb)	50	93	90	68-130	3
Toluene	ug/L (ppb)	10	98	98	70-130	0
Tetrachloroethene	ug/L (ppb)	10	94	92	70-130	2
Ethylbenzene	ug/L (ppb)	10	95	94	70-130	1
m,p-Xylene	ug/L (ppb)	20	97	96	70-130	1
o-Xylene	ug/L (ppb)	10	99	98	70-130	1

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

11174

SAMPLE CHAIN OF CUSTODY

ME 11-09-21

Page # of ATZ

Report To [Signature]  
 Company [Signature]  
 Address 5815 15th Ave SE  
 City, State, ZIP Seattle, WA 98119-2029  
 Phone \_\_\_\_\_ Email \_\_\_\_\_

SAMPLERS (signature) \_\_\_\_\_

PROJECT NAME \_\_\_\_\_ PO # 065

REMARKS SR 7/14/2008 INVOICE TO 15791

Project Specific PIs - Yes / No \_\_\_\_\_

TURNAROUND TIME W1

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							Notes		
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082				
<u>200-11-4</u>	<u>01AD</u>	<u>11/9/21</u>	<u>2:30pm</u>	<u>Water</u>	<u>4</u>				<input checked="" type="checkbox"/>						<u>SHORT LIST OF VOC'S FOR FINDS</u>
															<u>FOR FINDS</u>
															<u>LABORATORY</u>

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	<u>Khol Hoang</u>	<u>FBI</u>	<u>11/9/21</u>	<u>3:32</u>
<u>[Signature]</u>	<u>Khol Hoang</u>	<u>FBI</u>	<u>11/9/21</u>	<u>15:32</u>

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

December 16, 2021

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on December 7, 2021 from the 12th Yesler Dewatering WES-1591, F&BI 112114 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  
WES1216R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on December 7, 2021 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th Yesler Dewatering WES-1591, F&BI 112114 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID  
112114 -01

Whitman Environmental Sciences  
DW-12-4

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	DW-12-4	Client:	Whitman Environmental Sciences
Date Received:	12/07/21	Project:	12th Yesler Dewatering WES-1591
Date Extracted:	12/10/21	Lab ID:	112114-01
Date Analyzed:	12/10/21	Data File:	112114-01.068
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	13.6
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th Yesler Dewatering WES-1591
Date Extracted:	12/10/21	Lab ID:	I1-822 mb
Date Analyzed:	12/10/21	Data File:	I1-822 mb.050
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	<1
---------	----

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	DW-12-4	Client:	Whitman Environmental Sciences
Date Received:	12/07/21	Project:	12th Yesler Dewatering WES-1591
Date Extracted:	12/08/21	Lab ID:	112114-01
Date Analyzed:	12/08/21	Data File:	120815.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	110	85	117
Toluene-d8	99	88	112
4-Bromofluorobenzene	100	90	111

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th Yesler Dewatering WES-1591
Date Extracted:	12/08/21	Lab ID:	01-2780 mb
Date Analyzed:	12/08/21	Data File:	120807.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	100	88	112
4-Bromofluorobenzene	100	90	111

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/16/21

Date Received: 12/07/21

Project: 12th Yesler Dewatering WES-1591, F&BI 112114

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 112158-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.91	98	99	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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/16/21

Date Received: 12/07/21

Project: 12th Yesler Dewatering WES-1591, F&BI 112114

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

Laboratory Code: 112116-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Vinyl chloride	ug/L (ppb)	10	<0.02	111	16-176
Acetone	ug/L (ppb)	50	<50	100	15-179
2-Butanone (MEK)	ug/L (ppb)	50	<20	114	34-168
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	102	50-150
Benzene	ug/L (ppb)	10	<0.35	100	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	95	43-133
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	112	50-150
Toluene	ug/L (ppb)	10	<1	100	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	97	50-150
Ethylbenzene	ug/L (ppb)	10	<1	99	50-150
m,p-Xylene	ug/L (ppb)	20	<2	99	50-150
o-Xylene	ug/L (ppb)	10	<1	98	50-150
Naphthalene	ug/L (ppb)	10	<1	97	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	109	106	70-130	3
Acetone	ug/L (ppb)	50	90	91	42-155	1
2-Butanone (MEK)	ug/L (ppb)	50	112	89	50-157	23 vo
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	102	99	70-130	3
Benzene	ug/L (ppb)	10	101	97	70-130	4
Trichloroethene	ug/L (ppb)	10	95	93	70-130	2
4-Methyl-2-pentanone	ug/L (ppb)	50	104	100	70-130	4
Toluene	ug/L (ppb)	10	100	98	70-130	2
Tetrachloroethene	ug/L (ppb)	10	100	98	70-130	2
Ethylbenzene	ug/L (ppb)	10	101	99	70-130	2
m,p-Xylene	ug/L (ppb)	20	101	99	70-130	2
o-Xylene	ug/L (ppb)	10	99	97	70-130	2

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

January 25, 2022

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on January 18, 2022 from the 12th Yesler Dewatering WES 1591, F&BI 201244 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  
WES0125R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on January 18, 2022 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th Yesler Dewatering WES 1591, F&BI 201244 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID  
201244 -01

Whitman Environmental Sciences  
DW-1-17

The dissolved metals samples were filtered at Friedman and January 19, 2022 at 07:39. The data were flagged accordingly.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	DW-1-17 f	Client:	Whitman Environmental Sciences
Date Received:	01/18/22	Project:	12th Yesler Dewatering WES 1591
Date Extracted:	01/20/22	Lab ID:	201244-01
Date Analyzed:	01/20/22	Data File:	201244-01.039
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	8.92
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank f	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th Yesler Dewatering WES 1591
Date Extracted:	01/20/22	Lab ID:	I2-42 mb
Date Analyzed:	01/20/22	Data File:	I2-42 mb.037
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	DW-1-17	Client:	Whitman Environmental Sciences
Date Received:	01/18/22	Project:	12th Yesler Dewatering WES 1591
Date Extracted:	01/19/22	Lab ID:	201244-01
Date Analyzed:	01/19/22	Data File:	011911.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	85	117
Toluene-d8	94	88	112
4-Bromofluorobenzene	103	90	111

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th Yesler Dewatering WES 1591
Date Extracted:	01/19/22	Lab ID:	02-0124 mb
Date Analyzed:	01/19/22	Data File:	011907.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	110	85	117
Toluene-d8	93	88	112
4-Bromofluorobenzene	102	90	111

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
cis-1,2-Dichloroethene	<1
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/25/22

Date Received: 01/18/22

Project: 12th Yesler Dewatering WES 1591, F&BI 201244

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 201244-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	8.92	119	113	75-125	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	88	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/25/22

Date Received: 01/18/22

Project: 12th Yesler Dewatering WES 1591, F&BI 201244

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

Laboratory Code: 201244-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Vinyl chloride	ug/L (ppb)	10	<0.02	100	16-176
Acetone	ug/L (ppb)	50	<50	88	15-179
2-Butanone (MEK)	ug/L (ppb)	50	<20	102	34-168
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	102	50-150
Benzene	ug/L (ppb)	10	<0.35	101	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	94	43-133
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	107	50-150
Toluene	ug/L (ppb)	10	<1	107	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	99	50-150
Ethylbenzene	ug/L (ppb)	10	<1	107	50-150
m,p-Xylene	ug/L (ppb)	20	<2	112	50-150
o-Xylene	ug/L (ppb)	10	<1	106	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCS D		
Vinyl chloride	ug/L (ppb)	10	105	96	70-130	9
Acetone	ug/L (ppb)	50	98	80	42-155	20
2-Butanone (MEK)	ug/L (ppb)	50	95	96	50-157	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	106	96	70-130	10
Benzene	ug/L (ppb)	10	104	96	70-130	8
Trichloroethene	ug/L (ppb)	10	97	88	70-130	10
4-Methyl-2-pentanone	ug/L (ppb)	50	101	85	70-130	17
Toluene	ug/L (ppb)	10	107	107	70-130	0
Tetrachloroethene	ug/L (ppb)	10	102	101	70-130	1
Ethylbenzene	ug/L (ppb)	10	106	106	70-130	0
m,p-Xylene	ug/L (ppb)	20	112	113	70-130	1
o-Xylene	ug/L (ppb)	10	105	106	70-130	1

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

February 25, 2022

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on February 18, 2022 from the 12th and Yesler Dewatering WES-1591, F&BI 202369 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  
WES0225R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 18, 2022 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler Dewatering WES-1591, F&BI 202369 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID  
202369 -01

Whitman Environmental Sciences  
DW-2-15

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DW-2-15	Client:	Whitman Environmental Sciences
Date Received:	02/18/22	Project:	12th and Yesler Dewatering WES-1591
Date Extracted:	02/22/22	Lab ID:	202369-01
Date Analyzed:	02/22/22	Data File:	202369-01.057
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	10.5
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler Dewatering WES-1591
Date Extracted:	02/22/22	Lab ID:	I2-138 mb2
Date Analyzed:	02/22/22	Data File:	I2-138 mb2.041
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	DW-2-15	Client:	Whitman Environmental Sciences
Date Received:	02/18/22	Project:	12th and Yesler Dewatering WES-1591
Date Extracted:	02/21/22	Lab ID:	202369-01
Date Analyzed:	02/21/22	Data File:	022120.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	120	78	126
Toluene-d8	95	84	115
4-Bromofluorobenzene	93	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	12th and Yesler Dewatering WES-1591
Date Extracted:	02/21/22	Lab ID:	02-454 mb
Date Analyzed:	02/21/22	Data File:	022107.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	112	78	126
Toluene-d8	95	84	115
4-Bromofluorobenzene	94	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/25/22

Date Received: 02/18/22

Project: 12th and Yesler Dewatering WES-1591, F&BI 202369

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

Laboratory Code: 202323-01 x5 (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	65.8	50 b	61 b	70-130	20

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	91	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/25/22

Date Received: 02/18/22

Project: 12th and Yesler Dewatering WES-1591, F&BI 202369

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

Laboratory Code: 202368-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	
				Recovery MS	Acceptance Criteria
Vinyl chloride	ug/L (ppb)	10	0.60	95	50-150
Acetone	ug/L (ppb)	50	<50	87	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	97	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	110	50-150
Benzene	ug/L (ppb)	10	<0.35	95	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	105	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	103	50-150
Toluene	ug/L (ppb)	10	<1	104	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	112	50-150
Ethylbenzene	ug/L (ppb)	10	<1	96	50-150
m,p-Xylene	ug/L (ppb)	20	<2	102	50-150
o-Xylene	ug/L (ppb)	10	<1	96	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent		Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	94	95	70-130	1
Acetone	ug/L (ppb)	50	90	94	10-140	4
2-Butanone (MEK)	ug/L (ppb)	50	107	99	17-154	8
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	104	106	70-130	2
Benzene	ug/L (ppb)	10	89	93	70-130	4
Trichloroethene	ug/L (ppb)	10	100	103	70-130	3
4-Methyl-2-pentanone	ug/L (ppb)	50	104	108	68-130	4
Toluene	ug/L (ppb)	10	101	103	70-130	2
Tetrachloroethene	ug/L (ppb)	10	107	107	70-130	0
Ethylbenzene	ug/L (ppb)	10	93	95	70-130	2
m,p-Xylene	ug/L (ppb)	20	97	99	70-130	2
o-Xylene	ug/L (ppb)	10	94	96	70-130	2

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

March 18, 2022

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on March 11, 2022 from the 12th+Yesler Dewatering WES-1591, F&BI 203239 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  
WES0318R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 11, 2022 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th+Yesler Dewatering WES-1591, F&BI 203239 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID  
203239 -01

Whitman Environmental Sciences  
DW-3-9

The dissolved metals sample was filtered at Friedman and Bruya on March 14, 2022. The data were flagged accordingly.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	DW-3-9 f	Client:	Whitman Environmental Sciences
Date Received:	03/11/22	Project:	WES-1591, F&BI 203239
Date Extracted:	03/16/22	Lab ID:	203239-01
Date Analyzed:	03/16/22	Data File:	203239-01.115
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	13.0
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank f	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	WES-1591, F&BI 203239
Date Extracted:	03/16/22	Lab ID:	I2-206 mb
Date Analyzed:	03/16/22	Data File:	I2-206 mb.097
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	DW-3-9	Client:	Whitman Environmental Sciences
Date Received:	03/11/22	Project:	WES-1591, F&BI 203239
Date Extracted:	03/15/22	Lab ID:	203239-01
Date Analyzed:	03/15/22	Data File:	0315028.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	85	117
Toluene-d8	97	88	112
4-Bromofluorobenzene	98	90	111

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	WES-1591, F&BI 203239
Date Extracted:	03/14/22	Lab ID:	02-0649 mb
Date Analyzed:	03/14/22	Data File:	031408.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	89	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/22

Date Received: 03/11/22

Project: 12th+Yesler Dewatering WES-1591, F&BI 203239

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 203234-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	92	91	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	86	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/22

Date Received: 03/11/22

Project: 12th+Yesler Dewatering WES-1591, F&BI 203239

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

Laboratory Code: 203254-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Vinyl chloride	ug/L (ppb)	10	<0.02	85	50-150
Acetone	ug/L (ppb)	50	<50	80	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	87	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	107	50-150
Benzene	ug/L (ppb)	10	<0.35	89	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	101	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	98	50-150
Toluene	ug/L (ppb)	10	<1	101	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	119	50-150
Ethylbenzene	ug/L (ppb)	10	<1	92	50-150
m,p-Xylene	ug/L (ppb)	20	<2	99	50-150
o-Xylene	ug/L (ppb)	10	<1	94	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	86	85	70-130	1
Acetone	ug/L (ppb)	50	80	81	10-140	1
2-Butanone (MEK)	ug/L (ppb)	50	86	98	17-154	13
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	103	105	70-130	2
Benzene	ug/L (ppb)	10	88	90	70-130	2
Trichloroethene	ug/L (ppb)	10	101	102	70-130	1
4-Methyl-2-pentanone	ug/L (ppb)	50	99	98	68-130	1
Toluene	ug/L (ppb)	10	99	100	70-130	1
Tetrachloroethene	ug/L (ppb)	10	117	117	70-130	0
Ethylbenzene	ug/L (ppb)	10	91	92	70-130	1
m,p-Xylene	ug/L (ppb)	20	98	99	70-130	1
o-Xylene	ug/L (ppb)	10	94	95	70-130	1

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

203239

03.11.22

Page # of AIR3

Report To *[Signature]*

Company *DESMOND ENV. SERVICES*

Address *5512 LAUREL AVE*

City, State, ZIP *SEATTLE, WA 98115*

Phone *[Signature]*

SAMPLERS (signature)		PROJECT NAME		PO#	
<i>[Signature]</i>		<i>LAUREL + GESSLER</i>		<i>0085-1591</i>	
REMARKS		INVOICE TO			
<i>[Signature]</i>		<i>DESMOND</i>			
Protect specific RI.s? - Yes / No					

TURNAROUND TIME *WBS*

Standard turnaround  RUSH

Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL

Archive samples

Other \_\_\_\_\_

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	
<i>01A-3-9</i>	<i>01A-D</i>	<i>3-9-22</i>	<i>1:50</i>	<i>water</i>	<i>4</i>					<input checked="" type="checkbox"/>	<i>Special</i>	<i>Sheet</i>	
												<i>King Camp</i>	
												<i>1st of</i>	
												<i>10/15</i>	

Friedman & Bruya, Inc.  
Ph. (206) 285-8282

SIGNATURE		PRINT NAME		COMPANY		DATE		TIME	
<i>[Signature]</i>		<i>Tara Christensen</i>		<i>DES</i>		<i>3-11-22</i>		<i>1:57</i>	
Relinquished by:		Received by:		Relinquished by:		Received by:		Samples received at	
<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>6 °C</i>	

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

April 19, 2022

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on April 8, 2022 from the 12th + Yesler Dewatering WES-1591, F&BI 204116 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  
WES0419R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 8, 2022 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th + Yesler Dewatering WES-1591, F&BI 204116 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID  
204116 -01

Whitman Environmental Sciences  
DW-4-8

The 200.8 metals sample was filtered at Friedman and Bruya on April 11, 2022 at 09:10 AM.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	DW-4-8 f	Client:	Whitman Environmental Sciences
Date Received:	04/08/22	Project:	WES-1591, F&BI 204116
Date Extracted:	04/11/22	Lab ID:	204116-01
Date Analyzed:	04/11/22	Data File:	204116-01.056
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	AR

Analyte:	Concentration ug/L (ppb)
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Arsenic	17.6
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank f	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	WES-1591, F&BI 204116
Date Extracted:	04/11/22	Lab ID:	I2-274 mb
Date Analyzed:	04/11/22	Data File:	I2-274 mb.048
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	AR

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	<1
---------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	DW-4-8	Client:	Whitman Environmental Sciences
Date Received:	04/08/22	Project:	WES-1591, F&BI 204116
Date Extracted:	04/13/22	Lab ID:	204116-01
Date Analyzed:	04/13/22	Data File:	041319.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	85	117
Toluene-d8	101	88	112
4-Bromofluorobenzene	102	90	111

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	WES-1591, F&BI 204116
Date Extracted:	04/13/22	Lab ID:	02-807 mb
Date Analyzed:	04/13/22	Data File:	041307.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	85	117
Toluene-d8	97	88	112
4-Bromofluorobenzene	103	90	111

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/19/22

Date Received: 04/08/22

Project: 12th + Yesler Dewatering WES-1591, F&BI 204116

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 200.8**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	90	90	85-115	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/19/22

Date Received: 04/08/22

Project: 12th + Yesler Dewatering WES-1591, F&BI 204116

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

Laboratory Code: 204055-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Vinyl chloride	ug/L (ppb)	10	<0.02	100	16-176
Acetone	ug/L (ppb)	50	<50	89	15-179
2-Butanone (MEK)	ug/L (ppb)	50	<20	98	34-168
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	94	50-150
Benzene	ug/L (ppb)	10	<0.35	98	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	98	43-133
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	99	50-150
Toluene	ug/L (ppb)	10	<1	96	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	98	50-150
Ethylbenzene	ug/L (ppb)	10	<1	101	50-150
m,p-Xylene	ug/L (ppb)	20	<2	101	50-150
o-Xylene	ug/L (ppb)	10	<1	100	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	99	103	70-130	4
Acetone	ug/L (ppb)	50	84	96	42-155	13
2-Butanone (MEK)	ug/L (ppb)	50	90	100	50-157	11
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	86	94	70-130	9
Benzene	ug/L (ppb)	10	89	95	70-130	7
Trichloroethene	ug/L (ppb)	10	88	91	70-130	3
4-Methyl-2-pentanone	ug/L (ppb)	50	86	91	70-130	6
Toluene	ug/L (ppb)	10	86	94	70-130	9
Tetrachloroethene	ug/L (ppb)	10	86	95	70-130	10
Ethylbenzene	ug/L (ppb)	10	88	98	70-130	11
m,p-Xylene	ug/L (ppb)	20	88	98	70-130	11
o-Xylene	ug/L (ppb)	10	87	96	70-130	10

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

May 23, 2022

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on May 11, 2022 from the 12th & Yesler Dewatering WES-1591A, F&BI 205189 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  
WES0523R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 11, 2022 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th & Yesler Dewatering WES-1591A, F&BI 205189 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID  
205189 -01

Whitman Environmental Sciences  
DW-5-11

The dissolved metals samples were filtered at Friedman and Bruya on May 13, 2022. The data were flagged accordingly.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	DW-5-11 f	Client:	Whitman Environmental Sciences
Date Received:	05/11/22	Project:	WES-1591A, F&BI 205189
Date Extracted:	05/18/22	Lab ID:	205189-01
Date Analyzed:	05/18/22	Data File:	205189-01.129
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	38.1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank f	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	WES-1591A, F&BI 205189
Date Extracted:	05/18/22	Lab ID:	I2-365 mb
Date Analyzed:	05/18/22	Data File:	I2-365 mb.141
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DW-5-11	Client:	Whitman Environmental Sciences
Date Received:	05/11/22	Project:	WES-1591A, F&BI 205189
Date Extracted:	05/13/22	Lab ID:	205189-01
Date Analyzed:	05/16/22	Data File:	205189-01.069
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	35.6
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	WES-1591A, F&BI 205189
Date Extracted:	05/13/22	Lab ID:	I2-352 mb
Date Analyzed:	05/13/22	Data File:	I2-352 mb.145
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	DW-5-11	Client:	Whitman Environmental Sciences
Date Received:	05/11/22	Project:	WES-1591A, F&BI 205189
Date Extracted:	05/18/22	Lab ID:	205189-01
Date Analyzed:	05/18/22	Data File:	051821.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	71	132
Toluene-d8	98	68	139
4-Bromofluorobenzene	95	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	WES-1591A, F&BI 205189
Date Extracted:	05/18/22	Lab ID:	02-1207 mb
Date Analyzed:	05/18/22	Data File:	051807.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	71	132
Toluene-d8	100	68	139
4-Bromofluorobenzene	94	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/23/22

Date Received: 05/11/22

Project: 12th & Yesler Dewatering WES-1591A, F&BI 205189

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR DISSOLVED METALS USING EPA METHOD 200.8**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	91	92	85-115	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/23/22

Date Received: 05/11/22

Project: 12th & Yesler Dewatering WES-1591A, F&BI 205189

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

Laboratory Code: 205162-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.08	97	99	70-130	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	103	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/23/22

Date Received: 05/11/22

Project: 12th & Yesler Dewatering WES-1591A, F&BI 205189

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

Laboratory Code: 205111-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Vinyl chloride	ug/L (ppb)	10	<0.02	96	16-176
Bromomethane	ug/L (ppb)	10	<5	116	10-193
Acetone	ug/L (ppb)	50	<50	103	15-179
2-Butanone (MEK)	ug/L (ppb)	50	<20	93	34-168
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	105	50-150
Benzene	ug/L (ppb)	10	<0.35	95	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	89	43-133
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	103	50-150
Toluene	ug/L (ppb)	10	<1	94	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	110	50-150
Ethylbenzene	ug/L (ppb)	10	<1	98	50-150
m,p-Xylene	ug/L (ppb)	20	<2	99	50-150
o-Xylene	ug/L (ppb)	10	<1	100	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	97	99	70-130	2
Bromomethane	ug/L (ppb)	10	116	107	28-182	8
Acetone	ug/L (ppb)	50	104	111	42-155	7
2-Butanone (MEK)	ug/L (ppb)	50	93	92	50-157	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	104	106	70-130	2
Benzene	ug/L (ppb)	10	95	96	70-130	1
Trichloroethene	ug/L (ppb)	10	90	91	70-130	1
4-Methyl-2-pentanone	ug/L (ppb)	50	105	109	70-130	4
Toluene	ug/L (ppb)	10	95	94	70-130	1
Tetrachloroethene	ug/L (ppb)	10	104	105	70-130	1
Ethylbenzene	ug/L (ppb)	10	98	97	70-130	1
m,p-Xylene	ug/L (ppb)	20	100	98	70-130	2
o-Xylene	ug/L (ppb)	10	100	99	70-130	1

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.

205189

SAMPLE CHAIN OF CUSTODY

05-11-22

Report To: [Signature]  
 Company: Friedman & Bruya, Inc.  
 Address: 515 15th Ave  
 City, State, ZIP: Seattle WA 98101  
 Phone: \_\_\_\_\_  
 Email: [Signature]

SAMPLERS (signature)	PROJECT NAME <u>12th + 1st</u>	PO # <u>15718</u>
REMARKS <u>TRANSFERRING</u>	INVOICE TO	
Protect specific PLS? - Yes / No		

TURNAROUND TIME  
 Standard turnaround  
 RUSH  
 Rush charges authorized by: \_\_\_\_\_

SAMPLE DISPOSAL  
 Archive samples  
 Other  
 Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes	
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		
<u>100-5-11</u>	<u>01A-B</u>	<u>5/11/22</u>		<u>water</u>	<u>5</u>					<input checked="" type="checkbox"/>				<u>100-5-11</u>
														<u>100-5-11</u>
														<u>100-5-11</u>
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														<u>100-5-11</u>

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>			<u>5/11/22</u>	<u>1:51</u>
Relinquished by:				
Received by:	<u>Liz Weber-Bry</u>	<u>FBI</u>	<u>5/11/22</u>	<u>1:51</u>
Relinquished by:				
Received by:				
Samples received at <u>7:00</u>				

Friedman & Bruya, Inc.  
 Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

July 11, 2022

Dan Whitman, Project Manager  
Whitman Environmental Sciences  
6812 16<sup>th</sup> Ave NE  
Seattle, WA 98115

Dear Mr Whitman:

Included are the results from the testing of material submitted on June 30, 2022 from the 12th and Yesler Dewatering WES-1591, F&BI 206562 project. There are 5 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  
WES0711R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 30, 2022 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences 12th and Yesler Dewatering WES-1591, F&BI 206562 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID  
206562 -01

Whitman Environmental Sciences  
DW-6-23

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	DW-6-23	Client:	Whitman Environmental Sciences
Date Received:	06/30/22	Project:	WES-1591, F&BI 206562
Date Extracted:	07/05/22	Lab ID:	206562-01
Date Analyzed:	07/05/22	Data File:	070517.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	71	132
Toluene-d8	98	68	139
4-Bromofluorobenzene	101	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	Not Applicable	Project:	WES-1591, F&BI 206562
Date Extracted:	07/05/22	Lab ID:	02-1502 mb
Date Analyzed:	07/05/22	Data File:	070513.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	71	132
Toluene-d8	98	68	139
4-Bromofluorobenzene	106	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Acetone	<50
2-Butanone (MEK)	<20
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Trichloroethene	<0.5
4-Methyl-2-pentanone	<10
Toluene	<1
Tetrachloroethene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/11/22

Date Received: 06/30/22

Project: 12th and Yesler Dewatering WES-1591, F&BI 206562

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

Laboratory Code: 206562-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	
				Recovery MS	Acceptance Criteria
Vinyl chloride	ug/L (ppb)	10	<0.02	112	16-176
Bromomethane	ug/L (ppb)	10	<5	106	10-193
Acetone	ug/L (ppb)	50	<50	105	15-179
2-Butanone (MEK)	ug/L (ppb)	50	<20	98	34-168
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	106	50-150
Benzene	ug/L (ppb)	10	<0.35	102	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	102	43-133
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	104	50-150
Toluene	ug/L (ppb)	10	<1	101	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	109	50-150
Ethylbenzene	ug/L (ppb)	10	<1	99	50-150
m,p-Xylene	ug/L (ppb)	20	<2	102	50-150
o-Xylene	ug/L (ppb)	10	<1	101	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent		Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	110	109	70-130	1
Bromomethane	ug/L (ppb)	10	104	97	28-182	7
Acetone	ug/L (ppb)	50	105	115	42-155	9
2-Butanone (MEK)	ug/L (ppb)	50	99	98	50-157	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	104	102	70-130	2
Benzene	ug/L (ppb)	10	101	100	70-130	1
Trichloroethene	ug/L (ppb)	10	102	99	70-130	3
4-Methyl-2-pentanone	ug/L (ppb)	50	102	106	70-130	4
Toluene	ug/L (ppb)	10	109	105	70-130	4
Tetrachloroethene	ug/L (ppb)	10	108	107	70-130	1
Ethylbenzene	ug/L (ppb)	10	102	100	70-130	2
m,p-Xylene	ug/L (ppb)	20	106	103	70-130	3
o-Xylene	ug/L (ppb)	10	103	102	70-130	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

**Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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.



# **APPENDIX F**

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## ***Chemically Resistant Vapor Barrier Product Data***

Date: 2/4/2022

**Submittal Number: 77**

To: Clark | Barnes  
1401 West Garfield Street  
Seattle, WA 98119

First Submittal  Resubmittal Previous#:

Attn: Brianna Stepper

Project: 875 12th & Yesler

Title: Underslab Vapor Barrier

Section/ Subsection	Description/Submittal Type	Qty. to		Items Being Submitted	Action Taken
		Arch.	Other		
<b>072600</b>	<b>Underslab Vapor Retarder</b>				
	Product Data	1		VaporBlock Plus 20	

Please return this submittal to the address below by: **2/11/2022**  No return requested

By:

W.G. Clark Construction/Jobsite  
104 12th Avenue  
Seattle, WA 98122

Ph: (206) 624-5244 Email: [cvasquez@wgclark.com](mailto:cvasquez@wgclark.com)

Caleb Vasquez  
Project Engineer

**Review Comments:**

*The above items are to be returned with action as designated above in accordance with the following legend:*

- A: Approved
- B: Approved as Corrected
- C: Revise and Resubmit
- D: Not Approved

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Job #875 - 12th and Yesler Apartments

Submittal #: 077

Date: 2/4/2022

Specification: 07 26 00

Reviewed By: Caleb Vasquez

REVIEW DOES NOT RELIEVE  
SUBCONTRACTOR OR SUPPLIER FROM  
REQUIREMENTS OF CONTRACT  
DOCUMENTS

By: \_\_\_\_\_

Date: \_\_\_\_\_

## PRODUCT DESCRIPTION

VaporBlock® Plus™ 20 is a seven-layer co-extruded barrier made from state-of-the-art polyethylene and EVOH barrier resins to provide unmatched impact strength and superior resistance to gas and moisture transmission. VaporBlock® Plus™ is a highly resilient underslab / vertical wall barrier designed to restrict naturally occurring gases from migrating through the ground and concrete slab. VaporBlock® Plus™ 20 is more than 100 times less permeable than typical high-performance polyethylene vapor retarders against Methane, Radon, and other harmful VOCs. Tested and verified for unsurpassed protection against BTEX, HS, TCE, PCE, methane, radon, other toxic chemicals and odors.

VaporBlock® Plus™ 20 multi-layer gas barrier is manufactured with the latest EVOH barrier technology to mitigate hazardous vapor intrusion from damaging indoor air quality, and the safety and health of building occupants. VBP20 is one of the most effective underslab gas barriers in the building industry today far exceeding ASTM E-1745 (Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs) Class A, B and C requirements. Available in a 20 (Class A) mil thicknesses designed to meet the most stringent requirements. VaporBlock® Plus™ 20 is produced within the strict guidelines of our ISO 9001 Certified Management System.

## PRODUCT USE

VaporBlock® Plus™ 20 resists gas and moisture migration into the building envelop when properly installed to provide protection from toxic/harmful chemicals. It can be installed as part of a passive or active control system extending across the entire building including floors, walls and crawl spaces. When installed as a passive system it is recommended to also include a ventilated system with sump(s) that could be converted to an active control system with properly designed ventilation fans.

VaporBlock® Plus™ 20 works to protect your flooring and other moisture-sensitive furnishings in the building's interior from moisture and water vapor migration, greatly reducing condensation, mold and degradation.

## SIZE & PACKAGING

VaporBlock® Plus™ 20 is available in 10' x 150' rolls to maximize coverage. All rolls are folded on heavy-duty cores for ease in handling and installation. Other custom sizes with factory welded seams are available based on minimum volume requirements. Installation instructions and ASTM E-1745 classifications accompany each roll.



Under-Slab Vapor/Gas Retarder

## PRODUCT

## PART #

VaporBlock® Plus™ 20 ..... VBP20

## APPLICATIONS

- Radon Barrier
- Methane Barrier
- VOC Barrier
- Brownfields Barrier
- Vapor Intrusion Barrier
- Under-Slab Vapor Retarder
- Foundation Wall Vapor Retarder



# VAPORBLOCK® PLUS™ VBP20

UNDER-SLAB VAPOR / GAS BARRIER

PROPERTIES	TEST METHOD	VAPORBLOCK® PLUS™ 20	
		IMPERIAL	METRIC
APPEARANCE		White/Gold	
THICKNESS, NOMINAL		20 mil	0.51 mm
WEIGHT		102 lbs/MSF	498 g/m <sup>2</sup>
CLASSIFICATION	ASTM E 1745	CLASS A, B & C	
<sup>3</sup> TENSILE STRENGTH	ASTM E 154 Section 9 (D-882)	58 lbf	102 N
IMPACT RESISTANCE	ASTM D 1709	2600 g	
PERMEANCE (NEW MATERIAL)	ASTM E 154 Section 7 ASTM E 96 Procedure B	0.0098 Perms grains/(ft <sup>2</sup> ·hr·in·Hg)	0.0064 Perms g/(24hr·m <sup>2</sup> ·mm Hg)
PERMEANCE (AFTER CONDITIONING) (SAME MEASUREMENT AS ABOVE PERMEANCE)	ASTM E 154 Section 8, E96 Section 11, E96 Section 12, E96 Section 13, E96	0.0079 0.0079 0.0097 0.0113	0.0052 0.0052 0.0064 0.0074
WVTR	ASTM E 96 Procedure B	0.0040 grains/hr·ft <sup>2</sup>	0.0028 gm/hr·m <sup>2</sup>
BENZENE PERMEANCE	See Note <sup>6</sup>	1.57E <sup>-10</sup> m/s	
TOLUENE PERMEANCE	See Note <sup>6</sup>	2.18E <sup>-10</sup> m/s	
ETHYLBENZENE PERMEANCE	See Note <sup>6</sup>	1.71E <sup>-10</sup> m/s	
M & P-XYLENES PERMEANCE	See Note <sup>6</sup>	1.62E <sup>-10</sup> m/s	
O-XYLENE PERMEANCE	See Note <sup>6</sup>	1.53E <sup>-10</sup> m/s	
HYDROGEN SULFIDE	See Note <sup>9</sup>	1.92E <sup>-09</sup> m/s	
PERCHLOROETHYLENE (PCE)	See Note <sup>10</sup>	1.5 x 10 <sup>-9</sup> m/s	
TRICHLOROETHYLENE (TCE)	See Note <sup>10</sup>	2.4 x 10 <sup>-9</sup> m/s	
RADON DIFFUSION COEFFICIENT	K124/02/95	< 1.1 x 10 <sup>-13</sup> m <sup>2</sup> /s	
METHANE PERMEANCE	ASTM D 1434	3.68E <sup>-12</sup> m/s Gas Transmission Rate (GTR): 0.32 mL/m <sup>2</sup> ·day·atm	
MAXIMUM STATIC USE TEMPERATURE		180° F	82° C
MINIMUM STATIC USE TEMPERATURE		- 70° F	- 57° C

<sup>3</sup> Tests are an average of machine and transverse directions.

<sup>6</sup> Aqueous Phase Film Permeance.

Permeation of Volatile Organic Compounds through EVOH Thin Film Membranes and Coextruded LLDPE/EVOH/LLDPE Geomembranes, McWatters and Rowe, Journal of Geotechnical and Geoenvironmental Engineering © ASCE/September 2015. (Permeation is the Permeation Coefficient adjusted to actual film thickness)

<sup>9</sup> The study used to determine diffusion coefficients is titled: Hydrogen Sulfide (H<sub>2</sub>S) Transport through Simulated Interim Covers with Conventional and Co-Extruded Ethylene-Vinyl Alcohol (EVOH) Geomembranes.

<sup>10</sup> The study used to determine PCE and TCE is titled: Evaluation of diffusion of PCE & TCE through high performance geomembranes by Battista and Rowe, Queens University 8 Feb 2018

## VaporBlock® Plus™ Placement

All instructions on architectural or structural drawings should be reviewed and followed. Detailed installation instructions accompany each roll of VaporBlock® Plus™ and can also be located at [www.ravenefd.com](http://www.ravenefd.com).

ASTM E-1643 also provides general installation information for vapor retarders.

**VaporBlock® Plus™**  
UNDERSLAB VAPOR RETARDER / GAS BARRIER

VaporBlock® Plus™ is a seven-layer co-extruded barrier made using high quality virgin-grade polyethylene and EVOH resins to provide unmatched impact strength as well as superior resistance to gas and moisture transmission.



Scan QR Code to download current technical data sheets via the Raven website.

Note: To the best of our knowledge, unless otherwise stated, these are typical property values and are intended as guides only, not as specification limits. Chemical resistance, odor transmission, longevity as well as other performance criteria is not implied or given and actual testing must be performed for applicability in specific applications and/or conditions. RAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage. Limited Warranty available at [www.RavenEFD.com](http://www.RavenEFD.com)

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# VaporBlock® Plus™

UNDERSLAB VAPOR RETARDER / GAS BARRIER

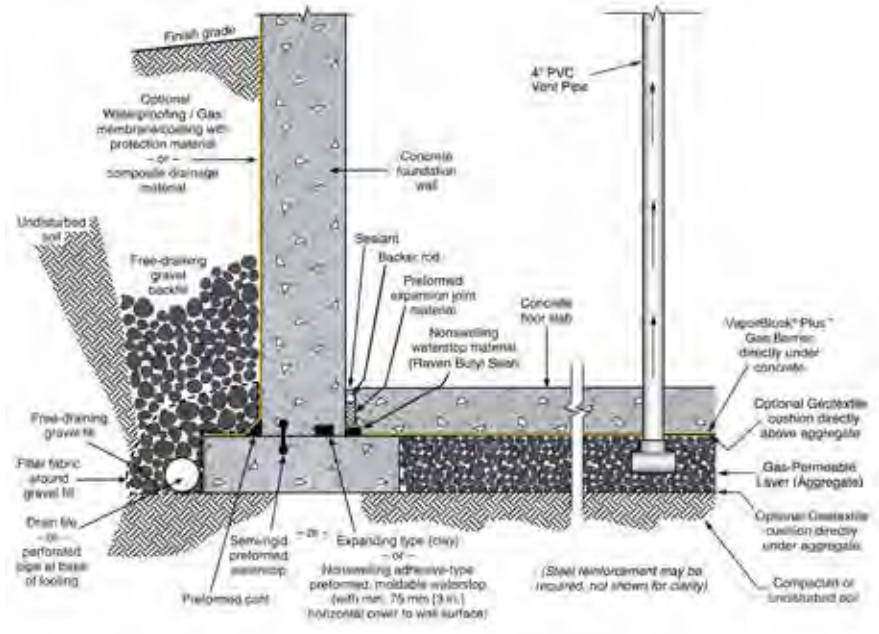
## INSTALLATION GUIDELINES - With VaporBond Plus Tape

Please Note: Read these instructions thoroughly before installation to ensure proper use of VaporBlock® Plus™. ASTM E 1465, ASTM E 2121 and, ASTM E 1643 also provide valuable information regarding the installation of vapor / gas barriers. When installing this product, contractors shall conform to all applicable local, state and federal regulations and laws pertaining to residential and commercial building construction.

- When VaporBlock® Plus™ gas barrier is used as part of an active control system for radon or other gas, a ventilation system will be required.
- If designed as a passive system, it is recommended to install a ventilation system that could be converted to an active system if needed.

**Materials List:**

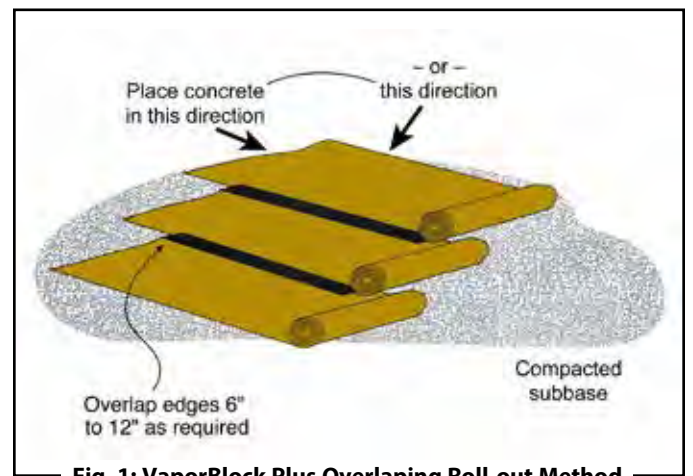
- VaporBlock® Plus™ Vapor / Gas Barrier
- VaporBond Plus 4" Foil Seaming Tape
- Butyl Seal 2-Sided Tape
- VaporBoot Plus Pipe Boots 12/Box (recommended)
- POUR-N-SEAL™ (optional)
- 1" Foam Weather Stripping (optional)
- VaporBoot Tape (optional)



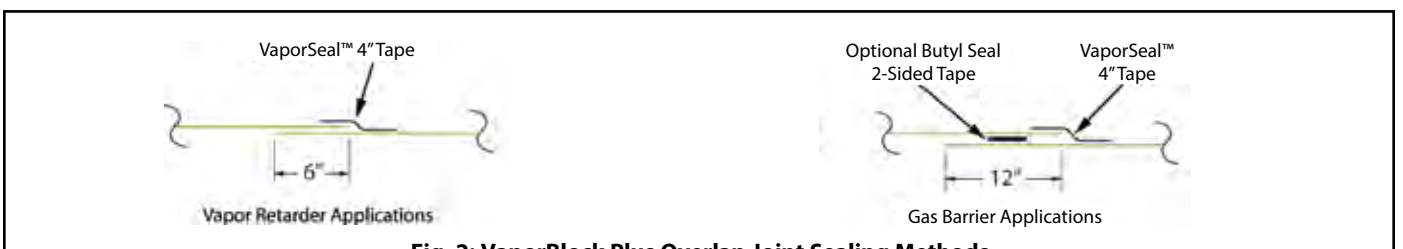
Elements of a moisture/gas-resistant floor system. General illustration only. (Note: This example shows multiple options for waterstop placement.)

### VAPORBLOCK® PLUS™ PLACEMENT

- 1.1. Level and tamp or roll granular base as specified. A base for a gas-reduction system may require a 4" to 6" gas permeable layer of clean coarse aggregate as specified by your architectural or structural drawings after installation of the recommended gas collection system. In this situation, a cushion layer consisting of a non-woven geotextile fabric placed directly under VaporBlock® Plus™ will help protect the barrier from damage due to possible sharp coarse aggregate.
- 1.2. Unroll VaporBlock® Plus™ running the longest dimension parallel with the direction of the pour and pull open all folds to full width. (Fig. 1)
- 1.3. Lap VaporBlock® Plus™ over the footings and seal with Raven Butyl Seal tape at the footing-wall connection. Prime concrete surfaces and assure they are dry and clean prior to applying Raven Butyl Seal Tape. Apply even and firm pressure with a rubber roller. Overlap joints a minimum of 6" and seal overlap with Raven VaporBond Tape. When used as a gas barrier, overlap joints a minimum of 12" and seal in-between overlap with 2-sided Raven Butyl Seal Tape. Then seal with VaporBond Plus Tape centered on the overlap seam. (Fig. 2)



**Fig. 1: VaporBlock Plus Overlapping Roll-out Method**



**Fig. 2: VaporBlock Plus Overlap Joint Sealing Methods**

Top original diagram and figure #1 were reprinted with permission by the Portland Cement Association. Reference: Kanare, Howard M., Concrete Floors and Moisture, EB119, Portland Cement Association, Skokie, Illinois, and National Ready Mixed Concrete Association, Silver Spring, Maryland, USA, 2008, 176 pages.

# SINGLE PENETRATION PIPE BOOT INSTALLATION

- 1.4. Seal around all plumbing, conduit, support columns or other penetrations that come through the VaporBlock® Plus™ membrane. Pipes four inches or smaller can be sealed with Raven VaporBoot Plus preformed pipe boots. VaporBoot Plus preformed pipe boots are formed in steps for 1", 2", 3" and 4" PVC pipe or IPS size and are sold in units of 12 per box (Fig. 3 & 5).

Pipe boots may also be fabricated from excess VaporBlock® Plus™ membrane (Fig. 4 & 6) and sealed with VaporBoot Tape or VaporBond Plus Tape (sold separately).

Reminder Note: All holes or penetrations through the membrane will need a patch cut to a minimum of 12" from the opening in all directions.

To fabricate pipe boots from VaporBlock® Plus™ excess material (see Fig. 4 & 6 for A-F):

- Cut a square large enough to overlap 12" in all directions.
- Mark where to cut opening on the center of the square and cut four to eight slices about 3/8" less than the diameter of the pipe.
- Force the square over the pipe leaving the tightly stretched cut area around the bottom of the pipe with approximately a 1/2" of the boot material running vertically up the pipe. (no more than a 1/2" of stretched boot material is recommended)
- Once boot is positioned, seal the perimeter to the membrane by applying 2-sided Raven Butyl Seal Tape in between the two layers. Secure boot down firmly over the membrane taking care not to have any large folds or creases.
- Use VaporBoot Tape or VaporBond Plus Tape to secure the boot to the pipe.
  - VaporBoot Tape (option) – fold tape in half lengthwise, remove half of the release liner and wrap around the pipe allowing 1" extra for overlap sealing. Peel off the second half of the release liner and work the tape outward gradually forming a complete seal.
  - VaporBond Plus Tape (option) - Tape completely around pipe overlapping the to get a tight seal against the pipe.
- Complete the process by taping over the boot perimeter edge with VaporBond Plus Tape to create a monolithic membrane between the surface of the slab and gas/moisture sources below and at the slab perimeter. (Fig. 4 & 6)

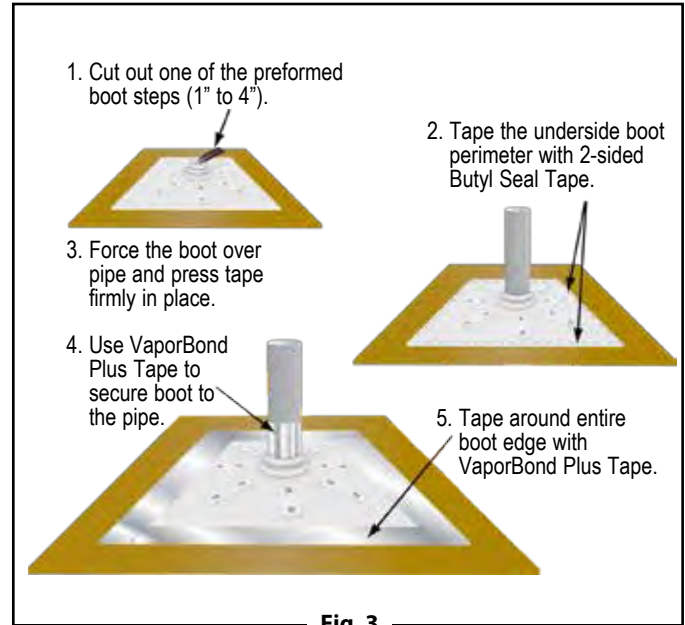


Fig. 3

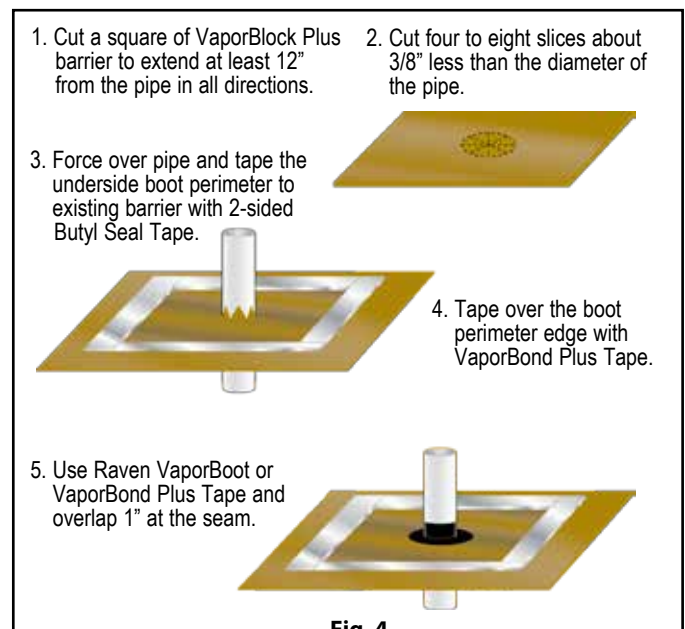


Fig. 4

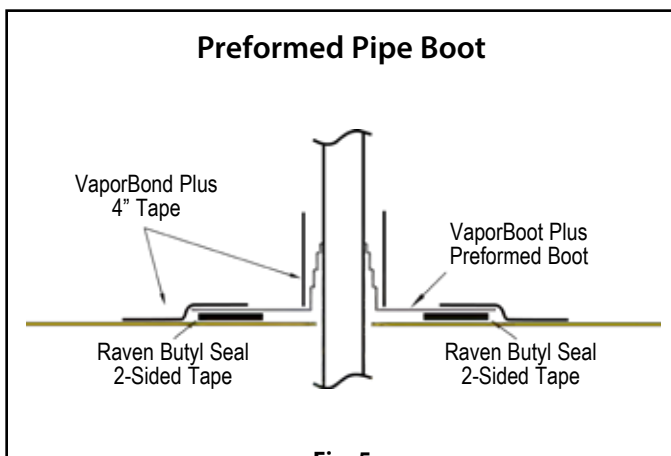


Fig. 5

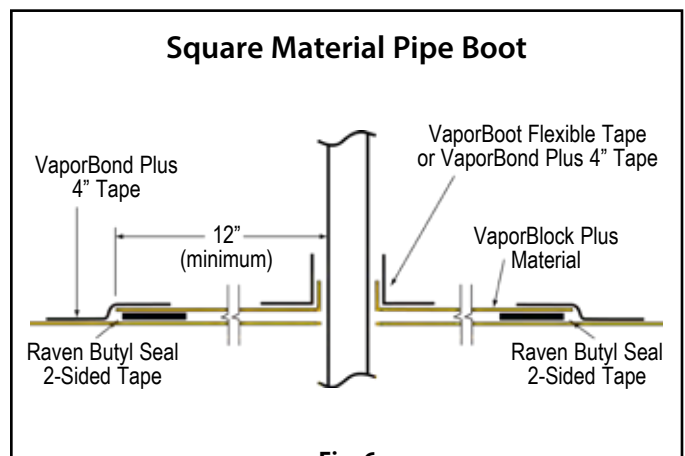
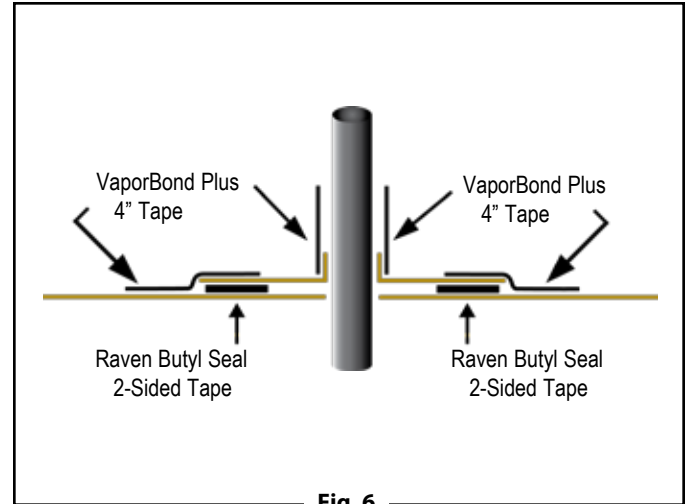


Fig. 6

# MULTIPLE PENETRATION PIPE BOOT INSTALLATION - OPTION 1

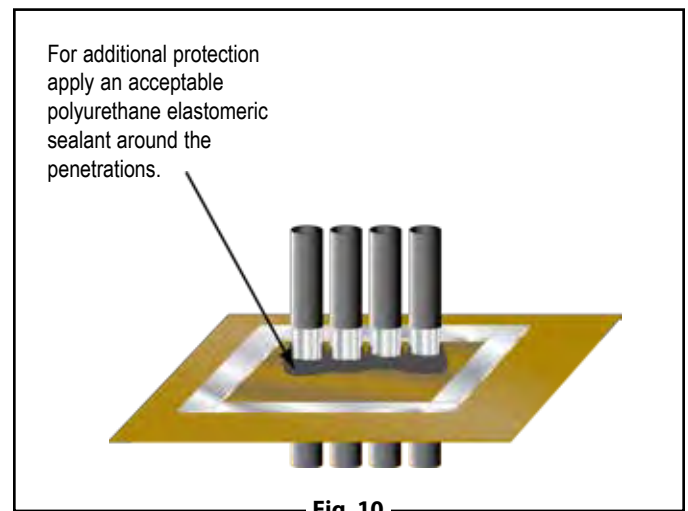
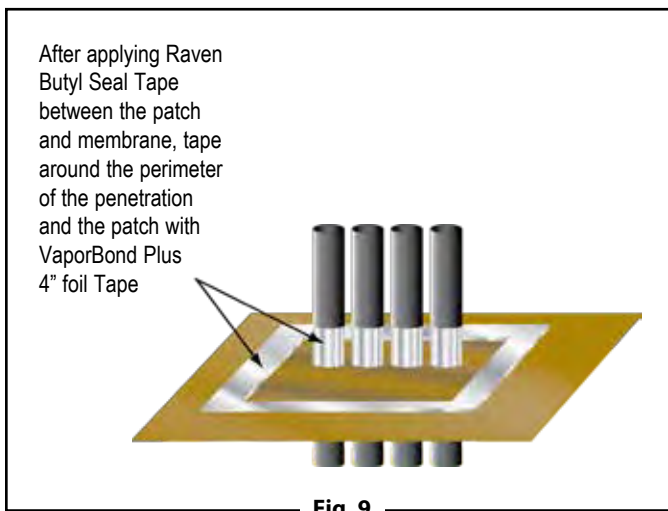
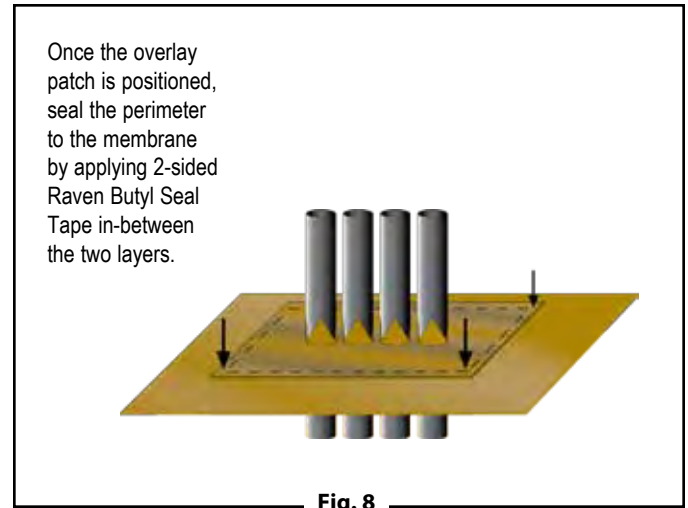
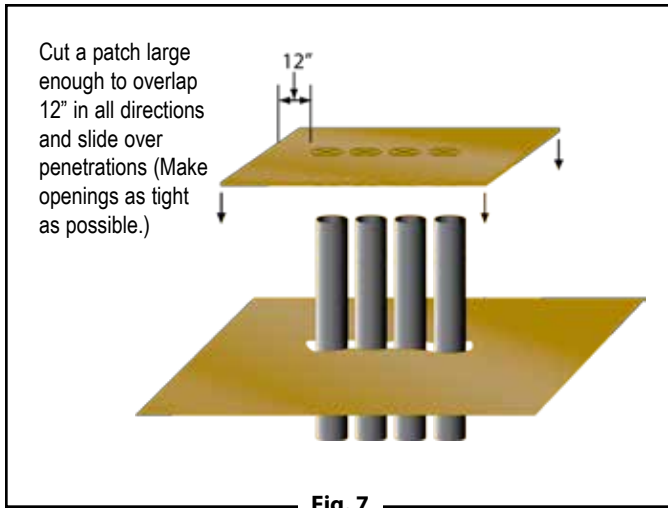
1.5. For side-by-side multiple penetrations;

- A) Cut a patch large enough to overlap 12" in all directions (Fig. 7) of penetrations.
- B) Mark where to cut openings and cut four to eight slices about 3/8" less than the diameter of the penetration for each.
- C) Slide patch material over penetration to achieve a tight fit.
- D) Once patch is positioned, seal the perimeter to the membrane by applying 2-sided Raven Butyl Seal Tape in-between the two layers. (Fig. 8)
- E) After applying Raven Butyl Seal Tape between the patch and membrane, tape around each of the penetrations and the patch with VaporBond Plus 4" foil tape. (Fig. 9) For additional protection apply an acceptable polyurethane elastomeric sealant around the penetrations. (Fig. 10)



1.6. Holes or openings through VaporBlock® Plus™ are to be repaired by cutting a piece of VaporBlock® Plus™ 12" larger in all directions from the opening. Seal the patch to the barrier with 2-sided Raven Butyl Seal Tape and seal the edges of the patch with VaporBond Plus Tape.

## Option 1

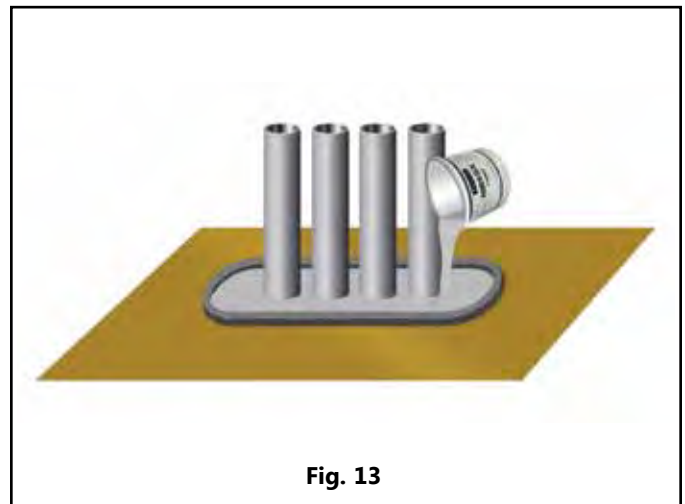
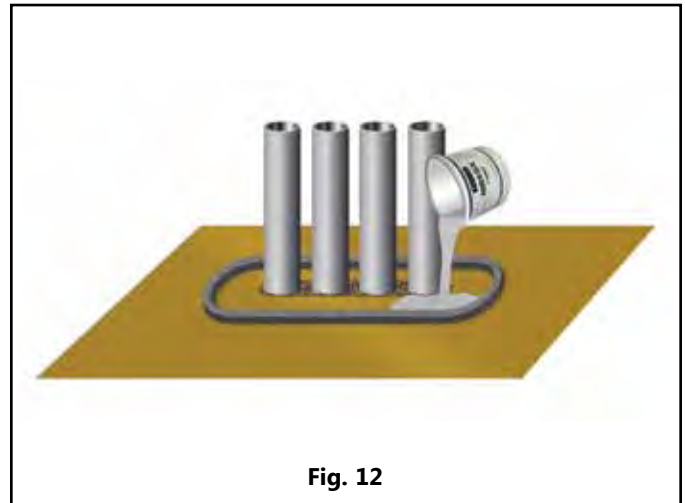
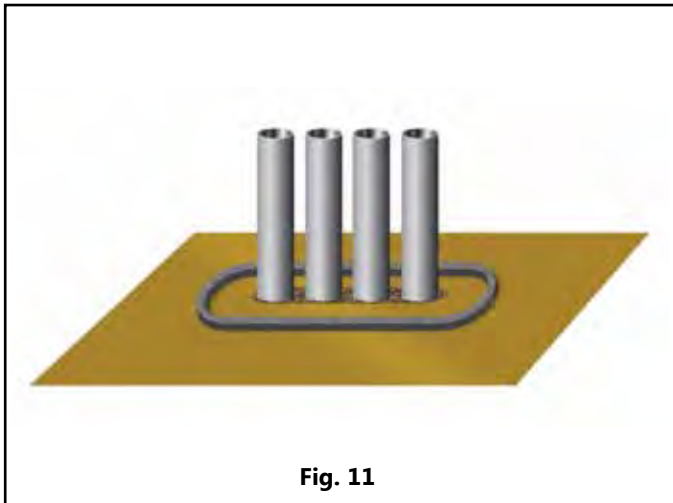


## MULTIPLE PENETRATION PIPE BOOT INSTALLATION - OPTION 2

1.7. POUR-N-SEAL™ method of sealing side-by-side multiple penetrations (option 2);

- A) Install the vapor barrier as closely as possible to pipe penetrations to minimize the amount of POUR-N-SEAL™ necessary to seal around all penetrations.
- B) Once barrier is in place, remove soil or other particles with a dry cloth or a fine broom to allow for improved adhesion to the POUR-N-SEAL™ liquid.
- C) Create a dam around the penetration area approximately 2" away from the pipe or other vertical penetrations by removing the release liner from the back of a 1" weather stripping foam and adhere to the vapor barrier. Form a complete circle to contain the POUR-N-SEAL™ materials (Fig. 11).
- D) Once mixed, pour contents around the pipe penetrations. If needed, a brush or a flat wooden stick can be used to direct the sealant completely around penetrations creating a complete seal (Fig. 12-13).
- E) DO NOT leave excess POUR-N-SEAL™ in plastic container for longer than the time it takes to pour sealant.

### Option 2



## VAPORBLOCK® PLUS™ PROTECTION

- 2.1. When installing reinforcing steel and utilities, in addition to the placement of concrete, take precaution to protect **VaporBlock® Plus™**. Carelessness during installation can damage the most puncture-resistant membrane. Sheets of plywood cushioned with geotextile fabric temporarily placed on **VaporBlock® Plus™** provide for additional protection in high traffic areas including concrete buggies.
- 2.2. Use only brick-type or chair-type reinforcing bar supports to protect **VaporBlock® Plus™** from puncture.
- 2.3. Avoid driving stakes through **VaporBlock® Plus™**. If this cannot be avoided, each individual hole must be repaired per section 1.6.
- 2.4. If a cushion or blotter layer is required in the design between **VaporBlock® Plus™** and the slab, additional care should be given if sharp crushed rock is used. Washed rock will provide less chance of damage during placement. Care must be taken to protect blotter layer from precipitation before concrete is placed.

**VaporBlock® Plus™** Gas & Moisture Barrier can be identified on site as gold/white in color printed in black ink with the following logo and classification listing:



**VaporBlock® Plus™**  
Gas & Moisture Barrier



Note: To the best of our knowledge, unless otherwise stated, these are typical property values and are intended as guides only, not as specification limits. Chemical resistance, odor transmission, longevity as well as other performance criteria is not implied or given and actual testing must be performed for applicability in specific applications and/or conditions. RAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage. Limited Warranty available at [www.RavenEFD.com](http://www.RavenEFD.com)

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# POUR-N-SEAL™

p/n: PNS1G

# INSTALLATION INSTRUCTIONS

NOTE: Store in dry environment between 40° F and 80° F (4° C-27° C). Do not allow product to freeze.  
Prior to use, keep overnight to precondition at a temperature between 70° F to 80° F. Protect from moisture.

1  
STEP

Prepare penetration areas that require sealing by cutting VaporBlock® barrier as close to the penetration(s) as possible. Effort should be given to minimize large gaps, this will also reduce the amount of POUR-N-SEAL™ necessary to complete an acceptable seal.



2  
STEP

Seal any cut openings that were required to install VaporBlock® around the penetrations with 12" wide VaporSeal™ gas / moisture barrier tape or by overlaying a piece of VaporBlock® centered over the cut and taped around the perimeter. Clean the area to be sealed by removing any debris.



3  
STEP

To help concentrate the sealant around the pipe penetration, a dam can be formed 2" away from the pipe grouping with an adhesive backed 1" weather stripping foam. Complete the preparation of all areas requiring sealant to maximize the pot life of POUR-N-SEAL™ epoxy, prior to mixing the two components.



4  
STEP

Avoid Contact with skin by wearing protective gloves and clothing. Only mix the amount of material that can be used within the pot life of the epoxy, approximately 36 minutes at 73° F. Premix each component prior to combining. Pour "A" and "B" components together and thoroughly mix using a low speed drill with a mixing paddle. Scrape the sides and bottom to assure a consistent blend. If not thoroughly mixed, the set time will be greatly extended.



5  
STEP

Once mixed, pour contents around the pipe penetrations, if needed a brush or flat wooden stick can be used to direct the sealant completely around all penetrations and overlap the moisture/gas barrier to form a continuous seal. Immediately dispose of any remaining mixed POUR-N-SEAL™ epoxy left in the container to avoid excessive heat buildup. Depending upon the temperature, POUR-N-SEAL™ should be tack free in approximately 5 hours.



6  
STEP

Penetrations should be sealed, once filled, covering the entire surface inside the foam dam. Allow to cure prior to pouring concrete to assure a continuous seal without displacing the POUR-N-SEAL™ epoxy. Leave foam dam in place. See SDS for complete safety precautions. For professional use only.



Note: To the best of our knowledge, unless otherwise stated, these are typical property values and are intended as guides only, not as specification limits. Chemical resistance, odor transmission, longevity as well as other performance criteria is not implied or given and actual testing must be performed for applicability in specific applications and/or conditions. RAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage. Limited Warranty available at [www.RavenEFD.com](http://www.RavenEFD.com)

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# ACCESSORIES

SEAMING TAPES & OTHER ACCESSORIES FOR PLASTIC SHEETING

From tie-down fasteners to field seaming tape, Raven Industries has the accessories you need to maximize your film's versatility and minimize installation time on the job.

## ACCESSORY TAPES AND EPOXY

### VaporBond™ Tape (TVB4)



VaporBond™ Tape is a white single-sided tape that combines a heavy-duty, weather-resistant polyethylene backing with an aggressive rubber adhesive. VaporBond™ Tape offers excellent seaming capabilities for our materials with an "Easy Tear" feature to reduce installation time. TVB4 has a WVTR of 0.18 perms per ASTM D3833. Typical applications include vapor retarders, covers and liners.

Available in 4" x 210' roll.

### R25B Tape (R25B)



R25B Tape is a single-sided aggressive synthetic elastomeric adhesive that bonds instantly to properly prepared polyethylene and polypropylene. The black polymer backing and adhesive is specially formulated to provide years of performance even in direct sunlight. A poly release liner provides for ease of installation.

Available in 4" x 100' roll.

### VaporSeal™ Tape (TVSP4/TVSP12)



VaporSeal™ Tape is a patent pending single-sided 7-layer gas barrier tape with a release liner for ease of installation. The backing contains a layer of highly impermeable EVOH designed to block migration of radon, methane, and VOC's. An aggressive acrylic adhesive provides outstanding adhesion to polyethylene over a wide temperature range. Typical uses include joining, repairing and sealing gas/moisture barriers.

Available in 4" x 160' and 12" x 50' rolls.

### Butyl Seal Tape (TP2BR / TP6BR)



Butyl Seal is a double-sided reinforced aggressive black butyl rubber tape used to join panels of polyethylene and polypropylene together by overlapping the edges and applying Butyl Seal in between. It is also used to adhere to concrete walls and footings when properly prepared. Butyl Seal is non-hardening and flexible.

Available in 2" x 50' and 6" x 50' rolls.

### VaporBoot™ Tape (TBOOT)



VaporBoot™ Tape is a single-sided elastomeric butyl tape used to complete pipe boot installations (sealing the boot to the pipe). The 100% stretchable butyl adhesive features excellent adhesion values and 3-D stretching that can be easily molded to multiple surfaces without any creases and folds.

Available in 2" x 16.4' roll.

### POUR-N-SEAL™ (PNS1G)



POUR-N-SEAL™ is a gray two part epoxy used to seal around multi-pipe penetrations in areas where pipe boots are not practical, when installing underslab barriers. The POUR-N-SEAL™ system installation guide references a 1" x 25 lineal feet adhesive-backed foam to form a dam around multi-pipe penetrations to contain POUR-N-SEAL™ during the setting process. The 1" x 25 ft. adhesive-backed foam is sold separately as FOAM25.

## ADDITIONAL ACCESSORIES

### VaporBoot™ System (VBOOT)

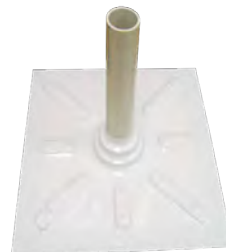


The VaporBoot™ System is designed to assist in securing pipe and other penetrations that run vertically through the vapor retarder material. The VaporBoot™ System offers a quick solution and is delivered to the jobsite in a complete package. VaporBoots are produced from high performance VaporBlock® material.

#### Package Contents:

25 - VaporBoots (18" x 18", w/precut center marker)  
1 - roll of VaporBoot Tape

### VaporBoot™ Plus Preformed Pipe Boots (VBPBT)



VaporBoot™ Plus Preformed Pipe Boots are produced from heavy 40 mil co-extruded polyethylene and barrier resins for excellent strength and durability. The preformed boots are stepped to fit 1" to 4" wide pipe penetrations. VaporBoot™ Plus Preformed Pipe Boots are available in quantities of 12 per box.

# ACCESSORIES

SEAMING TAPES & OTHER ACCESSORIES FOR PLASTIC SHEETING

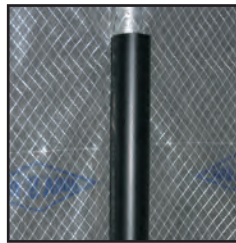
## ADDITIONAL ACCESSORIES (CONTINUED)

### Dura♦Skrim® Reinforced Sandbags



Dura♦Skrim® reinforced sandbags are used to secure large covers and liners to prevent wind damage. Sandbags are produced with strong Dura♦Skrim® 8 & 12 mil reinforced polyethylene. These 15" wide x 24" long bags are designed to hold 35 lbs. Sandbags are also available in other Raven reinforced materials with minimum order requirements. 11.8" Cable Ties are also available.

### Dura-Clip™ (CLIP11)



These full size clips are 11" long and fit most commercial scaffolding. Dura-Clip™ will securely fasten your poly sheeting to scaffolding, reducing wind whip and increasing the life of your enclosure. The Dura-Clip™ is normally placed about every 3' onto the enclosure.

### Tie-Down Buttons (BUTI) & Tarp Grabbers (BUTEZ)



Tie-Down Buttons and Tarp Grabbers help keep plastic sheeting securely in place. Tie-Down Buttons are designed to eliminate traditional grommets in plastic sheeting up to 10 mil thick and are reusable plastic fittings that are easy to install in any position. Tarp Grabbers are up to 4 times stronger than a brass grommet and are typically used in heavier plastic sheeting from 10 mil to 30 mil thick. Great for equipment covers, large storage covers and truck tarps.

### Raven Welding Rod



Raven Welding Rod is used for field seaming, repairs and detail work, such as installing pipe boots. Packaged in 25 lb spools, it is available in 4mm and 5mm sizes to fit most brands of extrusion guns. Raven Welding Rod is made from a thermally UV stabilized LLDPE resin and is available in both black and white to correspond with the color of geomembranes being utilized.

## TAPE ACCESSORY PROPERTIES

PROPERTIES	VaporBond Tape (TVB4)	VaporSeal Tape (TVSP4 / TVSP12)	VaporBoot Tape (TBOOT)	R25B Tape (R25B)	Butyl Seal Tape (TP2BR / TP6BR)
BACKING	6.7 mil Polyethylene	7 mil EVOH/LLDPE	30 mil EPDM	8 mil Multi-Polymer	N/A
ADHESIVE	3.3 mil Rubber Based Pressure-Sensitive	2 mil Acrylic Adhesive Pressure-Sensitive	20 mil Butyl Rubber	17 mil Synthetic Elastomeric	40 mil Butyl Rubber
COLOR	White	Silver	Black	Black	Black
TYPE	Single Sided	Single Sided	Single Sided	Single Sided	Double Sided
SIZE	4" x 210'	4" x 160' / 12" x 50'	2" x 16.4'	4" x 100'	2" x 50' / 6" x 50'
ROLLS PER CASE	12	12 / 4	64	6	16 / 4
WEIGHT PER CASE	45 lbs	50 lbs / 18 lbs	45 lbs	33 lbs	47 lbs / 20 lbs
ADHESION VALUES	35 oz. / in. (to steel)	80 oz. / in. (to steel)	145 oz. / in. (to steel)	144 oz. / in. (to steel)	88 oz. / in. (to steel)
PERMS	0.081 g/(24h*100 in <sup>2</sup> )	0.014 g/(24h*100 in <sup>2</sup> )	N/A	<0.005 g/(24h*100 in <sup>2</sup> )	0.82 g/(24h*100 in <sup>2</sup> )
SERVICE TEMP.	-40° F to +180° F	-40° F to +190° F	+14° F to +122° F	+20° F to +180° F	0° F to +170° F
MIN. APPLICATION TEMP.	50° F	50° F	14° F	35° F	35° F
IDEAL STORAGE TEMP. / HUMIDITY	70° F w/ 40-50 %	60°-80° F w/ 40-60 %	70° F w/ 70 %	70° F w/ 40-50 %	70° F w/ 40-50 %



Scan QR Code to download current technical data sheets via the Raven website.

Note: To the best of our knowledge, unless otherwise stated, these are typical property values and are intended as guides only, not as specification limits. Chemical resistance, odor transmission, longevity as well as other performance criteria is not implied or given and actual testing must be performed for applicability in specific applications and/or conditions. RAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage. Limited Warranty available at [www.RavenEFD.com](http://www.RavenEFD.com)

### RAVEN ENGINEERED FILMS

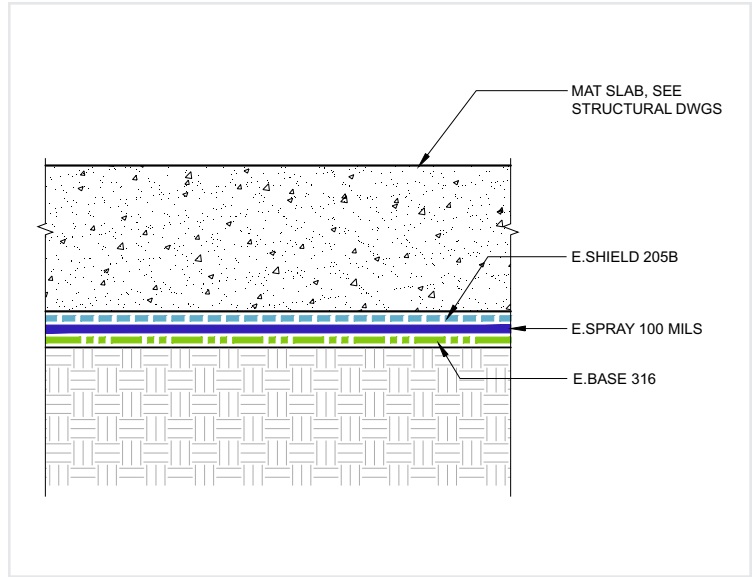
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**RAVEN**

012021 EFD 1103



System: E.Protect+

Former System Name: System III-MBBH

Application: Underslab

System Thickness: 196 mils

	1st Layer	2nd Layer	3rd Layer
Product Name	e.base 316	e.spray 100 mils	e.shield 205b
Former Name	Ecoshield-H16	Ecoline-S	Ecoshield-PB

## DESCRIPTION

E.Protect+ Underslab is a redundant field-installed composite waterproofing, methane gas, and vapor intrusion barrier used to seal below-grade building foundations. Designed to provide the most redundant and highest level of below-grade building protection available, E.Protect+ Underslab provides unparalleled protection against hydrostatic conditions, chlorinated volatile organic compounds, and petroleum hydrocarbons. E.Protect+ Underslab is the first system ever developed to combine in one system, what others might utilize as three completely independent systems. E.Protect+ is designed for those who require the highest level of performance.

E.Protect+ Underslab is designed to be compatible with all types of building foundations.

## BENEFITS

- Chemically Resistant. Provides the highest level chemical resistance to a wide range contaminants commonly found in soil and groundwater.
- Redundant: Three layers of different waterproofing materials create a composite system that is superior to the materials used on their own.
- Seamless. Composite field-installed membranes do not contain a continuous seam.
- Fully Bonded: The system mechanically bonds to any concrete overlay.
- Fast Installation: Composite systems allow for large areas to be installed very quickly, saving time and money for building owners.
- Continuous Active Protection: The bentonite layer creates a uniform self-sealing membrane.

## LIMITATIONS

- Sites with brackish water and/or contamination will require compatibility testing to determine the appropriate use of bentonite.
- Extreme weather conditions can impact installation methodology.

## SPECIFICATIONS, DRAWINGS, AND TECHNICAL ASSISTANCE

The most current specifications and drawings can be found on [www.eproinc.com](http://www.eproinc.com). For project specific details contact EPRO directly, or the local EPRO representative.

Site conditions, performance goals, and budget determine which system is more appropriate for a given project. For more information regarding product performance, testing, plan review, or general technical assistance, please contact EPRO.

## WARRANTY

EPRO provides a wide range of warranty options for E.Series systems. For a project to be eligible for any warranty option beyond a 1-year material warranty, an EPRO Authorized Applicator must be used and the project must be registered and approved by EPRO prior to the commencement of any product application.

Warranty options available for this system include:

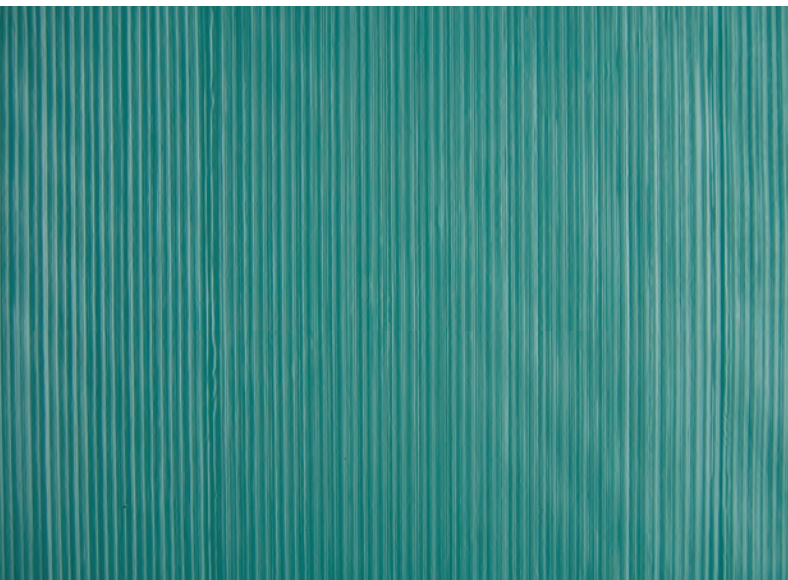
- Material warranty
- E.Series Labor and Material Warranty
- E.Assurance No-Dollar-Limit Warranty

For information relating to EPRO's E.Assurance warranty program, contact EPRO. All E.Assurance no-dollar-limit labor and material warranties are approved on a project by project basis. E.Assurance warranties are available for deck applications when E.Series systems are used on the below-grade envelope.

PROPERTIES	TEST METHOD	VALUE
Tensile Strength	ASTM D412	522.7 psi
Elongation	ASTM D412	911%
Adhesion to Concrete	ASTM D903	8 lbf/in
Puncture Resistance	ASTM D1709	319.6 lbf
Hydrostatic Head Resistance	ASTM D5385	100 psi (231 ft)
Water Vapor Transmission	ASTM E96	.007 perms
PCE Diffusion Rate		$4.3 \times 10^{-18} \text{ m}^2/\text{sec}$
TCE Diffusion Rate		$3.4 \times 10^{-18} \text{ m}^2/\text{sec}$



## e.base 316



### Product Description

**Basic Use:** e.base 316 is a superior base course option for E.Series pre-applied underslab and pre-applied shoring assemblies for buildings that require the highest level of protection. Using EPRO's redundant field installed composite design concept, e.base 316 augments E.Series system assemblies by adding a thermoplastic membrane with heat welded seams to increase chemical resistance, waterproofing capabilities, and overall system robustness. Used as a key component in E.Protect+ assemblies, e.base 316 is also used as a redundant layer in horizontal podium deck applications.

**Composition:** e.base 316 is a 16 mil geomembrane comprised of high density polyethylene (HDPE). While e.base 316 is always installed as a component of EPRO's E.Series assemblies, it alone exceeds all Class A, B, and C vapor barrier requirements.

### Benefits

- Excellent chemical resistance
- Large roll size drastically minimizes seams
- High puncture resistance protects waterproofing from a wide variety of substrates
- Impermeable to water when installed as part of the composite system

### Limitations

- Should not be used as the sole means of building protection
- Additional weight should be used during application in windy conditions
- Excessive moisture must be removed prior to welding seams

### Technical Data

Properties: See physical properties table

**Coverages:** One roll covers 1800 square feet, not including overlaps or waste

**Specification Writer:** Contact EPRO before writing specifications on this product. E.Series system assemblies should be reviewed in order to meet project specific site conditions.

### Installation

**Preparation:** Please refer to manufacturer's specifications for substrate requirements. Rolls should be inspected for cosmetic damage prior to application. Calibrate hot air welder settings to create a continuous uniform weld that is free from deficiencies.

**Application:** Please refer to manufacturer's specifications. Overlap the seams of e.base 316 a minimum of 6" and then create uniform 1.5" hot air welded along the length of the seam.

### Availability and Packaging

Contact EPRO sales representative for local distributors or authorized applicators ([www.eproinc.com](http://www.eproinc.com)).

Roll Size: 12' x 150' unfolded rolls, 137 lbs

### Warranty

**Limited Warranty:** EPRO Services, Inc. believes to the best of its knowledge that performance tables are accurate and reliable. EPRO warrants this product to be free from defects. EPRO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. EPRO's liability shall be limited in all events to supplying sufficient product to retreat the specific areas to which defective product has been applied. EPRO shall have no other liability, including liability for incidental or resultant damages, whether due to breach of warranty or negligence. This warranty may not be modified or extended by representatives of EPRO or its distributors.

### Equipment

**Welding Equipment:** Leister Technologies GIBLI-AW hot air hand welder or an automated hot air welder similar to Leister Technologies VARIMAT V2 or equivalent

**Tools:** Heat resistant silicone seam roller, blunted point seam probe

**Smoke Testing:** EPRO Smoke Test Machine for underslab applications

### Technical Services and Information

Complete technical services and information are available by contacting EPRO at 800.882.1896 or [www.eproinc.com](http://www.eproinc.com).

This product was formally known as Ecoshield-H16.



e.base 316

### Typical Physical Properties

Physical Property	Test Method	Value
Material.....		HDPE
Color .....		Green
Thickness .....		16 mil
Classification.....	ASTM E 1745 .....	Exceeds Class A, B & C
Water Vapor Permeance.....	ASTM E 96 .....	.029 perms
Tensile Strength .....	ASTM E 154 (ATSM D 882).....	63 lbf/in
Puncture Resistance .....	ASTM D 1709.....	2,750 grams Method B
Life Expectancy.....	ASTM E 154 .....	Indefinite
Chemical Resistance.....	ASTM E 154 .....	Unaffected

Dimensions: 12' x 150'

Weight: 137 pounds





e.spray



## Product Description

**Basic Use:** e.spray is a key component to EPRO's redundant field installed composite design concept. e.spray is a polymer modified asphalt (PMA) applied to nominal dry thicknesses of 60, 80, and 100 mils depending on the E.Series system configuration. For robust horizontal deck applications, a 120 mil reinforced option should be specified. Spray applied to form a seamless barrier, e.spray is an integral component to all E.Series systems due to its ability to further enhance and bond to a variety of materials; these materials include, high density polyethylene (HDPE), polyolefin sheets, geotextile fabric, wood, metal, foam insulation, and concrete based surfaces (green concrete, shotcrete and concrete masonry units (CMU)). e.spray is applied with a proprietary self-contained sprayer designed to produce high build, monolithic, and rapidly curing membranes.

**Composition:** e.spray is a non-hazardous, low-viscosity, water-based, anionic asphalt emulsion modified with a blend of synthetic polymerized rubbers and proprietary additives. e.spray is highly stable during transit and proper storage, but becomes highly reactive during the spray application to form a rapidly cured membrane with exceptional bonding, elongation, and hydrophobic characteristics.

## Benefits

- Provides a layer of seamless protection and redundancy in all E.Series system assemblies
- Hydrophobic and resistant to methane gas
- Non-toxic, non-hazardous, non-flammable, and VOC free
- Forms a tenacious bond directly to concrete
- Application to damp substrates is acceptable
- Can be applied in below freezing temperatures with proper equipment

## Limitations

- Surfaces shall be free of dirt and debris
- Material should be stored above 40°F and not allowed to freeze
- Not a traffic bearing surface, additional protection required
- Must not be applied to ponded water
- Direct foot traffic should be limited when ambient air temperatures are greater than 100°F
- Green concrete may require a primer coat prior to application

## Technical Data

**Shelf life:** 6 months. The ability to apply the product beyond its estimated shelf life is dependent on storage conditions and homogeneity of the product. Storing material in an enclosed temperature controlled environment that maintains a minimum ambient temperature of 65° Fahrenheit will likely extend the shelf life beyond 6 months.

**Properties:** See physical properties table

**Specification Writer:** Contact EPRO before writing specifications on this product. E.Series system assemblies should be reviewed in order to meet project specific site conditions.

Additional test information available upon request.

## Installation

EPRO Authorized Applicators must be approved in writing by EPRO prior to receiving a contract in order to qualify for a warranty for this product and system assembly.

**Surface Preparation:** All surfaces shall be prepared in accordance to manufacturer's specifications. Surfaces shall be uniform, free of loose materials, and surface contaminants. Contaminant and loose debris shall be removed prior to application by suitable methods.

**Application:** Please refer to manufacturer's specifications. e.spray shall be spray applied to the specified nominal mil thickness. When properly applied, e.spray will set up immediately on the surface and promptly start the curing process. Light foot traffic is acceptable, but must be limited to the authorized EPRO applicator. The initial cure is complete when e.spray is no longer ejecting moisture, 12 to 48 hours depending on ambient air conditions.

## Availability and Packaging

Contact EPRO sales representative for local distributors or authorized applicators ([www.eproinc.com](http://www.eproinc.com)).

e.spray is available in the following packaging options:

55 gallon drum  
275 gallon tote  
330 gallon tote



e.spray

## Warranty

Limited Warranty: EPRO Services, Inc. believes to the best of its knowledge that performance tables are accurate and reliable. EPRO warrants this product to be free from defects. EPRO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. EPRO's liability shall be limited in all events to supplying sufficient product to retreat the specific areas to which defective product has been applied. EPRO shall have no other liability, including liability for incidental or resultant damages, whether due to breach of warranty or negligence. This warranty may not be modified or extended by representatives of EPRO or its distributors.

## Equipment

Spray System: AD-55 Sprayer is available through EPRO. To discuss alternative spray machine options, please contact EPRO directly.

Smoke Testing: EPRO Smoke Test Machine for underslab applications

## Technical Services and Information

Complete technical services and information are available by contacting EPRO at 800.882.1896 or [www.eproinc.com](http://www.eproinc.com).

This product was formally known as Ecoline-S.

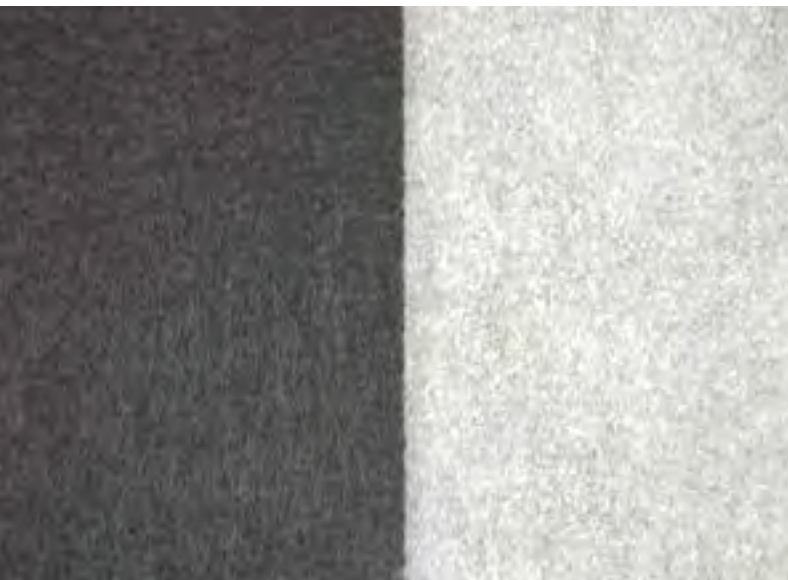
## Typical Physical Properties

Physical Property	Test Method	Value
Color		Brown to Black
Solvent Content		No Solvents
Shelf Life		6 months
Tensile Strength	ASTM 412	32 psi
Elongation	ASTM 412	4140%
Resistance to Decay	ASTM E 154 Section 13	4% Perm Loss
Accelerated Aging	ASTM G 23	No Effect
Moisture Vapor Transmission	ASTM E 96	0.026 g./sq. ft./hr.
Hydrostatic Water Pressure	ASTM D 751	26 psi
Perm Rating	ASTM E 96 (US Perms)	0.21
Methane Transmission Rate	ASTM D 1434	0
Adhesion to Concrete & Masonry	ASTM C 836 & C 704	11 lbf./inch
Adhesion to HDPE	ASTM C 836	28.363 lbf./inch
Adhesion to Polypropylene Fabric	ASTM C 836	31.19 lbf./inch
Hardness	ASTM C 836	80
Crack Bridging	ASTM C 836-00	No Cracking
Low Temp. Flexibility		No Cracking at -20° C

Packaging: 55 gallon drum, 275 gallon tote, 330 gallon tote



## e.shield 205b



### Product Description

**Basic Use:** e.shield 205b has been specifically designed to provide maximum redundancy to E.Series systems requiring high performance building protection. Installed on underslab and shoring assemblies, e.shield 205b exemplifies EPRO's redundant field installed composite design concept by combining a protective geotextile, a layer of high density polyethylene (HDPE), and bentonite into one sheet that serves as protection course for the remaining E.Series components. When combined into one system, this provides extraordinary protection from water, methane, and chemical vapor intrusion.

**Composition:** e.shield 205b is a redundant geocomposite bentonite membrane comprised of three distinct layers, a nonwoven polypropylene geotextile, an HDPE film, and then a chemically bonded layer of sodium montmorillonite bentonite.

### Benefits

- Confines bentonite within membrane assembly to provide a redundant self-sealing layer
- Fully adheres to concrete or shotcrete
- High puncture resistance protects waterproofing from subsequent construction damage
- When sealed properly, pre-activation prior to concrete placement will not occur

### Limitations

- Should not be stored in the rain
- Contaminated groundwater may inhibit performance and compatibility testing is required on all sites where contamination might be of concern

### Technical Data

**Properties:** See physical properties table

**Coverages:** One roll covers 128 square feet, not including overlaps or waste

**Specification Writer:** Contact EPRO before writing specifications on this product. E.Series system assemblies should be reviewed in order to meet project specific site conditions.

### Installation

**Preparation:** Please refer to manufacturer's specifications for substrate requirements. Rolls should be inspected for cosmetic damage prior to application. e.shield 205b may be applied over a nominally cured e.spray membrane.

**Application:** Please refer to manufacturer's specifications. Whenever possible, e.shield 205b should be applied perpendicular to the underlying base course. Overlap all seams a minimum of 3" with seam overlap detail per project specification while taking into account anticipated weather conditions.

### Availability and Packaging

Contact EPRO sales representative for local distributors or authorized applicators ([www.eproinc.com](http://www.eproinc.com)).

Roll Size: 4' x 32' rolls, 75 lbs.

### Warranty

**Limited Warranty:** EPRO Services, Inc. believes to the best of its knowledge that performance tables are accurate and reliable. EPRO warrants this product to be free from defects. EPRO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. EPRO's liability shall be limited in all events to supplying sufficient product to retreat the specific areas to which defective product has been applied. EPRO shall have no other liability, including liability for incidental or resultant damages, whether due to breach of warranty or negligence. This warranty may not be modified or extended by representatives of EPRO or its distributors.

### Equipment

**Seaming:** AD-55 Sprayer, available through EPRO for application of e.spray in seam overlaps, or by hand using e.roll.

### Technical Services and Information

Complete technical services and information are available by contacting EPRO at 800.882.1896 or [www.eproinc.com](http://www.eproinc.com).

This product was formally known as Ecoshield-PB.



e.shield 205b

### Typical Physical Properties

Physical Property	Test Method	Value
Film Material.....		HDPE
Film Color.....		Gray
Fabric Material.....		Non-woven Polypropylene
Fabric Color.....		White
Bentonite.....		Sodium Montmorillonite (>90%)
Tensile Strength: Membrane (psi).....	ATSM D882.....	6,100 psi (42 MPa)
% Elongation at break.....	ATSM D882.....	100%
Overall Weight.....		0.6 lb per ft <sup>2</sup> (2.44 kg/m <sup>2</sup> )
Resistance.....	ATSM D751 Procedure A.....	174 ft (52.9 m) of water
Crack Bridging.....		1.8" (.032 cm) crack
Water Vapor Permeability.....	ATSM E96.....	0.53 x 10 <sup>-3</sup> cm/sec

Dimensions: 4' x 32'

Weight: 75 pounds

