Limited Phase II Environmental Site Assessment Report

Former Maralco Aluminum Site,
7730 S. 202nd Street
Kent, Washington

Cooperative Agreement
Number: BF-00J65701

Stantec

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March 21, 2017

Sign-off Sheet

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Table of Contents

Table of Contents

List of Tables

List of Figures

List of Appendices

1.0 INTRODUCTION

Stantec Consulting Services Inc. (Stantec) has completed this Phase II Environmental Site Assessment (ESA) for the former Maralco Aluminum Property, 7730 South 202nd Street, Kent, Washington ("Property" or "Site"), on behalf of the City of Kent ("City" or "Client") and the Lyon John P & Gloria Irrevocable Living Trust and the Halpin Donna Irrevocable Living Trust (Property Owners). The Phase II ESA was funded through a United States Environmental Protection Agency (USEPA) Community-Wide Assessment Brownfield Grant. Site eligibility was approved by the USEPA on July 28, 2016. The work described herein was completed in accordance with: 1) Cooperative Agreement Number BF-00J65701; 2) a master Quality Assurance Project Plan (QAPP) approved by the USEPA on July 2, 2014; and 3) a Site-Specific Sampling and Analysis Plan (SSSAP) approved by the USEPA on October 6, 2016.

1.1 Site Description & History

The Property (King County Parcel Identification Number 6315000300) encompasses approximately 12.05 acres of land and is located at 7730 South 202nd Street in Kent, Washington. The location and layout of the Property are provided on **Figures 1** and **2**, respectively. The Property is currently zoned for industrial development and improved with a 45,000 square foot warehouse building constructed in 1981 and a former farmhouse with several out-buildings constructed between 1960 and 1968. An asphalt-paved parking lot is located in the northwest corner of the parcel. Portions of the parking lot are currently utilized for storage of steel pipe by Puget Sound Pipe and Supply, a business located on a north adjacent property. The eastern portion of the Property is covered in blackberry bushes and other shrubbery. The surrounding area is predominantly occupied by heavy industrial properties. The Property background information presented herein were obtained through a Phase I ESA conducted by Stantec, dated July 20, 2015 (Stantec, 2015).

The Property was operated from 1980 to 1986 as a smelting facility that processed aluminum scrap into ingots for recycling. The company filed for bankruptcy in 1983; however, operations continued through 1986 until the plant was shuttered. The company used an archaic molten salt process to smelt the aluminum. The salt flux was used to protect the molten aluminum from oxidation and improve metal recovery. The salt flux contained sodium chloride (NaCl) and potassium chloride (KCl). After the smelting process, the salt flux becomes a waste product consisting of aluminum oxide and impurities from the molten salt smelting process called "black dross" or "salt cake." During the first year of operation the black dross was hauled offsite for disposal at a solid waste landfill. Subsequently, the black dross was stored on-site until approximately 20,000 cubic yards accumulated in a consolidated stockpile located on the south and east sides of the warehouse building. The black dross has remained on-site since the plant closed in 1986. From a disposal perspective, black dross is problematic for two primary reasons: 1) the material is capable of generating leachate, and 2) the material if capable of producing gaseous products including ammonia, methane and hydrogen. Because of aluminum's amphoteric properties (it dissolves in both acid and alkaline solutions, generating heat and gas) disposal of large quantities can be problematic. In 1987, to determine the appropriate disposal method for the black dross, Ecology and Environment (E&E) collected several waste characterization samples from the black dross pile. The waste characterization samples indicated the black dross was a dangerous waste due to rat toxicity and an extremely hazardous waste for

aquatic life due to elevated levels of copper. As a remedial alternative to off-site disposal, the property owner requested that the Washington State Department of Ecology (Ecology) approve on-site capping of the waste. Ecology did not agree with this approach because the waste was already book designated as dangerous waste. Beginning in 2000, the property owner and their consultant worked with Ecology to reevaluate the waste characteristics of the dross pile. Based on the results of eight fish bioassay results and four rat bioassay samples, the waste was re-designated as a non-hazardous waste that could be disposed of at a Subtitle D landfill (Sutton, Yasuda, & Peck, 2007). However, this determination only considered the toxicity of the black dross and not the reactivity of the material. Additional detail regarding the history of the property and previous investigations is provided in the following section.

1.2 Geologic/Hydrogeologic Setting

1.2.1 Regional Geology

The Property is located in the lower Green River Valley, which runs north from Auburn to Renton. The valley is located within the Puget Sound Lowland. The physiography of this area has been dominated by the advance and retreat of continental glaciers during the Vashon Glaciation in the Pleistocene Epoch. The Vashon stade was the last glacial retreat and advance, which began to recede approximately 10,000 years before present.

Advance of the glaciers into western Washington carved out the Kent Valley while depositing outwash chiefly comprised of sand and gravel and dense compacted glacial till in the upland areas. Retreat of the glaciers left the valley as a deep marine embayment. The Green, White, and Cedar rivers deposited a thick accumulation of fluvial sediments, which were eroded from the glacial drift uplands into the valley. The remaining sediments consist of coarse sand and gravel near the mouth of the rivers at Auburn and Renton, and become finer toward the Kent area.

During subsurface investigation of the Property, native unconsolidated sediments observed from the ground surface to the maximum depth explored (approximately 15 feet below ground surface (bgs)) are generally silty fine sand with some interbeds of fine and medium sand.

1.2.2 Property Hydrogeology

The Property is located within the Duwamish (Green) River Basin. Regional groundwater in the area of the Property is dominated by flow toward and discharge into the Green River. Five distinct hydrogeological units comprise the aquifer system and are (from youngest too oldest): White River Alluvium, Vashon glacial deposits, Salmon Springs deposit, Older Undifferentiated Glacial and Interglacial deposits, and Bedrock of the Puget Group.

1.2.3 Surface Water Hydrogeology

The water table occurs at the Property at a depth of approximately 5 feet bgs. Mapping of the potentiometric surface of the water table has historically indicated groundwater migration to the north-northwest. Local groundwater on the Property is likely influenced by the ditches that cross the Property. Regionally, groundwater flow is to the northwest towards the Green River.

The Site is trisected by two drainage ditches. Christopher Ditch extends from 80th Avenue South southwest across the Site and at the approximate center of the Site the ditch turns to the northwest and extends across the Site to South 202nd Street. An unnamed ditch extends from the southeast west portion of the Site along the southeastern edge of the dross piles and joins the Christopher Ditch at the approximate center of the Site. Christopher Ditch flows to the northwest and eventually discharges into Mill Creek approximately ¾ of a mile northwest of the Site. Mill Creek is a tributary to the Green River (Ecology and Environment, 1987). Reportedly, the two drainage ditches pre-date construction of existing improvements at the Site and have been in their current locations since at least the late 1940s, based on review of historical photographs (Morrison-Knudsen Environmental Services, 1991). Based on their historical presence and connection to Mill Creek, it is likely the two drainage ditches will be regulated as streams. Kent City Code 11.06.680.C requires a 50-foot buffer and a 15-foot building setback for streams located in the industrial valley.

1.2.4 Wetlands

A wetland site assessment was completed in April of 2003 at the Site. The assessment identified wetland areas along the sides of, and in Christopher Ditch and its tributary at the Site, designated as Wetland A. The wetlands comprise 49,227 square feet of wetlands. Kent City Code 11.06.590.D states that wetland delineation reports are valid for 5 years, so a new delineation will be necessary prior to cleanup or development activities. Wetland categories and buffers in Kent's code have changed since 2003.

The wetland soils consist of Woodinville silt loam, typical of drainage ways and stream bottoms in King County. The Woodinville soils are very wet with standing water to saturation to 20 inches below ground surface (EMR Incorporated , 2003).

2.0 PREVIOUS ENVIRONMENTAL REPORTS

The following six previous environmental documents provided pertinent information relative to this Phase II ESA.

1.) Ecology and Environment, Inc.; Site Assessment Report Maralco Aluminum, Kent, Washington; June 25, 1987.

E&E completed a site assessment at the Property in the summer of 1987. The locations of samples collected during the investigation are shown on **Figure 2**. According to E&E, Maralco had analyzed samples of black dross, baghouse dust, and aluminum oxide using the Extraction Procedure Toxicity (EP-Tox) method and acute fish toxicity testing in February and July of 1986. Although the report does not state explicitly the purpose of collecting these samples, it is assumed that these samples were for waste characterization purposes to assess disposal options for the black dross. The sample results indicated the materials did not exceed EP-Tox hazardous waste criteria, however, that surface water sample mortality for acute fish toxicity testing was 100%. A sediment sample was collected from within the drainage ditch that transects the Property adjacent to the black dross pile (sample location B2, **Figure 2**.) The analytical results indicated that metals contained in the black dross (antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel and zinc) impacted drainage ditch sediments. Four of the detected metals [cadmium (4.5 milligrams/kilogram) (mg/kg), chromium (232 mg/kg), copper (1,500 mg/kg), and

nickel (74.0 mg/kg)] exceeded their respective Sediment Management Standard (SMS) Sediment Cleanup Objective (SCO) criteria. To evaluate whether the sediment sample would constitute a hazardous waste, the sample was also submitted for EP-Tox analysis. The results indicated that the sample did not meet the criteria of a hazardous waste. A surface water sample co-located with the sediment sample was also collected for laboratory analysis of priority pollutant metals. Only copper (0.19 micrograms/liter [µg/L]) and zinc (0.16 µg/L) were detected, however at concentrations significantly less than the applicable Surface Water Aquatic Life Acute and Chronic Exposure cleanup levels.

2.) Morrison-Knudsen Environmental Services, Inc.; Draft Phase I Remedial Investigation Report, Maralco Site, Kent, Washington; February, 1991.

Groundwater, sediment, surface water, and black dross samples were collected as part of this investigation. Assessment activities completed by Morrison-Knudsen Environmental Services, Inc. (MKE) included the characterization of the exterior dross piles, and the installation, development, and sampling of four monitoring wells. Testing of the dross samples for leachable metals indicated that the material was not a characteristic hazardous waste. Groundwater concentrations for arsenic and lead were detected at concentrations greater than the Model Toxics Control Act (MTCA) Method A Groundwater screening levels, and for barium exceeding the federal primary drinking water standard of 1.0 milligram per liter (mg/L). The surface water and sediment sample results revealed that dross was entering on-site drainage ditches and that surface water was transporting the material off-site. The report indicates that in 1987 Ecology placed plastic barricades around the dross stockpile to prevent run-off from entering the drainage ditches; however, by 1989 the barricades were no longer in place.

3.) Enviros, Inc.; Underground Storage Tank Decommissioning at the Maralco Aluminum Site, 7730 South 202nd Street, Kent, Washington; July 31, 1995

On behalf of Ecology, Enviros, Inc. (Enviros) decommissioned a 35,000-gallon diesel underground storage tank (UST) located in the parking lot at the northwest portion of the Property in July of 1995. Approximately 150 cubic yards of contaminated soil was removed from the excavation and stockpiled on visqueen. The report indicates that upon inspection the UST was observed to be in generally good condition with the exception of three pin-point sized holes located near the west end of the UST. Confirmation soil samples were collected from the base and sidewalls of the excavation. The approximate extent of the excavation is shown on **Figure 2**. The analytical results indicated the presence of diesel-range organics (DRO) in soil from only the south and west sidewalls (6,300 mg/kg and 96 mg/kg respectively), with only the sample collected from the south sidewall exceeding the MTCA Method A screening level of 2,000 mg/kg. DRO was also detected in stockpiled soils from the excavation at concentrations ranging from 1,200 mg/kg to 2,100 mg/kg. The MTCA Method A screening level for DRO is 2,000 mg/kg. According to the report, Ecology approved returning stockpiled soil to the excavation following completion of UST removal activities.

4.) Environmental Management Resources, Inc.; Draft Remedial Investigation/Feasibility Study for the Former Maralco Site, Kent, Washington; May, 2003

EMR conducted a Remedial Investigation/Feasibility Study (RI/FS) in 2003 at the Site. The RI/FS included the installation, development, and sampling of one new monitoring well (MW-5); sampling of three of the four existing monitoring wells (MW-2 through MW-4); and the collection of 22 dross samples from four soil borings (DP-1 through DP-4). The locations for samples during this investigation are shown on **Figure 2**. Depth to groundwater measurements collected by EMR and others indicates that groundwater occurs at a depth of approximately 5 feet below the ground surface, and that groundwater flow is generally to the north-northwest. Aluminum, arsenic, barium, chloride and fluoride were found to exceed the Project Remediation Goals (PRGs) in groundwater (generally equivalent to the MTCA Method B formula values corresponding to the lesser concentration for a Hazard Quotient of 1 or a potential carcinogenic risk of one in one million). Constituents of concern in soil were reportedly less than the PRGs for the Property. The dross and site sediments contain arsenic, barium, copper and mercury at concentrations greater than the Site PRGs. However, leachability testing indicated that the black dross was not a characteristic hazardous waste. The report identified three cleanup action alternatives:

- Alternative 1 – Limited Action/Institutional Controls
- Alternative 2 – Removal and Off-Site Disposal
- Alternative 3 – On-Site Containment

The Draft RI/FS report recommended Alternative 2 – Removal and Off-Site Disposal as the recommended alternative. This alternative included the removal and off-site disposal of the dross and other wastes inside the warehouse building and impacted soil and sediment.

5.) URS Corporation; Draft Cleanup Action Plan, Maralco Redevelopment Project; November 12, 2004

URS Corporation (URS), completed an inventory of stockpiled particulate matter collected in baghouses located in the southwest corner of the warehouse building. Seven cribbed stockpiles were noted. The total estimated volume of material in these stockpiles was 1,100 cubic yards. Also noted by URS were five 55-gallon drums of waste located in the southeast corner of the building. Further characterization of these wastes was recommended by URS.

The URS report summarized findings from additional investigations that include a URS "Black Dross Characterization Report" dated 2000 as well as a "Former UST Investigation" conducted by EMR dated 2003. URS's summaries of these reports are provided below.

- URS completed further characterization of dross at the Property in August of 2000 by collecting and analyzing one discrete black dross sample and four composite black dross samples from the exterior dross stockpiles. The samples were collected east of the warehouse with a hand auger from a depth of five feet or less except for one sample that was collected at a depth of 9.5 feet. Testing included evaluation of toxicity using the Toxicity Characteristic Leaching Procedure (TCLP) and fish bioassay test methods. The TCLP testing results indicated that the black dross was not a characteristic hazardous

waste. Also, the fish bioassay testing indicated that the black dross was not a State of Washington dangerous waste.

- In 2003, EMR conducted additional site characterization activities in the former UST area of the Property. The investigation indicated that two 1.5-inch copper pipes extended from the UST area to the southeast toward the warehouse suggesting that diesel may have been used to fuel one or more of the furnaces within the building. These pipes were only removed to the edge of the UST excavation, and the pipes left in place were capped. Soil samples collected during this investigation indicated no evidence of petroleum hydrocarbon impacts exceeding MTCA Method A screening levels. However, petroleum hydrocarbon concentrations in the groundwater grab sample collected from boring SB-1 exceeded the MTCA Method A screening levels at a concentration of 450 mg/L.

The preferred remedial action identified by URS was the removal and disposal of black dross, baghouse dust and other wastes inside the warehouse at an off-site disposal facility. URS further recommended sampling of the black dross and interior waste piles for hazardous waste characterization purposes, sampling of groundwater in the former UST area, and resampling of the five existing monitoring wells on the Site as part of a supplemental RI.

6.) URS Corporation; Proposal, Environmental Services, Maralco Restoration Project; 202nd Street, Kent Washington. November 14, 2011

The purpose of the URS proposal was to document the scope of work required by Ecology for entry into a Prospective Purchaser Consent Decree (PPCD). The PPCD is a particular type of Consent Decree entered into with a person who is not currently liable for remedial action at the Property and who wishes to purchase the Property. Ecology identified the following three requirements which are needed prior to developing a PPCD:

1. Completing a supplemental Remedial Investigation (RI) to address data gaps in site characterization;
2. Update the existing RI/FS report prepared by EMR (the proposal erroneously refers to another consulting company "ERM"); and
3. Revise the URS November 12, 2004 Draft Cleanup Action Plan (DCAP) to address comments provided by Ecology.

Additionally, a fourth task was identified, updating the Wetland Delineation report for the Site. The last wetland report for the Site was prepared in April of 2003; wetland assessments are valid for a period of 5 years according to Kent City Code 11.06.590.D.

The Task 1 – Supplemental RI tasks were recommended to include:

- Additional sampling and analysis of the black dross stockpiles located outside of the warehouse building for disposal characterization;
- Sampling the waste stockpiles inside the warehouse for disposal characterization;
- Drilling and sampling seven borings around the former USTs at the Site;
- Sampling existing Site monitoring wells; and

- Inspecting the farmhouse to confirm former uses of the structure. Ecology suspected the building may have been used as a drug or chemical laboratory which included the use and onsite disposal of hazardous substances.

3.0 PURPOSE AND OBJECTIVE

The purpose of this limited Phase II ESA is to provide an evaluation of recognized environmental conditions (RECs) as identified in the Phase I ESA (Stantec 2015) and to confirm previously identified impacts to soil, groundwater, sediment, and surface water at the Property. Additionally, the information in this report is intended to support future application of the Property in the Ecology Voluntary Cleanup Program (VCP). Specifically, the scope of this investigation consisted of the following tasks:

- Completing a geophysical survey to explore for evidence of buried subsurface utilities in the areas planned for drilling and in the former UST area;
- Advancing 6 direct-push soil borings (B-1 through B-6) to depths up to 20 feet bgs. The locations of the borings are shown on **Figure 2**.
- Collecting up to two soil samples at each of the 6 soil boring locations for laboratory analysis. At three locations (B-1 through B-3) soil samples were collected to assess the current condition of petroleum hydrocarbon impacts historically associated with the former diesel UST and petroleum hydrocarbon impacted soil used to backfill the excavation. At three locations (B-4 through B-6) soil samples were collected to assess the current concentrations of contaminants associated with the stockpiled black dross.
- Collecting groundwater grab samples for laboratory analysis from each of the borings (B-1 through B-6). Temporary wells were installed using 0.010 polyvinyl chloride (PVC) screen. Groundwater grab samples were collected to assess the current condition of metals associated with the stockpiled black dross and petroleum hydrocarbons around the former UST.
- Sampling of one existing groundwater monitoring well on the Property (MW-2) and collecting a groundwater sample for laboratory analysis. The location of the existing groundwater monitoring well network is shown on **Figure 2**. (Note that three of the wells planned for sampling could not be located and one well had been destroyed.)
- Sampling of surface sediment and surface water from 2 locations along the on-site drainage ditch (SS-1; SS-2/SW-10; and SW-11).
- Collecting three depth composited samples of black dross from the exterior stockpile at location (D-1) for waste characterization purposes.

The tasks and field sampling activities described below were performed in general accordance with the SSSAP and QAPP (Stantec 2016 and Stantec 2014).

4.0 FIELD INVESTIGATION PROCEDURES

Field investigation activities were conducted in October and November 2016, and included the following:

- Collecting 15 soil samples from 6 soil boring locations across the Property on October 27, 2016;
- Collecting 6 groundwater grab samples from the soil borings;
- Collecting 2 surface sediment samples and 2 surface water samples on October 28, 2016;
- Sampling existing monitoring well MW-2 on November 2, 2016; and
- Collecting three depth composited samples of black dross from the exterior stockpile at location (D-1) on November 28, 2016.

The sample locations are shown on **Figure 2**. The following report sections summarize the field sampling and laboratory analytical methods implemented during the field program.

4.1 Geophysical Assessment

Stantec oversaw a geophysical assessment of the Property by Underground Locations Services Corporation (ULS) on October 21, 2016. ULS used a Fisher Split Box Electromagnetic Induction Metal Detector (EMIMD) and Schonstedt Magnetic Locator to scan portions of the Property for anomalies that may indicate the presence of buried metal objects. Following the magnetic survey, a MALA ground penetrating radar (GPR) system with a 500-MHz antenna was used to further evaluate the identity of metallic anomalies, and screen borehole locations for subsurface utilities. The ULS report is provided in **Appendix A**. A summary of the results is provided in **Section 5.1**.

4.2 Subsurface Soil Investigation

Stantec supervised the drilling of 6 soil borings (B-1 through B-6) at the Property on October 27, 2016 **(Figure 2**). Drilling was performed by Environmental Services Network Northwest (ESN NW; based in Olympia, WA and subcontracted to Stantec). Drilling was accomplished by direct-push methods using an AMS 9630 PRO-PTO truck-mounted rig. The soil samples were collected to evaluate subsurface conditions and to access the presence or absence of metals (in particular aluminum) at the Property from past Property operations) and petroleum hydrocarbons from the former 35,000-gallon diesel UST. Boring B-6 was located inside the abandoned warehouse building.

The six soil borings were drilled to maximum depths of 20 feet bgs. One discrete vadose zone soil sample was collected from each location slightly above the capillary fringe at depths ranging from 4 to 8 feet bgs and a second discrete soil sample was collected at the depth interval from 15 to 17 feet bgs. A depth of 15 feet is equivalent to the extent of direct contact exposure (as defined by Washington Administrative Code [WAC] 173-340-740) and 15 to 17 feet is the estimated bottom of the former diesel UST. Groundwater was encountered in each of the borings at depths ranging between 5 feet bgs (B-2) and 9 feet bgs (B-5). Soil descriptions, sampling methods, and field screening results are provided below in **Section 5.3**.

Soil samples from the six borings were collected in clean, acetate-lined 2.25-inch stainless steel core barrels using the direct-push technique. The sampling equipment was decontaminated between each sample interval by cleaning with a solution of Alconox™, followed by a two-step deionized water rinse.

Stantec field personnel used clean stainless steel hand tools to transfer the soil from the liner into new clean laboratory-supplied glass jars. New disposable gloves were donned by field personnel for the collection of each soil sample to minimize any possible cross-contamination. Soil samples for volatile organic compound (VOC) analyses were collected in accordance with USEPA Soil Sampling Method 5035 using Terracores™. Following filling, each of the sample containers were labeled, placed in sealable plastic bags, and stored in an insulated cooler with ice. The samples were subsequently transported to the laboratory under chain-of-custody (COC) protocols specified in the project-specific QAPP (Stantec 2014). The borehole logs are included as **Appendix C**.

Soil samples collected from borings B-1 through B-3 were submitted for laboratory analysis of the following constituents:

- Gasoline-range petroleum hydrocarbons (GRO) via Ecology Method NWTPH-Gx,
- DRO and residual-range petroleum hydrocarbons (RRO) via Ecology Method NWTPH-Dx,
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) via USEPA Method 8021B, and;
- Polycyclic Aromatic Hydrocarbons (PAHs) including Carcinogenic PAHs (cPAHs) via USEPA Method 8270 Selective Ion Method (SIM).

Soil samples collected from borings B-4 through B-6 were submitted for laboratory analysis of the following constituents:

- Toxicity characteristic leaching procedure (TCLP) metals arsenic, barium, cadmium, chromium, lead, selenium, silver and mercury via USEPA Method 6010/7470;
- Total Resource Conservations and Recovery Act (RCRA) 8 metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) via USEPA Method 200.7, 6010B and 6010C;
- Aluminum via USEPA Method 200.7, and;
- Ammonia-nitrogen, nitrate, chloride, and fluoride via USEPA Method 300.0.

One soil field duplicate sample was collected and analyzed for each of the constituents of concern for quality assurance/quality control purposes.

The soil sample results are provided in **Table 1** and discussed in **Section 5.3**.

4.3 Surface Water Sampling

Stantec collected surface water samples (SW-10 and SW-11) on October 28, 2016 from the on-Property drainage ditch. The surface water samples were obtained by filling a clean stainless steel scoop with the surface water and decanting the water into laboratory-supplied sample containers. The samples were sealed with Teflon® lined caps and placed on ice for shipment to the analytical laboratory.

Each surface water sample collected was submitted for laboratory analysis of:

- Total RCRA 8 Metals via USEPA Method 200.8;
- Aluminum via USEPA Method 200.8; and
- Ammonia Nitrogen, Chloride, Nitrate Nitrogen, Fluoride via USEPA Method 300.0

One surface water field duplicate sample was collected and analyzed for each of the constituents of concern for quality assurance/quality control purposes.

The surface water sample results are provided in **Table 2** and discussed in **Section 5.4**.

4.4 Surface Sediment Sampling

Stantec collected surface sediment samples (SS-1 and SS-2) on October 28, 2016 from the on-Property drainage ditch. The surface sediment samples were obtained from the sides of the drainage ditch near the water line by using a clean stainless steel scoop to dig to approximately six inches bgs and placing the samples into laboratory-supplied sample containers. The samples were sealed with Teflon® lined caps and placed on ice for shipment to the analytical laboratory.

Each surface sediment sample collected was submitted for laboratory analysis of:

- Total RCRA 8 Metals via USEPA Method 200.8;
- Aluminum via USEPA Method 200.8; and
- Ammonia Nitrogen, Chloride, Nitrate Nitrogen, Fluoride via USEPA Method 300.0

One surface sediment field duplicate sample was collected and analyzed for each of the constituents of concern for quality assurance/quality control purposes.

The sediment sample results are provided in Table 3 and discussed in **Section 5.5**.

4.5 Groundwater Investigation

On October 28, 2016, Stantec redeveloped monitoring well MW-2 because it had not been sampled in approximately 12 years. The purpose of the well redevelopment was to remove accumulated fines and debris from the cell casing and to reestablish the hydraulic conductivity between the well sand pack and the aquifer.

A depth to groundwater measurement was collected from well MW-2 prior to sampling using an electronic water level meter. The remaining wells were not accessible or had been destroyed. Water level measurements were measured from the northern edge of the top of the well casing and recorded to the nearest 0.01 foot on the field data sheet. The water level meter was decontaminated with Alconox™ and deionized water. The water level is tabulated on **Table 5**.

Stantec collected a groundwater sample from MW-2 on November 2, 2016 using low-flow sampling methods following purging of the well. Field parameters, including temperature, pH, conductivity, and oxidation-reduction potential (redox/ORP) were recorded on the field data sheet every 3 to 5 minutes, depending on the purge rate. Purging of the monitoring well was considered complete when the field parameters became stable for three successive readings as outlined in the SSSAP (Stantec 2016). The groundwater samples were collected in laboratory-supplied sample containers, sealed with Teflon® lined caps, and placed on ice for shipment to

the analytical laboratory in accordance with the project-specific QAPP (Stantec 2014). The purge logs are included in **Appendix D** and the water quality parameters are presented on **Table 6**.

The groundwater samples collected were submitted for laboratory analysis of the following constituents:

- Total RCRA 8 Metals via USEPA Method 200.8, 6010B and 6010C;
- PAHs via USEPA Method 8270D SIM;
- Aluminum via USEPA Method 200.8;
- DRO and RRO via Ecology Method NWTPH-Dx; and
- Ammonia-nitrogen, nitrate, chloride, and fluoride via USEPA Method 300.

The groundwater sample results are provided in **Table 4** and discussed in **Section 5.6**.

4.6 Groundwater Grab Sampling

Groundwater grab samples were collected from each of the soil borings (B-1 through B-6). The drilling subcontractor constructed a temporary well using 0.010 PVC screen and 10/20 Colorado Silica Sand to fill the annulus. The depth to water was measured from the top of the temporary well screen and recorded on the field data sheet. Groundwater samples were collected into laboratory-supplied sample containers, sealed with Teflon® lined caps, and placed on ice for shipment to the analytical laboratory. Groundwater was encountered in each of the borings at depths ranging between 5 feet bgs (B-2) and 9 feet bgs (B-5).

The groundwater samples collected were submitted for laboratory analysis of the following constituents:

- Total RCRA 8 Metals via USEPA Method 200.8, 6010B and 6010C;
- PAHs including cPAHs via USEPA Method 8270D SIM;
- Aluminum via USEPA Method 200.8;
- DRO and RRO via Ecology Method NWTPH-Dx; and
- Ammonia-nitrogen, nitrate, chloride, and fluoride via USEPA Method 300.0.

The groundwater grab sample results are provided in **Table 4** and discussed in **Section 5.7**.

4.7 Dross Waste Characterization Sampling

On November 28, 2016 Stantec collected a depth-composited sample of the dross from the stockpile for waste characterization purposes to evaluate offsite disposal options. The sample was collected using a clean, standard garden shovel from a single location (D-1) near the base and along the western edge of the dross stockpile (**Figure 2**). The dross sample consisted of a composite of surface (0 to 0.5 feet bgs), shallow (1-2 feet bgs) and deep (2-3 feet bgs) dross material that was homogenized and subsequently placed into sealed plastic bags and sealed in three 5-gallon plastic buckets for transportation.

4.8 Investigation Derived Waste (IDW)

Upon the completion of soil sample collection at each location, each boring was backfilled with bentonite chips (hydrated in place). Any excess soil from the boring locations was placed in one 16-gallon, properly-labeled Department of Transportation (DOT)-approved steel drum.

Equipment decontamination fluids and purge water from groundwater grab samples and existing monitoring wells were contained in two 16-gallon, properly-labeled DOT-approved steel drums. The drums containing the solid and liquid IDW were placed in the north-central portion of the Property, pending receipt of analytical results and final disposition options.

4.9 Deviations from the SSSAP/QAPP

The following deviations occurred from the SSSAP and QAPP (Stantec 2016 and Stantec 2014):

- Field sample nomenclature outlined in the QAPP was not adhered to for consistency purposes to match previous sampling on site (e.g., MW-1 was used instead of KFMMW01 as outlined in the QAPP);
- Because four of the monitoring wells (MW-1, and MW-3 through MW-5) could not be located, only one monitoring well was sampled during the Phase II ESA;
- During groundwater sampling from the existing monitoring well a duplicate sample was not collected due to an oversight;
- During groundwater sampling, turbidity measurements were not collected due to an oversight;
- During surface sediment and surface water sampling two sediment samples (SS-3 and SS-4) were not collected due to inability to access surface sediments at or near the proposed sampling locations; one surface water sample (SW-9) was not collected because there was no water present in the drainage ditch; and one surface water sample (SW-12) was not collected due to inaccessibility of the sampling location.

With the exception of the turbidity measurements, the aforementioned deviations are not expected to alter the results and/or conclusions of this Phase II ESA. Please see the conclusions and recommendations **(Section 8.0**) regarding turbidity.

5.0 FIELD INVESTIGATION RESULTS

Tabulated sample results are included in **Tables 1 through 4** for soil, surface water, sediment, and groundwater, respectively**.** The ESC Lab Sciences analytical report and chain-of-custody documents are provided in **Appendix E**.

5.1 Geophysical Assessment Findings

As described in **Section 4.1**, Stantec oversaw a geophysical assessment performed by ULS at the Property on October 21, 2016. The ULS report is provided in **Appendix A**.

Three magnetic anomalies were identified during the survey:

a. A north-south trending linear anomaly located in the southeast portion of the building near B-6 appeared to be a possible conduit line,

b. A northwest-southeast trending linear anomaly located between the former UST area and the northeast corner of the building appeared to be a possible former fuel piping line, and;

c. A northeast-southwest trending linear anomaly located between the northeast corner of the building and the Property entrance appeared to be a possible former electrical and/or communications line.

The goal of geophysical assessment was to provide a rapid means of exploring for abandoned USTs and/or other underground structures/utilities using non-intrusive methods. Conclusions based upon these methods are generally reliable; however, due to the inherent ambiguity of the methods, it is not possible to definitively identify a metallic subsurface feature such as rebar within a former building foundation or a UST.

5.2 Screening Levels

The MTCA screening levels referenced in this report are defined as a means of measuring the relative severity of contamination at the Property and are used for screening of soil, groundwater, sediment, and surface water concentrations for data evaluation purposes. These screening levels may or may not be the same as future cleanup or action levels used to guide remediation at the Property. These would be developed based on concurrence with Ecology, if required. The MTCA soil screening levels used for screening were selected as the most stringent of direct contact concentrations (Method A Unrestrictive Land Use and B Cancer/ Non cancer). For arsenic, the most stringent direct contact concentration is the Method B Cancer Direct Contact value of 0.667 milligrams per kilograms. However, this value is less than the natural background level for Washington State of 7 mg/kg (Ecology 1994). As a result, the screening level used herein for arsenic is 7 mg/kg (**Table 1**). The MTCA groundwater screening levels used for screening were selected as the most stringent of the standard MTCA Method A of B formula values (non-restrictive; **Table 4**); however, it is unlikely that groundwater will be used as a potable source at the Property in the future because of the availability of municipal water for water supply in this area. The WAC Chapter 173-201A and the Clean Water Act (CWA) Surface Water Fresh Acute and Chronic values (**Table 2**) were selected as the most appropriate screening levels for surface water. Finally, the WAC Chapter 173-204, SMS SCO value was selected as the most stringent standard for sediments at the Property. (**Table 4**).

5.3 Soil Results

5.3.1 Soil Sample Observations

Soil from the borings was logged lithologically using the Unified Soil Classification System. Artificial fill was present from ground surface to approximately 3 feet bgs. Native soil beneath the Artificial Fill was primarily grey to brown, fine to very fine sand and silty fine sand with minor layers of silt/clayey silt/clay. Boring logs showing lithology are provided in **Appendix C**.

During sampling, soil not used for sample collection was field-screened for potential volatile organic compound vapors with a photoionization detector (PID) calibrated to the manufacturer's specifications. PID readings ranged from non-detect to 2 parts per million (ppm). Slight

diesel/petroleum hydrocarbon odor was noted at borings B-1 and B-3 near the former diesel UST and slight natural decay/organic odor was noted at borings B-2, B-4 and B-5. No staining was observed in the soil.

Shallow groundwater was encountered at each of the borings at depths ranging from 5 to 9 feet bgs.

5.3.2 Soil Analytical Results

A total of 15 soil samples were collected on October 27, 2016 and submitted to ESC Lab Sciences for GRO, DRO and RRO; BTEX; PAH; TCLP metals; RCRA 8 metals; aluminum; and/or ammonia-nitrogen, nitrate, chloride, and fluoride analysis. The soil analytical results are described below and summarized on **Table 1**.

5.3.2.1 Petroleum Hydrocarbon and BTEX Analytical Results

- GRO, DRO, and RRO were not detected in any of the soil samples.
- Benzene was detected in five of the fifteen soil samples at concentrations less than the MTCA screening level of 0.03 mg/kg. The detected benzene concentrations ranged between 0.00014 mg/kg (B-6-9.5') and 0.000604 mg/kg (B-5-10').
- Toluene was detected in two of the fifteen soil samples at concentrations of 0.000476 mg/kg (B-4-9') and 0.000557 mg/kg (B-5-10'), which is less than the MTCA screening level of 7.0 mg/kg.
- Ethylbenzene and total xylenes were not detected in any of the soil samples.

5.3.2.2 Polycyclic Aromatic Hydrocarbon Analytical Results

- A total of six soil samples from borings B-1, B-2 and B-3 were submitted for analysis of PAHs.
- Eleven PAHs including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene, and 2-methylnaphthalene were detected in the soil samples. Each of the PAHs were detected at concentrations less than the MTCA screening levels.
- Carcinogenic PAHs (cPAHs) are a subset of PAHs and identified by the EPA as Group A (known human) or B (probable human) carcinogens. There are seven cPAHs including benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthrancene and indeno(1,2,3cd)pyrene. For mixtures of cPAHs the reference chemical is benzo(a)pyrene. This constituent was chosen as the reference chemical because the toxicity is well characterized. The toxicity equivalence factor for each cPAH is an estimate of the relative toxicity of the cPAH compound compared to benzo(a)pyrene.
- cPAHs were detected in one soil sample (B-3-6') at a cumulative concentration of 0.002485 mg/kg, which is less than the MTCA screening level of 0.137 mg/kg.

5.3.2.3 Total RCRA 8 Metals and Aluminum,

- Six soil samples from borings (B-4-7', B-4-15', B-5-8', B-5-15', B-6-7.5' and B-6-15') were submitted for analysis of total RCRA 8 metals and aluminum.
- Eight metals, including aluminum, arsenic, barium, cadmium, chromium, lead, mercury, and selenium, were detected in the soil samples at concentrations less than the MTCA screening levels.
- Barium and mercury were detected in soil at concentrations greater than the natural background levels for the Puget Sound region (Ecology, 1994).
    - The mercury concentration in soil sample B-6-7.5' (0.141 mg/kg) is greater than the natural background level of 0.07 mg/kg however significantly less than the MTCA screening level of 2 mg/kg.

5.3.2.4 TCLP Metals Analytical Results

- Six soil samples from borings (B-4-7', B-4-15', B-5-8', B-5-15', B-6-7.5' and B-6-15') were submitted for analysis of total TCLP metals analysis.
- Barium was the only metal detected through leaching extraction at concentrations ranging between 0.0539 mg/L (B-5-8') and 0.177 mg/L (B-6-7.5') which is significantly less than the Washington State Maximum Concentration of Contaminants for the Toxicity Characteristic of 100 mg/L for barium.

5.3.2.5 Geochemical Parameter Analytical Results

- Six soil samples were submitted from borings B-4-7', B-4-15', B-5-8', B-5-15', B-6-7.5' and B-6-15' for analysis of chloride, fluoride and ammonia-nitrogen and nitrate.
- Chloride was detected at concentrations ranging from 41.4 mg/kg (B-5-8') to 4,280 mg/kg (B-5-15'). There is no established MTCA screening level for chloride.
- Fluoride was detected at concentrations ranging from 0.544 mg/kg (B-5-15') to 35.9 mg/kg (B-6-15') which is less than the MTCA screening level of 3,200 mg/kg.
- Nitrate was detected in two soil samples at concentrations of 0.954 mg/kg (B-5-8') and 2.25 mg/kg (B-4-7'), which is less than the MTCA screening level of 128,000 mg/kg.
- Ammonia nitrogen was detected at concentrations between 5.92 mg/kg (B-4-15') and 33.1 mg/kg (B-5-15'). There is no established MTCA screening level for ammonia-nitrogen.
- The highest concentration of geochemical parameters were observed in soil samples collected from boring B-5 which is located adjacent to and downgradient from the exterior dross stockpile.

5.4 Surface Water Analytical Results

A total of two surface water samples were collected on October 28, 2016 and submitted to ESC Lab Sciences for RCRA 8 metals; aluminum; and ammonia-nitrogen, nitrate, chloride, and fluoride

analysis. The surface water analytical results are described below, summarized on **Table 2,** and shown on **Figure 3**.

5.4.1 Total RCRA 8 Metals and Aluminum Analytical Results

- Five of the nine metals including, aluminum, barium, cadmium, chromium and lead, were detected in the surface water samples.
- Aluminum, cadmium, and lead were detected at concentrations exceeding their MTCA screening levels.
    - Aluminum exceeded the Clean Water Act (CWA) surface water fresh/chronic screening level of 87 µg/L in both samples SW-10 (730 µg/L) and SW-11 (618 µg/L);
    - Cadmium exceeded the CWA surface water fresh/chronic screening level of 0.25 µg/L in the sample SW-10 (2.13 µg/L), and
    - Lead exceeded the WAC surface water aquatic life fresh/chronic screening level of 0.54 µg/L in the sample SW-11 (2 µg/L).

5.4.2 Geochemical Parameter Analytical Results

- Two surface water samples were submitted for analysis of chloride, fluoride and ammonia-nitrogen and nitrate.
- With the exception of chloride, each of the geochemical parameters were detected at concentrations less than their MTCA screening levels.
- Chloride was detected at concentrations of 379,000 µg/L (SW-11) and 8,940,000 µg/L (SW-10), which is greater than both the CWA Surface Water Fresh/Chronic screening level and the WAC Surface Water Aquatic Life Fresh/Chronic screening level of 230,000 µg/L.
- The concentration of chloride in sample SW-10 was also greater than the WAC surface water aquatic life fresh/acute screening level.

5.5 Sediment Analytical Results

On October 28, 2016, a total of two surface sediment samples were collected and submitted to ESC Lab Sciences for analysis of RCRA 8 metals; aluminum; and ammonia-nitrogen, nitrate, chloride, and fluoride. The sediment analytical results are described below and summarized on **Table 4**.

5.5.1 Total RCRA 8 Metals and Aluminum Analytical Results

- Each of the nine metals were detected in the sediment samples.
- Cadmium, chromium and silver were detected at concentrations exceeding their screening levels:
    - Cadmium exceeded the SMS Freshwater SCO of 2.1 mg/kg in the sample collected at SS-2; and

- Silver exceeded the SMS Freshwater SCO of 0.57 mg/kg in the sample collected at SS-2.
- Chromium exceeded the SMS Freshwater Sediment SCO and CSL in the duplicate sample from SS-2 ("SS-900," 112 mg/kg).

5.5.2 Geochemical Parameter Analytical Results

- Chloride was detected at concentrations ranging from 82.3 mg/kg to 26,800 mg/kg. There are no established SMS criteria for chloride.
- Fluoride was detected at concentrations ranging from 226 mg/kg to 383 mg/kg. There are no established SMS criteria for chloride.
- Nitrate was detected at concentrations ranging from 3.62 mg/kg to 13.8 mg/kg. There are no established SMS criteria for nitrate.
- Ammonia-nitrogen was detected at concentrations ranging from 4.26 mg/kg to 6.65 mg/kg, less than the SMS SCO of 230 mg/kg.
- The highest concentrations of each of the constituents were detected at sampling location SS-2 adjacent to the exterior dross stockpile.

5.6 Groundwater Analytical Results

On November 2, 2016, a groundwater sample was collected from existing monitoring well MW-2 and submitted to ESC Lab Sciences for analysis of DRO, RRO; PAHs; RCRA 8 metals; aluminum; and ammonia-nitrogen, nitrate, chloride, and fluoride. The groundwater analytical results are described below, summarized on **Table 4** and shown on **Figure 3**.

5.6.1 Petroleum Hydrocarbons Analytical Results

- DRO and RRO were not detected in the groundwater sample.

5.6.2 Total RCRA 8 Metals and Aluminum Analytical Results

- Three of the nine metals including aluminum, barium, and lead were detected at concentrations of 174 µg/L, 5.65 µg/L, and 2.59 µg/L, respectively, in the groundwater sample, which is significantly less than each of the MTCA screening levels: 16,000 µg/L, 2,000 µg/L and 15 µg/L, respectively.

5.6.3 Geochemical Parameter Analytical Results

- Chloride and fluoride were detected at concentrations of 3,890 µg/L and 80.7 µg/L, which is less than the MTCA screening levels of 250,000 µg/L and 4,000 µg/L, respectively.
- Fluoride was detected at a concentration of 80.7 µg/L which is less than the MTCA screening level of 640 µg/L.
- Ammonia-nitrogen and nitrate were not detected in the groundwater sample.

5.6.3.1 Polycyclic Aromatic Hydrocarbon Analytical Results

- Four PAHs including fluorene, phenanthrene, 1-methylnaphthalene and 2-methylnaphthalene were detected in the groundwater at concentrations less than the MTCA screening levels.
- cPAHs were not detected in the groundwater sample.

5.7 Groundwater Grab Sample Analytical Results

Groundwater grab samples were collected from temporary wells installed at soil boring locations B-1 through B-6 on October 27, 2016. The groundwater samples were submitted to ESC Lab Sciences for analysis of DRO, RRO; PAHs; RCRA 8 metals; aluminum; and ammonia-nitrogen, nitrate, chloride, and fluoride. The groundwater grab sample analytical results are described below and summarized on **Table 4** and shown on **Figure 3**.

5.7.1 Petroleum Hydrocarbons Analytical Results

- DRO were detected in two of the six groundwater grab samples from temporary well B-1 (160 µg/L) and temporary well B-3 (235 µg/L) at concentrations less than the MTCA screening level of 500 µg/L.
- RRO was not detected in any of the groundwater samples.

5.7.2 Total RCRA 8 Metals and Aluminum Analytical Results

- Six groundwater grab samples were submitted for analysis of total RCRA 8 metals and aluminum.
- Three total metals, cadmium, chromium and mercury, were detected in the groundwater grab samples, but at concentrations less than the MTCA screening levels.
- Two metals, silver and selenium were not detected in the grab groundwater samples.
- Four metals including, aluminum, arsenic, barium and lead, were detected at concentrations exceeding their MTCA screening levels.
    - Aluminum exceeded the MTCA screening level of 16,000 µg/L in samples collected from wells B-1, B-2, B-4, and B-6;
    - Arsenic exceeded the MTCA screening level of 5.0 µg/L in samples collected from wells B-1 through B-6;
    - Barium exceeded the MTCA screening level of 3,200 µg/L in the sample collected from well B-5; and
    - Lead exceeded the MTCA screening level of 15 µg/L in the samples collected from wells B-1, B-2, B-4, and B-6.

5.7.3 Geochemical Parameter Analytical Results

- Chloride and fluoride were detected in the groundwater grab samples at concentrations greater than the MTCA screening levels.
    - Chloride concentrations were greater than the MTCA screening level L of 250,000 µg/L in samples collected from B-1 (265,000 µg/L), B-3 (341,000 µg/L) and B-5 (8,970,000 µg/L).
    - Fluoride concentrations were greater than the MTCA Method B Non Cancer screening level of 640 µg/L in samples collected from B-2 (850 µg/L), B-4 (5,090 µg/L), B-6 (52,900 µg/L) and B-5 (7,740 µg/L). The concentration in samples collected from B-4, B-6 and B-5 also exceeded the WAC maximum contaminant level (MCL) of 4,000 µg/L.
- Ammonia-nitrogen and nitrate were detected in the groundwater grab samples, however at concentrations less than the MTCA screening levels.

5.7.4 Polycyclic Aromatic Hydrocarbon Analytical Results

- Six groundwater grab samples were submitted for analysis of PAHs.
- Eight PAHs including acenaphthene, acenaphthylene, benzo(a)pyrene, fluorene, naphthalene, phenanthrene, 1-methylnaphthalene, and 2-methylnaphthalene were detected in the groundwater samples.
- Benzo(a)pyrene was the only cPAH detected in the groundwater grab samples and exceeded the MTCA Method B Cancer screening level of 0.012 µg/L in one sample from well B-1 (0.0812 µg/L).

5.8 Dross Waste Characterization Results

The dross waste characterization results are discussed in Section 7.5 below.

6.0 DATA VALIDATION RESULTS

Stantec performed a QA/QC (data validation) review of the analytical results, which included a review of accuracy and precision of data supplied by the laboratory per USEPA guidelines. The data validation resulted in assignment of qualifiers to several sample results. Analytical results for all other QA/QC samples, including water blanks, trip blanks, and equipment/rinsate blanks are provided in the laboratory reports. The data validation report is provided as **Appendix F**.

7.0 SUMMARY

7.1 Soil Summary

A total of 15 soil samples were collected from six soil borings during this Limited Phase II ESA. Three of the soil borings were advanced around a former UST excavation at the northwest corner of the Property and the remaining three soil borings were advanced adjacent or downgradient from the

black dross stockpile to the east and south of the warehouse building. Soil samples were analyzed for petroleum hydrocarbons, total metals, geochemical parameters and PAHs. None of the constituents were detected at concentrations greater than the applicable MTCA Method A or B screening levels. The data indicate the following:

- Petroleum hydrocarbons were not detected in soil samples from borings B-1 through B-3, which were advanced around the former UST excavation. Detected BTEX and PAH concentrations were less than the MTCA screening levels.
- With the exception of selenium, each of the RCRA 8 metals were detected in soil samples collected downgradient and/or adjacent to the black dross piles. While none of the detected metals exceeded their MTCA screening levels, the concentrations of mercury were greater than the natural background levels for the Puget Sound in one or more of the soil samples. The source of these elevated metals is likely leaching of contaminants from the black dross. None of the detected mercury concentrations are greater than the MTCA screening level.
- A total of six soil samples from borings B-4, B-5 and B-6 were submitted for TCLP analysis. Barium was the only leachable metal detected in these soil samples, but the concentration of barium detected was below regulatory levels.

7.2 Surface Water Summary

Two surface water samples, SW-10 and SW-11 were collected during this Limited Phase II ESA to evaluate impacts from surface water runoff and leaching from the dross stock piles. Surface water samples, SW-10 and SW-11, were collected on the east and southeast sides of the black dross stockpile, respectively. The analytical results for these surface water samples indicate that three metals, aluminum, cadmium and lead, and one geochemical parameter, chloride, were detected in the surface water samples at concentrations greater than their screening levels. Each of these constituents are contaminants associated with black dross and the salt flux. Further, fluoride, nitrate, and ammonia-nitrogen were also detected in the surface water samples, although there are no established surface water screening levels for these constituents. Surface water flow via the drainage ditches is a transport medium for these contaminants, which are likely being transported offsite by means of the north running drainage ditch on the Property. Proposed upgradient surface water sample location SS-9 was dry at the time of the investigation. Downgradient location SW-12, was inaccessible because of heavy brush.

7.3 Sediment Summary

Two surface sediment samples, SS-1 and SS-2, were collected from where the east and southeast sides of the black dross stockpile intersect the drainage ditch, respectively. Elevated geochemical parameters including chloride and fluoride were detected in the sediment samples. Three metals, cadmium, chromium and silver, were detected in the sediment samples at concentrations greater than screening levels. The source of these contaminants is likely a result of surface water run-off and erosion from the black dross stockpile. The surface water transports contaminants into the drainage ditches on the eastern and western portions of the stockpile.

7.4 Groundwater Summary

Only one of the five existing monitoring wells (MW-2) was sampled during the investigation. Two of the wells, MW-4 and MW-5, were destroyed. Wells MW-1 and MW-3 could not be accessed because of designated wetland areas and thick brush on the eastern portion of the Property. Well MW-2 is cross-gradient to groundwater from the dross stockpile area based on reported historical groundwater flow to the north/northwest at the Property. Because this well is not proximate or downgradient from the black dross and is located in an area where contamination is unlikely to be present based on historical information on Property usage, the data provide information on background water quality at the Property. The results indicate:

- Three metals: aluminum, barium and lead, and PAHs were detected in the groundwater sample at concentrations less than MTCA screening levels.
- Geochemical parameters chloride and fluoride were also detected in the sample, however at concentrations less than the MTCA screening levels.

Six groundwater grab samples were collected to evaluate groundwater quality around the former UST excavation and adjacent or downgradient from the black dross stockpile to the east and south of the warehouse building. Groundwater grab samples are collected from temporary monitoring wells installed by the driller and subsequently abandoned after the sample was collected. These types of samples are considered to be qualitative in nature because of the potential for "drag-down" of impacted soil at shallower intervals. In addition, high turbidity levels associated with groundwater grab samples tend to bias high groundwater analytical results. The groundwater grab sample results indicate:

- Groundwater was encountered at depths ranging between 5 feet bgs and 9 feet bgs during the investigation.
- Four metals: aluminum, arsenic, barium and lead, and chloride, fluoride and benzo(a)pyrene were detected at concentrations greater than their MTCA screening levels.
- The data suggest that leaching of contaminants from the black dross pile and infiltration to the subsurface continue to adversely impact groundwater quality at the Property.

The extent of impacted groundwater has not been fully delineated vertically or horizontally at the Property. As discussed in the 1991 MKE RI, groundwater beneath the dross pile would be expected to exhibit very high salinities. Brines (salt solutions) have greater densities than natural groundwater and have the potential to sink through the shallow aquifer and transport heavy metals in solution with them.

7.5 Dross Waste Characterization Summary

Depth composited samples of the black dross were collected and shipped to two waste disposal companies (Waste Connections and U.S Ecology) for waste characterization purposes. Each of the disposal companies performed their own reactivity testing on the dross to evaluate if it was suitable for disposal at their landfills. Based on the favorable responses from the facilities, it is apparent that over the last 30 years the reactivity of the dross has diminished substantially, making

it suitable for disposal at a landfill. However, because the landfills are not accredited laboratories, the UN/DOT 4.3 analysis is recommended to formalize these preliminary findings.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The results of the Limited Phase II ESA at the former Maralco Aluminum Property indicate that metals, chloride, fluoride, and benzo(a)pyrene exceed screening levels in groundwater, surface water and sediment at the Property. A summary of Stantec's conclusions and recommendations are provided below.

Mercury was detected at concentrations greater than the natural background levels for the Puget Sound Basin in soil at the Property. The likely source of these contaminants is the black dross stockpiled onsite. The stockpile material was covered as part of interim action in 1991; however, the cover has not been maintained over time. The majority of the stockpile is now exposed to surface water runoff and wind dispersion. Interim actions to mitigate erosion of this material could include placing and securing a visqueen cover over the stockpiled material and erecting new barricades (e.g., silt fences or similar) to prevent the black dross from entering the onsite drainage ditches. Based on the data from borings B-1 through B-3, petroleum hydrocarbon impacted soil was not identified in the former UST excavation area. No further evaluation of soil in this area of the Property is recommended.

Only one of the five existing monitoring wells was sampled during this investigation. To delineate the horizontal extent of impacted groundwater at the Property, monitoring wells MW-3, 4 and 5 should be replaced. In addition, working with Ecology and the Army Corps of Engineers for any wetland impacts, permits should be obtained to clear vegetation and/or provide access to well MW-1 located in the southeast corner of the Property. After the installation of the monitoring wells, a full round of water levels and groundwater samples should be collected and analyzed for metals, geochemical parameters and PAHs. The results may indicate that additional monitoring wells are needed to adequately delineate the horizontal and vertical extent of contaminants in groundwater.

Surface water at the Property has been impacted with aluminum, cadmium, lead and chloride. Similarly, surface sediment has been impacted with cadmium, chromium and silver and elevated levels of chloride. These contaminants may be migrating off-site via surface water or sediment transport in the drainage ditches. To evaluate the transport of these contaminants, surface water and surface sediment samples should be collected from the upgradient portion of the ditch along the southern property boundary and at a downgradient location near the northern Property boundary prior to discharge off-site. Subsurface sediment samples may also be necessary to fully delineate contamination associated with the drainage ditches.

Internal testing by two disposal companies indicates that the black dross is suitable for disposal at a Subtitle D landfill. The wastes inside the warehouse will still need to be characterized to evaluate disposal options. Additionally, the federal wetland delineation manual, state wetland rating system and City of Kent code have been revised since the original wetland delineation. The wetland boundaries should be verified and the wetland report updated.

The data collected for this limited Phase II ESA can be used to update the existing RI/FS report prepared by EMR, and provided to Ecology for review under the VCP program. Pending Ecology review and possible additional investigation based on the recommendations provided herein, the RI/FS report can be finalized, and the URS November 12, 2004 DCAP can be updated and revised accordingly for submittal to Ecology for review and approval.

9.0 REFERENCES

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Tables

Table 1 - Summary of Soil Analytical Data
Former Maralco Aluminum Site
Kent, Washington
March 21, 2017

		Model Toxics Control Act (MTCA) Cleanup Levels			WAC	Ecology	Soil Samples													
Sample Identification							B-1-5'	B-1-17'	B-2-4'	B-2-16.5'	B-3-6'	B-3-16'	B-4-7'	B-4-9'	B-4-15'	B-5-8'	B-5-10'	B-5-15'	B-6-7.5'	B-6-9.5'	B-6-15'
Sample Depth (ft bgs)							5	17	4	16.5	6	16	7	9	15	8	10	15	7.5	9.5	15
Date Collected		**MTCA Method A Unrestricted Land use**	**MTCA Method B Non Cancer**	**MTCA Method B Cancer**	**173-303-090**	**Background Level for metals in Puget Sound[2]**	10/27/2016	10/27/2016	10/27/2016	10/27/2016	10/27/2016	10/27/2016	10/27/2016	10/27/2016	10/27/2016	10/27/2016	10/27/2016	10/27/2016	10/27/2016	10/27/2016	10/27/2016
Petroleum Hydrocarbons (mg/kg)																				
NWTPHDX	Diesel Range Organics	2000	na	na	na	-	4.4 U	5.38 U	4.61 U	5.04 U	45.1 U	5.5 U	--	--	--	--	--	--	--	--	--
NWTPHDX	Residual Range Organics	2000	na	na	na	-	11 U	13.5 U	11.5 U	12.6 U	113 U	13.8 U	--	--	--	--	--	--	--	--	--
NWTPHGX	Gasoline Range Organics	30/100[1]	na	na	na	-	--	0.1 U	--	--	--	0.1 U	--	0.1 U	--	--	0.1 U	--	--	0.1 U	--
8021B	Benzene	0.03	320	18.2	na	-	--	**0.000522**	--	--	--	**0.000205 J**	--	**0.00132**	--	--	**0.000604**	--	--	**0.00014 J**	--
8021B	Toluene	7.00	6,400	na	na	-	--	0.005 U	--	--	--	0.005 U	--	**0.000476 B J**	--	--	**0.000557 B J**	--	--	0.005 U	--
8021B	Ethylbenzene	6.00	8,000	na	na	-	--	0.0005 U	--	--	--	0.0005 U	--	0.0005 U	--	--	0.0005 U	--	--	0.0005 U	--
8021B	Xylenes, Total	9.00	160,000	na	na	-	--	0.0015 U	--	--	--	0.0015 U	--	0.0015 U	--	--	0.0015 U	--	--	0.0015 U	--
Geochemical Parameters (mg/kg)																				
9056A	Chloride	na	na	na	na	-	--	--	--	--	--	--	**44.4**	--	**309**	**41.4**	--	**4,280**	**212**	--	**183**
9056A	Fluoride	na	3,200	na	na	-	--	--	--	--	--	--	**5.03**	--	**2.75**	**31.8**	--	**0.544 J P1**	**7.72**	--	**35.9**
9056A	Nitrate	na	128,000	na	na	-	--	--	--	--	--	--	**2.25**	--	1.37 U	**0.954 J**	--	1.38 U	1.31 U	--	1.45 U
350.1	Ammonia Nitrogen	na	na	na	na	-	--	--	--	--	--	--	**15.2**	--	**5.92 J**	5.27 U	--	**33.1**	**27.7**	--	**9.72 J6**
Total Metals (mg/kg)																				
6020	Aluminum	na	80,000	na	na	32,581	--	--	--	--	--	--	**9,370 O1 V**	--	**12,200**	**5,730**	--	**8,840**	**16,600**	--	**19,800**
6010C	Arsenic	*20*	24	0.667	*na*	7.30	--	--	--	--	--	--	2.34 U	--	**2.73**	**3.46**	--	2.77 U	**2.47 J**	--	**2.88 J**
6010C	Barium	na	16,000	na	na	-	--	--	--	--	--	--	**39.6**	--	**55.7**	**19.1**	--	**42.1**	**70.2**	--	**52.2**
6010C	Cadmium	2	80	na	na	0.77	--	--	--	--	--	--	**0.115 J**	--	**0.128 J**	**0.0759 J**	--	0.692 U	**0.153 J**	--	**0.234 J**
6010C	Chromium	na	na	na	na	48.15	--	--	--	--	--	--	**13**	--	**14.5**	**8.32**	--	**11.4**	**18**	--	**20.1**
6010C	Lead	250	na	na	na	16.83	--	--	--	--	--	--	**2.37**	--	**3.26**	**2.14**	--	**2.57**	**4.35**	--	**6**
7471A	Mercury	2	na	na	na	0.07	--	--	--	--	--	--	**0.023 J**	--	**0.0288**	0.0211 U	--	**0.0281**	**0.141**	--	**0.0163 J**
6010C	Selenium	na	400	na	na	-	--	--	--	--	--	--	2.34 U	--	**1.41 J**	2.11 U	--	2.77 U	2.62	--	**1.11 J**
6010C	Silver	na	400	na	na	-	--	--	--	--	--	--	1.17 U	--	1.37 U	1.05 U	--	1.38 U	1.31	--	1.45 U
TCLP Metals (mg/L)																				
6010C	Arsenic	na	na	na	5.0	-	--	--	--	--	--	--	0.1 U	--	0.1 U	0.1 U	--	0.1 U	0.1 U	--	0.1 U
6010C	Barium	na	na	na	100.0	-	--	--	--	--	--	--	**0.056**	--	**0.127**	**0.0539**	--	**0.0736**	**0.177**	--	**0.0989**
6010C	Cadmium	na	na	na	1.0	-	--	--	--	--	--	--	0.02 U	--	0.02 U	0.02 U	--	0.02 U	0.02 U	--	0.02 U
6010C	Chromium	na	na	na	5.0	-	--	--	--	--	--	--	0.1 U	--	0.1 U	0.1 U	--	0.1 U	0.1 U	--	0.1 U
6010C	Lead	na	na	na	5.0	-	--	--	--	--	--	--	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U
6010C	Selenium	na	na	na	1.0	-	--	--	--	--	--	--	0.1 U	Ele	0.1 U	0.1 U	--	0.1 U	0.1 U	--	0.1 U
6010C	Silver	na	na	na	5.0	-	--	--	--	--	--	--	0.05 U	--	0.05 U	0.05 U	--	0.05 U	0.05 U	--	0.05 U
7470A	Mercury	na	na	na	0.2	-	--	--	--	--	--	--	0.01 U	--	0.01 U	0.01 U	--	0.01 U	0.01 U	--	0.01 U
Polycyclic Aromatic Hydrocarbons (mg/kg)																				
8270D-SIM	Anthracene	na	24,000	na	na	-	0.0066 U	0.00808 U	0.00692 U	0.00756 U	0.00676	0.00826 U	--	--	--	--	--	--	--	--	--
8270D-SIM	Acenaphthene	na	4,800	na	na	-	0.0066 U	0.00808 U	0.00692 U	0.00756 U	0.00676	0.00826 U	--	--	--	--	--	--	--	--	--
8270D-SIM	Acenaphthylene	na	na	na	na	-	0.0066 U	0.00808 U	0.00692 U	0.00756 U	0.00676	0.00826 U	--	--	--	--	--	--	--	--	--
8270D-SIM	Benzo(A)Anthracene*	na	na	1.37	na	-	0.0066 U	0.00808 U	0.00692 U	0.00756 U	**0.000687 J**	0.00826 U	--	--	--	--	--	--	--	--	--
8270D-SIM	Benzo(A)Pyrene*	0.1	0.137	2.33	na	-	0.0066 U	0.00808 U	0.00692 U	0.00756 U	**0.000855 J**	0.00826 U	--	--	--	--	--	--	--	--	--
8270D-SIM	Benzo(B)Fluoranthene*	na	na	1.37	na	-	0.0066 U	0.00808 U	0.00692 U	0.00756 U	**0.00114 J**	0.00826 U	--	--	--	--	--	--	--	--	--
8270D-SIM	Benzo(G,H,I)Perylene	na	na	na	na	-	0.0066 U	0.00808 U	0.00692 U	0.00756 U	**0.00184 J**	0.00826 U	--	--	--	--	--	--	--	--	--
8270D-SIM	Benzo(K)Fluoranthene*	na	na	13.7	na	-	0.0066 U	0.00808 U	0.00692 U	0.00756 U	0.00676	0.00826 U	--	--	--	--	--	--	--	--	--
8270D-SIM	Chrysene*	na	na	137	na	-	0.0066 U	0.00808 U	0.00692 U	0.00756 U	**0.00153 J**	0.00826 U	--	--	--	--	--	--	--	--	--
8270D-SIM	Dibenz(A,H)Anthracene*	na	na	0.137	na	-	0.0066 U	0.00808 U	0.00692 U	0.00756 U	0.00676	0.00826 U	--	--	--	--	--	--	--	--	--
8270D-SIM	Fluoranthene	na	3,200	na	na	-	0.0066 U	0.00808 U	0.00692 U	0.00756 U	**0.00111 J**	0.00826 U	--	--	--	--	--	--	--	--	--
8270D-SIM	Fluorene	na	3,200	na	na	-	0.0066 U	0.00808 U	0.00692 U	0.00756 U	0.00676	0.00826 U	--	--	--	--	--	--	--	--	--
8270D-SIM	Indeno(1,2,3-Cd)Pyrene*	na	na	1.37	na	-	0.0066 U	0.00808 U	0.00692 U	0.00756 U	**0.000801 J**	0.00826 U	--	--	--	--	--	--	--	--	--
8270D-SIM	Naphthalene	5	1,600	na	na	-	0.022 U	**0.00473 J**	0.0231 U	0.0252 U	0.0225	0.0275 U	--	--	--	--	--	--	--	--	--
8270D-SIM	Phenanthrene	na	na	na	na	-	0.0066 U	**0.000954 J**	**0.00132 J**	0.00756 U	**0.00198 J**	0.00826 U	--	--	--	--	--	--	--	--	--
8270D-SIM	Pyrene	na	2,400	na	na	-	0.0066 U	0.00808 U	0.00692 U	0.00756 U	**0.00159 J**	0.00826 U	--	--	--	--	--	--	--	--	--
8270D-SIM	1-Methylnaphthalene	na	56,000	34.5	na	-	0.022 U	0.0269 U	0.0231 U	0.0252 U	0.0225	0.0275 U	--	--	--	--	--	--	--	--	--
8270D-SIM	2-Methylnaphthalene	na	320	na	na	-	0.022 U	0.0269 U	0.0231 U	0.0252 U	**0.00249 J**	0.0275 U	--	--	--	--	--	--	--	--	--
8270D-SIM	2-Chloronaphthalene	na	6,400	na	na	-	0.022 U	0.0269 U	0.0231 U	0.0252 U	0.0225	0.0275 U	--	--	--	--	--	--	--	--	--
Total cPAH concentrations (ND = 0)		na	na	na	na	-	0	0	0	0	0.002485	0	--	--	--	--	--	--	--	--	--

Notes:

(mg/kg): milligrams per kilogram

(mg/L): milligrams per liter

Constituent exceeds one or more regulatory values

BOLD: Constituent detected

Italicized: Coinciding regulatory value exceeded

Underlined = concentration is greater than the natural background concentration

--: not sampled for the constituent

*: carcinogenic polycyclic aromoatic hydrocarbons

[1] If benzene is present the MTCA Method A CUL is 30 mg/kg; however, if benzene is not present the MTCA Method A CUL is 100 mg/kg.

[2]Washington State Department of Ecology Natural Background 90th Percentile value for the Puget Sound (Ecology 1994)

ft bgs: feet below ground surface

B: Analyte found in the associated blank

J: The identification of the analyte is acceptable; the reported value is an estimate.

J6: Sample matrix interfered with the ability to make any accurate determination; spike value is low

O1: Analyte failed the method require serial dilution test and/or subsequent post-spike criteria. This indicates matrix interference.

P1: Relative % Difference value not applicable for sample concentrations less than 5 times the reporting limit

TCLP: Toxicity Characteristic Leaching Procedure

U: Constituent not detected

V: Sample concentration is too high to evaluate accurate spike recoveries

WAC: Washington State Administrative Code

Table 2 - Summary of Surface Water Analytical Data
Former Maralco Aluminum Site
Kent, Washington
March 21, 2017

		CWA	WAC		Surface Water Samples		
Sample Identification		**Surface Water Fresh/Chronic**	**Surface Water Aquatic Life Fresh/Acute**	**Surface Water Aquatic Life Fresh/Chronic**	**SW-10**	**SW-11**	**SW-900 (Dup of SW-11)**
Date Collected					**10/28/2016**	**10/28/2016**	**10/28/2016**
Method	**Analyte**						
Total Metals (µg/L)							
6020	Aluminum	*87*	na	na	**730**	**618 J**	**373 J**
6010C	Arsenic	150	360	190	10 U	10 U	10 U
6010C	Barium	na	na	na	**481**	**15.5**	**14.4**
6010C	Cadmium	*0.25*	*0.82*	*0.37*	**2.13**	2 U	2 U
6010C	Chromium	na	na	na	**1.91 J**	**1.41 J**	10 U
6010C	Lead	2.5	13.9	*0.54*	5 U	**2 J**	5 U
7470A	Mercury	0.77	2.1	0.012	0.2 U	0.2 U	0.2 U
6010C	Selenium	5	20	5	10 U	10 U	10 U
6010C	Silver	3.20	0.32	na	5 U	5 U	5 U
Geochemical Parameters (µg/L)							
300	Chloride	*230,000*	*860,000*	*230,000*	**8,940,000**	**379,000**	**367,000**
300	Fluoride	na	na	na	**6,630**	**4,170**	**4,210**
300	Nitrate	na	na	na	**10,200**	**288 J**	**288 J**
350.1	Ammonia Nitrogen	na	na	na	**2,680**	**62 J**	**60 J**

Notes:
(µg/L): micrograms per liter
Constituent exceeds one or more regulatory values
BOLD: Constituent detected
Italicized: Coinciding regulatory value exceeded
CWA: Clean Water Act
J: The identification of the analyte is acceptable; the reported value is an estimate.
U: Constituent not detected
WAC: Washington State Administrative Code (WAC) Maximum Contaminant Cleanup Levels (MCL), chapter 173-201A

Table 3 - Summary of Sediment Analytical Data
Former Maralco Aluminum Site
Kent, Washington
March 21, 2017

Sample Identification		SMS Freshwater Sediment SCO	SMS Freshwater Sediment CSL	Sediment Samples		
				SS-1	SS-2	SS-900
Date Collected				10/28/2016	10/28/2016	10/28/2016
Geochemical Parameters (mg/kg)						
9056A	Chloride	na	na	**82.3**	**26,800**	**29,900**
9056A	Fluoride	na	na	**226**	**383**	**579**
9056A	Nitrate	na	na	**3.62**	**13.8**	**8.21**
350.1	Ammonia Nitrogen	230	300	**4.26 J F**	**6.65 J**	15.6 U
Total Metals (mg/kg)						
6010C	Arsenic	14	120	**6.78**	**4.3 J**	**9.47**
6010C	Barium	na	na	**58.5**	**60.2**	**120**
6010C	Cadmium	*2.1*	5.4	**0.619 J**	**2.74**	**5.56**
6010C	Chromium	*72*	*88*	**36.3**	**54.4**	**112**
6010C	Lead	360	>1300	**42**	**53.7**	**113**
6010C	Selenium	11	>20	**1.87 J**	4.98 U	**3.09 J**
6010C	Silver	*0.57*	1.7	1.57 U	**0.776 J**	**3.14**
6020	Aluminum	na	na	**55,500**	**22,200**	**81,100**
7470A	Mercury	0.66	0.8	**0.0564**	**0.116**	**0.158**

Notes:

Constituent exceeds one or more regulatory values

BOLD: Constituent detected

>: the toxicity level is unknown but exceeds the value listed

(mg/kg): milligrams per kilograms

CSL: Cleanup Screening Level

SCO: Sediment Cleanup Objective

SMS: Sediment Management Standard as defined, chapter 173-240, Section 173-240-562

Table 4 - Summary of Groundwater Analytical Data
Former Maralco Aluminum Site
Kent, Washington
March 21, 2017

		Model Toxics Control Act (MTCA) Cleanup Levels			WAC	Monitoring Well Sample	Groundwater Grab Samples					
Sample Identification		**MTCA Method A Groundwater**	**MTCA Method B Non Cancer**	**MTCA Method B Cancer**	**Groundwater MCL**	**MW-2**	**B-1-GW**	**B-2-GW**	**B-3-GW**	**B-4-GW**	**B-6-GW**	**B-5-GW**
Date Collected						**11/02/2016**	**10/27/2016**	**10/27/2016**	**10/27/2016**	**10/27/2016**	**10/27/2016**	**10/27/2016**
Method	**Analyte**											
Petroleum Hydrocarbons (µg/L)												
NWTPHDX	Diesel Range Organics	500	na	na	na	250 U	**160 J**	250 U	**235 J**	250 U	250 U	250 U
NWTPHDX	Residual Range Organics	500	na	na	na	500 U	500 U	500 U	500	500 U	500 U	500 U
Total Metals (µg/L)												
6020	Aluminum	na	16,000	na	na	**174**	**151,000**	**159,000**	**11,000**	**363,000 J**	**43,500**	**7,880**
6010C	Arsenic	*5*	*4.8*	0.0583	*10*	10 U	**68.6**	**45.2**	**33.8**	**65.9**	**64**	**43.9**
6010C	Barium	na	*3,200*	na	*2,000*	**5.65**	**608**	**590**	**164**	**676**	**325**	**3,850**
6010C	Cadmium	5	8	na	5	2 U	**1.13 J**	**1.5 J**	2 U	**1.56 J**	2 U	2 U
6010C	Chromium	50	na	na	100	10 U	**86.6**	**124**	**15.4**	**108**	**44.3**	**18.7**
6010C	Lead	*15*	na	na	*15*	**2.59 J**	**41.9**	**49.3**	**6.73**	**28.5**	**40.3**	**9.4**
7470A	Mercury	2	na	na	2	0.2 U	**0.0726 J**	**0.234**	0.2 U	**0.0681 J**	**0.338**	**0.0502 J**
6010C	Selenium	na	80	na	*50*	10 U	10 U	10 U	10 U	10 U	10 U	10 U
6010C	Silver	na	80	na	na	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Geochemical Parameters (µg/L)												
300	Chloride	na	na	na	*250,000*	**3,890**	**265,000**	**177,000**	**341,000**	**109,000**	**111,000**	**8,970,000**
300	Fluoride	na	*640*	na	*4,000*	**80.7 J**	**428**	**850**	**496**	**5,090**	**52,900**	**7,740**
300	Nitrate	na	25,600	na	10,000	100 U	**488**	**177**	**55.6** J	**363**	100 U	100 U
350.1	Ammonia Nitrogen	na	na	na	na	250 U	**4,070**	**4,570**	**7,030**	**4,150**	**516**	**39,800**
Polycyclic Aromatic Hydrocarbons (µg/L)												
8270D-SIM	Anthracene	na	4800	na	na	0.05 U	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U
8270D-SIM	Acenaphthene	na	960	na	na	0.05 U	**0.112**	0.05 U	**0.459**	0.1 U	0.1 U	0.1 U
8270D-SIM	Acenaphthylene	na	na	na	na	0.05 U	**0.0136 J**	0.05 U	**0.0735 J**	0.1 U	0.1 U	0.1 U
8270D-SIM	Benzo(A)Anthracene*	na	na	0.120	na	0.05 U	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U
8270D-SIM	Benzo(A)Pyrene*	0.100	na	*0.012*	0.200	0.05 U	**0.0812**	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U
8270D-SIM	Benzo(B)Fluoranthene*	na	na	0.12	na	0.05 U	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U
8270D-SIM	Benzo(G,H,I)Perylene	na	na	na	na	0.05 U	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U
8270D-SIM	Benzo(K)Fluoranthene*	na	na	1.2	na	0.05 U	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U
8270D-SIM	Chrysene*	na	na	12	na	0.05 U	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U
8270D-SIM	Dibenz(A,H)Anthracene*	na	na	0.012	na	0.05 U	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U
8270D-SIM	Fluoranthene	na	640	na	na	0.05 U	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U
8270D-SIM	Fluorene	na	640	na	na	**0.00874 J**	**0.0431 J**	0.05 U	**0.483**	0.1 U	0.1 U	0.1 U
8270D-SIM	Indeno(1,2,3-Cd)Pyrene*	na	na	0.12	na	0.05 U	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U
8270D-SIM	Naphthalene	160	160	na	na	0.131 U	**0.167 J**	**0.0429 J**	**0.614**	0.5 U	0.5 U	0.5 U
8270D-SIM	Phenanthrene	na	na	0.12	na	**0.00915 J**	**0.0124 J**	0.05 U	**0.0249 J**	0.1 U	0.1 U	0.1 U
8270D-SIM	Pyrene	na	480	na	na	0.05 U	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U
8270D-SIM	1-Methylnaphthalene	na	560	na	na	**0.036 J**	**0.147 J**	**0.0167 J**	**2.38**	0.5 U	0.5 U	0.5 U
8270D-SIM	2-Methylnaphthalene	na	32	na	na	**0.0646 J**	**0.0585 J**	**0.0165 J**	**0.226 J**	0.5 U	0.5 U	0.5 U
8270D-SIM	2-Chloronaphthalene	na	na	na	na	0.25 U	0.25 U	0.25 U	0.5 U	0.5 U	0.5 U	0.5 U
Total cPAH concentrations (ND = 0)		na	na	na	na	0.05 U	**0.0812**	0.05 U	0.05 U	0.05 U	0.05 U	0.1 U

Notes:

Constituent exceeds one or more regulatory values
BOLD: Constituent detected
Italicized: Coinciding regulatory value exceeded

* = Carcinogenic Polycyclic Aromatic Hydrocarbon
J: The identification of the analyte is acceptable; the reported value is an estimate.
U: Constituent not detected

MCL = Maximum Contaminant Level
WAC: Washington State Administrative Code (WAC) Maximum Contaminant Cleanup Levels (MCL), chapter 246-290, Section 246-290-310 (µg/L): micrograms per liter

Table 5 - Groundwater Elevation Data
Former Maralco Aluminum Site
Kent, Washington
March 21, 2017

Well ID	Date	DTW (ft btoc)	DTB (ft btoc)	TOC Elevation[1]	Water Elevation[1]	Well Diameter (in)	Construction Material	Screen Interval (ft bgs)
MW-2	11/02/16	5.21	16.4	26.99	21.78	2	Schedule 40 PVC	6-16

Notes:

[1] Feet above mean sea level based upon previous survey data (MKE, 1991)
DTB = depth to bottom of the well
DTW = depth to water
ft bgs = feet below ground surface
ft btoc = feet below top of well casing
in = inches
PVC = Polyvinyl chloride
TOC = top of well casing

Table 6 - Groundwater Quality Data
Former Maralco Aluminum Site
Kent, Washington
March 21, 2017

Well ID	Date	Temperature (°C)[1]	Conductivity (mS/c^3)[1]	pH[1]	Color[1]	O.R.P.[1]
MW-2	11/02/16	11.83	0.155	6.59	Clear	47.3

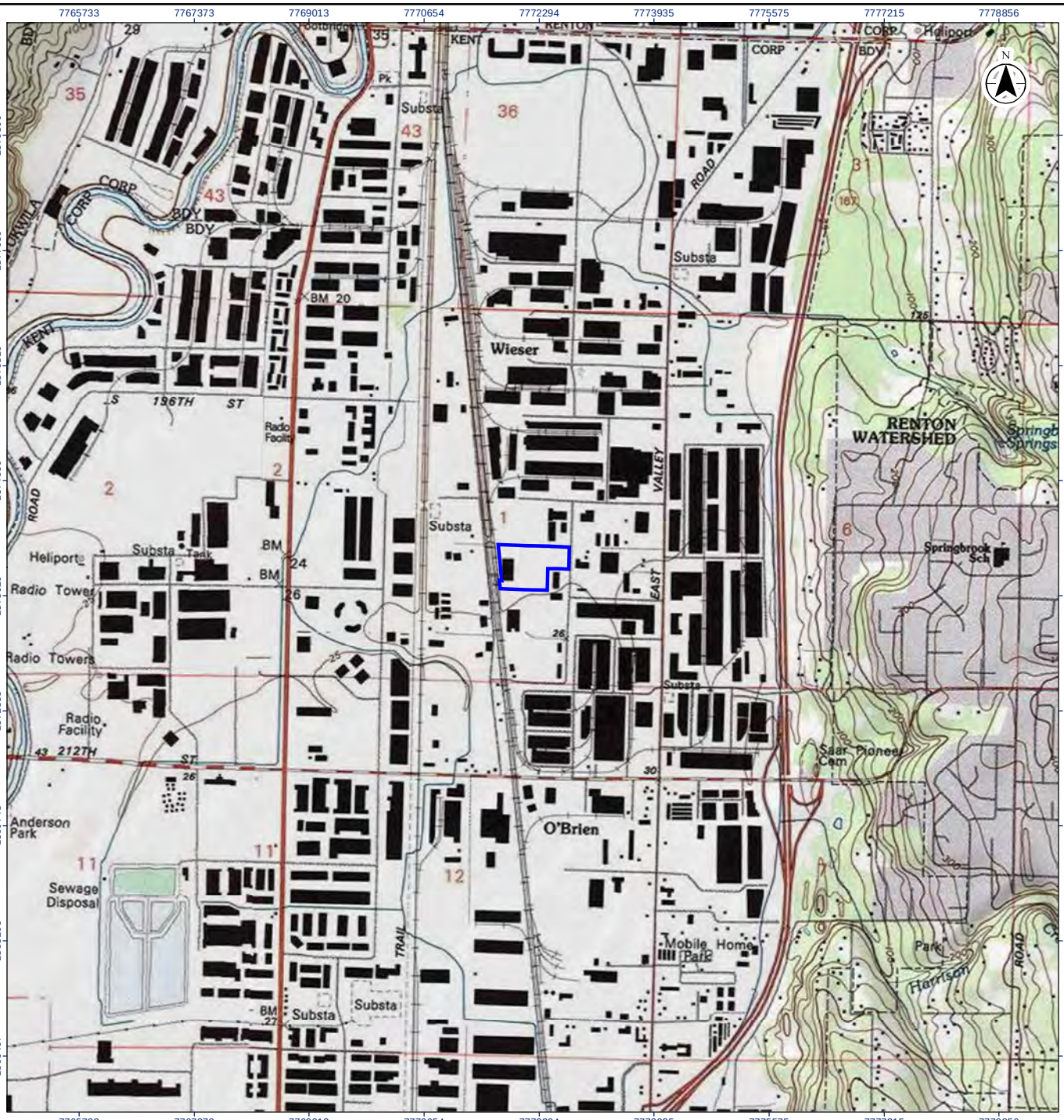
Notes:

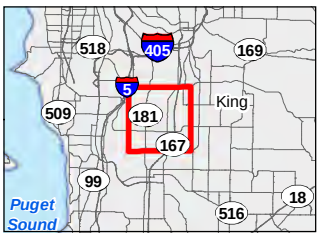
[1] Final water quality reading prior to sampling

mS/c^3 = microsiemens per cubic centimeter

O.R.P. = oxidation reduction potential

Figures





Property Location

0 1,000 2,000 Feet

1:25,714 (at original document size of 8.5x11)

Stantec

Figure No.
1

Title
Property Location Map

Client/Project
City of Kent
Phase II ESA Former Maralco Aluminum Property

Project Location
7730 S. 202nd St.
Kent, Washington

185750123
Prepared by JN on 2017-02-15
Technical Review by CCG on 2017-02-15
Reviewed by CCG on 2017-02-15

Notes
1. Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
2. Data Sources Include: Stantec, King County, ESRI

Figure No.
2

Title
Property Layout Map with Current & Historical Sampling Locations

Client/Project
City of Kent
Phase II ESA Former Maralco Aluminum Property

Project Location
7730 S. 202nd St.,
Kent, Washington

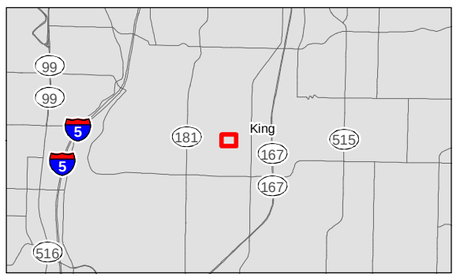
185750123
Prepared by JDN on 2017-02-15
Technical Review by CCG on 2017-02-15
Independent Review by CCG on 2017-02-15

0 50 100 Feet
1:1,200 (At original document size of 11x17)

N

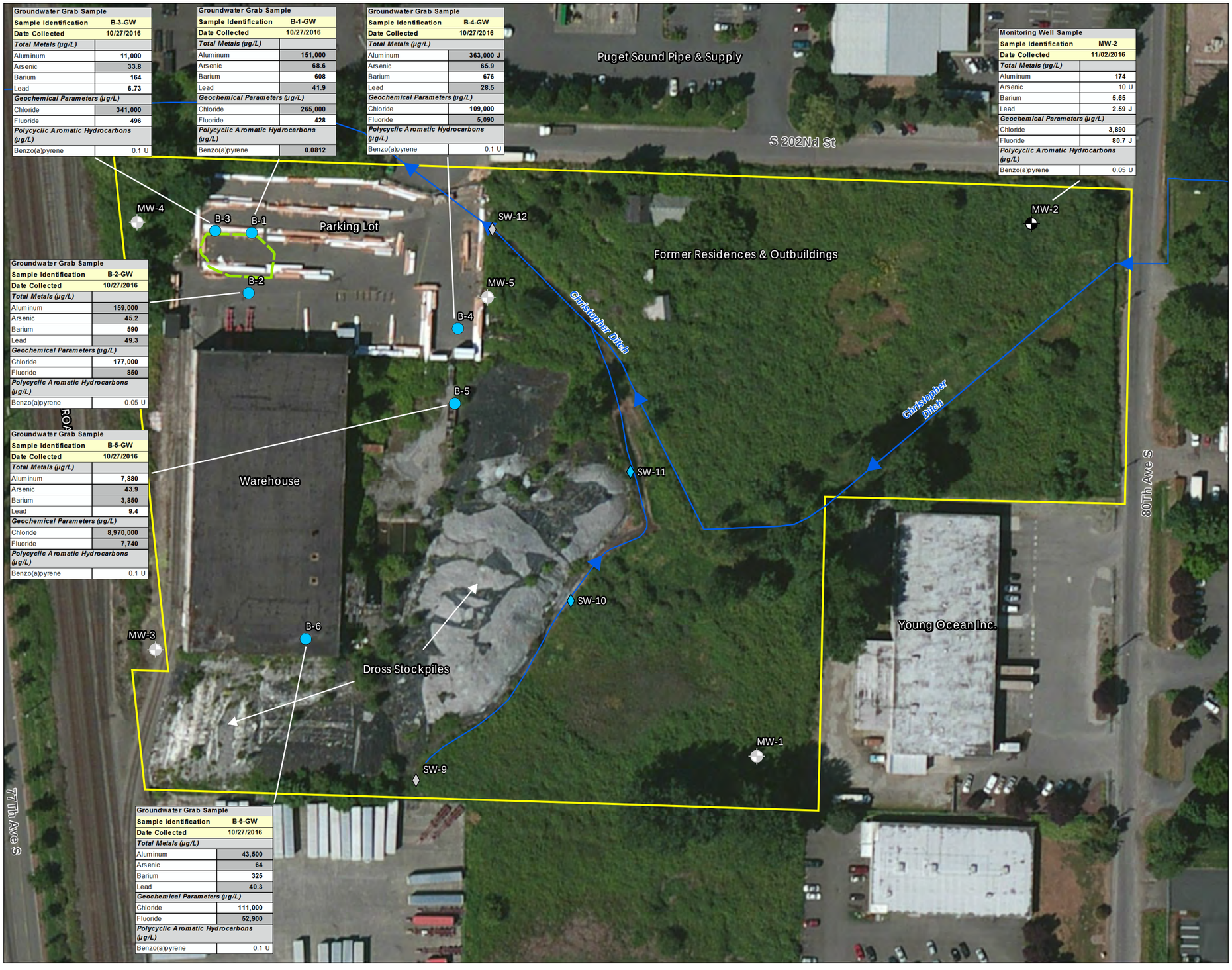
Legend

- Property Location
- Approximate location of former 35,000-gallon Diesel UST excavation
- Subsurface Soil Sample
- Sediment Sample
- Surface Water Sample
- Groundwater Sample
- Stantec Depth Composited Dross Sample, collected 11/28/16
- Sample Collected by E&E, 1987
- Sample Collected by MKE, 1990
- Sample Location, Stantec 2016
- Location Inaccessible, Stantec 2016
- Groundwater Sample from Monitoring Well
- Well not located, 10/21/16
- Surface Water Drainage



Notes:
1. Coordinate System: NAD 1983 HARN StatePlane Washington North FIPS 4601 Feet
2. Data Sources Include: Stantec, King County, URS, ESRI
3. Orthophotography: NAIP 2013
4. Differences in the spatial alignment between the aerial imagery and GIS/spatial data may cause locations and property boundaries to appear offset.
5. Waste characterization sample locations of the dross material are not shown on this Figure. See MKE's Phase I Remedial Investigation Report, 1991 & EMR's Remedial Investigation / Feasibility Study for the Former Maralco Site, 2003.
6. The locations of subsurface soil samples associated with HB-10 and HB-16 are not known and are not present on this map.

Stantec



Groundwater Grab Sample	
Sample Identification	**B-3-GW**
Date Collected	**10/27/2016**
Total Metals (µg/L)	
Aluminum	**11,000**
Arsenic	**33.8**
Barium	**164**
Lead	**6.73**
Geochemical Parameters (µg/L)	
Chloride	**341,000**
Fluoride	**496**
Polycyclic Aromatic Hydrocarbons (µg/L)	
Benzo(a)pyrene	0.1 U

Groundwater Grab Sample	
Sample Identification	**B-1-GW**
Date Collected	**10/27/2016**
Total Metals (µg/L)	
Aluminum	**151,000**
Arsenic	**68.6**
Barium	**608**
Lead	**41.9**
Geochemical Parameters (µg/L)	
Chloride	**265,000**
Fluoride	**428**
Polycyclic Aromatic Hydrocarbons (µg/L)	
Benzo(a)pyrene	**0.0812**

Groundwater Grab Sample	
Sample Identification	**B-4-GW**
Date Collected	**10/27/2016**
Total Metals (µg/L)	
Aluminum	**363,000 J**
Arsenic	**65.9**
Barium	**676**
Lead	**28.5**
Geochemical Parameters (µg/L)	
Chloride	**109,000**
Fluoride	**5,090**
Polycyclic Aromatic Hydrocarbons (µg/L)	
Benzo(a)pyrene	0.1 U

Monitoring Well Sample	
Sample Identification	**MW-2**
Date Collected	**11/02/2016**
Total Metals (µg/L)	
Aluminum	**174**
Arsenic	10 U
Barium	**5.65**
Lead	**2.59 J**
Geochemical Parameters (µg/L)	
Chloride	**3,890**
Fluoride	**80.7 J**
Polycyclic Aromatic Hydrocarbons (µg/L)	
Benzo(a)pyrene	0.05 U

Groundwater Grab Sample	
Sample Identification	**B-2-GW**
Date Collected	**10/27/2016**
Total Metals (µg/L)	
Aluminum	**159,000**
Arsenic	**45.2**
Barium	**590**
Lead	**49.3**
Geochemical Parameters (µg/L)	
Chloride	**177,000**
Fluoride	**850**
Polycyclic Aromatic Hydrocarbons (µg/L)	
Benzo(a)pyrene	0.05 U

Groundwater Grab Sample	
Sample Identification	**B-5-GW**
Date Collected	**10/27/2016**
Total Metals (µg/L)	
Aluminum	**7,880**
Arsenic	**43.9**
Barium	**3,850**
Lead	**9.4**
Geochemical Parameters (µg/L)	
Chloride	**8,970,000**
Fluoride	**7,740**
Polycyclic Aromatic Hydrocarbons (µg/L)	
Benzo(a)pyrene	0.1 U

Groundwater Grab Sample	
Sample Identification	**B-6-GW**
Date Collected	**10/27/2016**
Total Metals (µg/L)	
Aluminum	**43,500**
Arsenic	**64**
Barium	**325**
Lead	**40.3**
Geochemical Parameters (µg/L)	
Chloride	**111,000**
Fluoride	**52,900**
Polycyclic Aromatic Hydrocarbons (µg/L)	
Benzo(a)pyrene	0.1 U

Figure No.
3

Title
Groundwater & Surface Water Analytical Results

Client/Project
City of Kent
Phase II ESA, Former Maralco Aluminum Property

Project Location
7730 S. 202nd St.,
Kent, Washington

185750123
Prepared by JDN on 2017-02-15
Technical Review by CCG on 2017-02-15
Independent Review by CCG on 2017-02-15

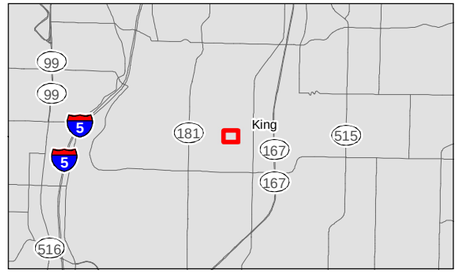
0 50 100 Feet
1:1,200 (At original document size of 11x17)

N

Legend

- Property Location
- Approximate location of former 35,000-gallon Diesel UST excavation
- Groundwater Grab Sample, Stantec 2016
- Surface Water Sample, Stantec 2016
- Location Inaccessible, Stantec 2016
- Groundwater Sample from Monitoring Well
- Well not located, 10/21/16
- Surface Water Drainage Flow Direction

Shaded Constituent exceeds one or more Model Toxics Control Act (MTCA) screening levels
BOLD: Constituent detected
* = Carcinogenic Polycyclic Aromatic Hydrocarbon
All constituents reported as micrograms/Liter (ug/L)
J: The reported value is an estimate
U: Constituent not detected



Notes:
1. Coordinate System: NAD 1983 HARN StatePlane Washington North FIPS 4601 Feet
2. Data Sources Include: Stantec, King County, URS, ESRI
3. Orthophotography: NAIP 2013
4. Differences in the spatial alignment between the aerial imagery and GIS/spatial data may cause locations and property boundaries to appear offset.
5. Waste characterization sample locations of the dross material are not shown on this Figure. See MKE's Phase I Remedial Investigation Report, 1991 & EMR's Remedial Investigation / Feasibility Study for the Former Maralco Site, 2003.
6. The locations of subsurface soil samples associated with HB-10 and HB-16 are not known and are not present on this map.

Stantec

Figure No.
4

Title
Sediment Analytical Results

Client/Project
City of Kent
Phase II ESA Former Maralco Aluminum Property

Project Location
7730 S. 202nd St,,
Kent, Washington

185750123
Prepared by JDN on 2017-02-15
Technical Review by CCG on 2017-02-15
Independent Review by CCG on 2017-02-15

0 50 100 Feet
1:1,200 (At original document size of 11x17)

N

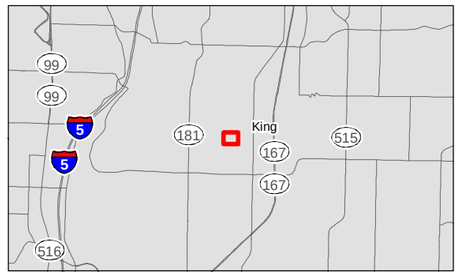
Puget Sound Pipe & Supply
S 202Nd St
Parking Lot
SS-4
Former Residences & Outbuildings
Christopher Ditch
RAILROAD EASEMENT
Warehouse
SS-3
Christopher Ditch
80Th Ave S
SS-2
Dross Stockpiles
Young Ocean Inc.
SS-1
77Th Ave S

Sample Identification	SS-2	SS-900 (dup.)
Date Collected	10/28/2016	10/28/2016
Total Metals (mg/kg)		
Cadmium	**2.74**	**5.56**
Chromium	**54.4**	**112**
Silver	**0.776 J**	**3.14**

Sample Identification	SS-1
Date Collected	10/28/2016
Total Metals (mg/kg)	
Cadmium	**0.619 J**
Chromium	**36.3**
Silver	1.57 U

Legend
- Property Location
- Sediment Sample Location, Stantec 2016
- Location Not Accessible
- Surface Water Drainage Flow Direction

Shaded Constituent exceeds one or more Model Toxics Control Act (MTCA) screening levels
BOLD: Constituent detected
J: The identification of the analyte is acceptable; the reported value is an estimate
U: Constituent not detected



Notes:
1. Coordinate System: NAD 1983 HARN StatePlane Washington North FIPS 4601 Feet
2. Data Sources Include: Stantec, King County, URS, ESRI
3. Orthophotography: NAIP 2013
4. Differences in the spatial alignment between the aerial imagery and GIS/spatial data may cause locations and property boundaries to appear offset.
5. Waste characterization sample locations of the dross material are not shown on this Figure. See MKE's Phase I Remedial Investigation Report, 1991 & EMR's Remedial Investigation / Feasibility Study for the Former Maralco Site, 2003.
6. The locations of subsurface soil samples associated with HB-10 and HB-16 are not known and are not present on this map.

Stantec

Appendix A

Geophysical Survey Report

GEOMARKOUT
a trade name of ULS Services Corporation

WWW.GEOMARKOUT.COM

CORPORATE ADDRESS / INQUIRIES
P.O. Box 724, Pocatello, ID 83204 (Mail only)
6742 W Buckskin Rd, Pocatello, ID 83201 (Parcels only)
Ph. (208) 234-1441 (800) 301-4420 FAX (208) 234-1507

FIELD SERVICES:
SEATTLE/PDX /ALASKA/ SAC / HWI -GUAM:
15151 52 AVE. S., Suite 2 Seattle, WA 98188

1 866 804-5734
SOCAL 1 800 528-8206

Work Order Agreement

Job Site Location 7730 S. 202	Job PO TO
City, State Kent , WA	Job Date 21 Oct 16

CLIENT STANTEC	**21 Oct 16 730-1230-(5hrs)** **FIELD 5. REPORT 1**	**LABOR HOURS W/REPORT/ TOTAL** 6
E-MAIL		**E-MAILED**

WORK REQUESTED: UTILITY CLEARANCE AT PROPOSED SIX SB LOCATIONS. UTILITY CLEARANCE AT ONE DAMAGED MW. ALSO HELP FIND ONE MWS.

WORK PERFORMED	**PRELIMINARY REVIEW OF CLIENT PROVIDED UTILITY DRAWINGS/AS-BUILTS: LIMITED**
VISUAL SITE INSPECTION (MANHOLES, DRAINS): SD INLETS ON SITE. SURFACE ONLY	**EMPCL CONDUCTIVE UTILITY SURVEY: CHECK** GAS: X NONE ELECTRIC: X COMM.: X WATER: X
EMIMD METAL DETECTION SURVEY : AMBIENT NOISE AND SETTINGS ABOVEGROUND METAL AND REINORCED ONCRETE LOW NOISE | GAIN 7.0 | LOW ELV	**EM INSERTION : NA**
GPR NON-CONDUCTIVE SURVEY: YES FAIR TO RESPONSE	**CLIENT ON-SITE REVIEW OF FINDINGS: YES**

GENERAL LIMITATIONS

NOTE: The work described herein is performed to industry standards (or higher) using multiple methodology and QA/QC protocol. ULS cannot guarantee the accuracy or the ability to detect all underground facilities and potential interferences. Non-conductive or conductive utilities/facilities may not be detected due to variables and constraints beyond ULS control. Where known, constraints and limitations will be brought to the client's attention. Excavation work may result in injury to persons and/or damage to facilities. Client and/or excavator are advised to take all steps necessary to avoid contact with underground facilities. This includes, but is not limited to, safe digging practices, hand tooling in congested areas and within two feet on side of marked utilities (distance may vary by law), utility drawing review, site facilities representative review, and "one-call" utilities notification. ULS and its representatives are not responsible for injury to persons or damage to facilities. This document and accompanying pages will be delivered to the client before commencement of intrusive work for the client's review. If any questions arise, please notify our office immediately.

NOTE: Specific comments/limitations/constraints, known and recognized will be recorded on attached pages (field notes). Caution – some facilities (conductive or non- conductive) may not be detected. Not all limitations and constraints may be recognized.

SIGNATURE OF ULS REPRESENTATIVE ON-SITE **M BENEDICT**		**PAGE OF** **1**

……

GEOMARKOUT
a trade name of ULS Services Corp

7730 S. 202, KENT 21 OCT 16

METHODS:

ARRIVED SITE REVIEWED HS AND TAIL GATE INFO. REVIEWED SOW AND PROPOSED WORK AREAS WITH CLIENT. *METHODS UTILIZED INCLUDE: GPR, MAGNETIC LOCATOR, AND EM PIPE AND CABLE LOCATOR (EMPCL).*

OBSERVATIONS - INSTRUMENT RESPONCE :

WEATHER IS DAMP TO DRY. GPR RESPONSE IS FAIR. EMPCL RESPONSE IS GOOD AS WELL. AMBIENT LIVE LINE MODE USED TO OBSERVE E, TELE, AND CONDUCTIVES. GROUND INDUCTION MODE USED IN ASPHALT AREAS.

X	ADVIDED ONECALL /DIG ALERT RECALL ADVISED
X	**UTILITY MAINS**
X	ELECTRIC ABANDONED NE CORNER BLDG OUT TO VAULT NEAR GATE NE BLDG AT ROAD.
X	TELEPHONE SAME AS TEL. .
X	NAT GAS NONE ON SITE KNOWN. SITE REPORTED TO HAVED USED DIESEL OR FO (UST REMOVED). PIPING MAY HAVE BEEN LEFT IN PLACE.
X	WATER CAUTION NO DETECT ON FIRE HYDRANT EAST SIDE PARKING LOT NEAR PROPOSED MW REPAIR OVER DRILL.
X	SEWER/STORM SD INLETS CHECKED VISUALLY AND MARKED. SEWER NOT KNOWN.
X	
X	

SEE ADDITIONAL NOTES TO RIGHT SIDE AND BELOW AS WELL AS PHOTO LOG

……

GEOMARKOUT

A trade name of ULS Services Corp

7730 S. 202, KENT 21 OCT 16

PROPOSED SB LOCATIONS:

INDOOR SB LOCATION AT SE CORNER BLDG:

A CONDUCTIVE LINEATION IS OBSERVED TRENDING NS East Side ZONE. ABANDONED E CONDUIT MAT TREND EW ALONG SOUTH WALL.

CLUSTER (3EA) NEAR FORMER UST:

A CONDUCTIVE LINEATION (POTENTIAL FUEL PIPING) IS OBSERVED TRENDING SE FROM FORMER TANK EXCAVATION AREA OVER TOV NE CORNER OF BLDG. SOME NEAR SURFACE MAGNETIC ANOMALIES (SURFACE DEBRIS UNDER ASPHLT) IS OBSERVED NEAR SB LOCATION NW FORMER UST.

SB LOCATION SE CORNER ASPALT AREA (NE BLDG)

A CONDUCTIVE LINEATION IS OBSERVED TRENDING EW NORTH SIDE ZONE. AGNETIC REPONCE IS OBSERVED FORMING LINEATION THRU MIDDLE OF ZONE. CAUTION A FIRE HYDRNT TO EAST SIDE IS NOT DETECTED. MAY TREND NORTH OUT TO STREET.

MW OVERDRILL LOCATION EAST ASPALT AREA (NE BLDG)

CAUTION A POTENTAL FIRE HYDRNT LINE TO EAST SIDE ASSOCIATED WITH FH TO SOUTH IS NOT DETECTED. MAY TREND NORTH OUT TO STREET. AIR VAC CAREFULLY.

SB LOCATION EAST BLDG

NO OBSERVATIONS

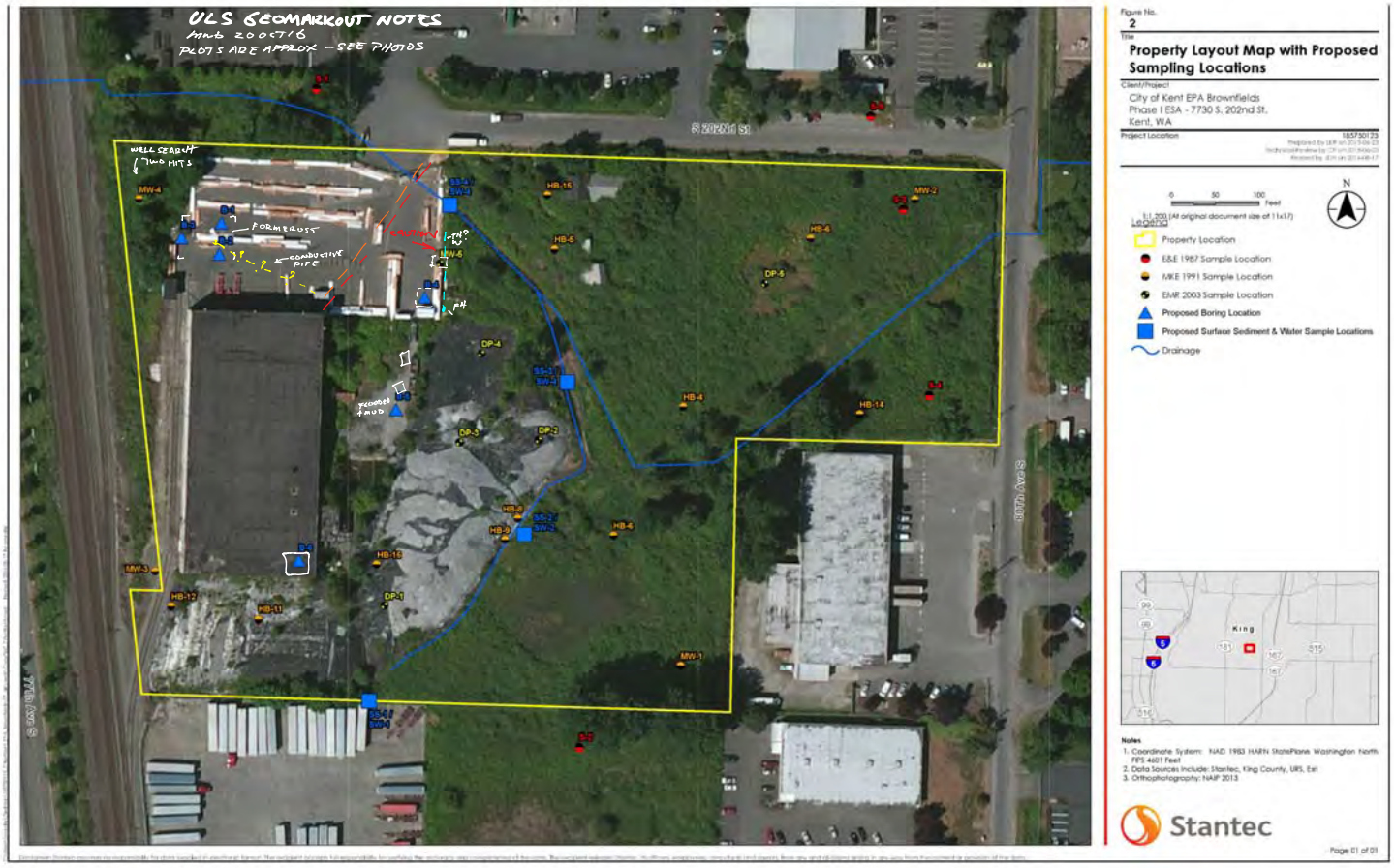
MW SEARCH NW SITE

ONE SMALL MAGNETIC HIT IS OPEN OBSERVED. OTHER HITS OBSERVED MAY BE DEBRIS.

SEE MAP AND PHOTOS BELOW:

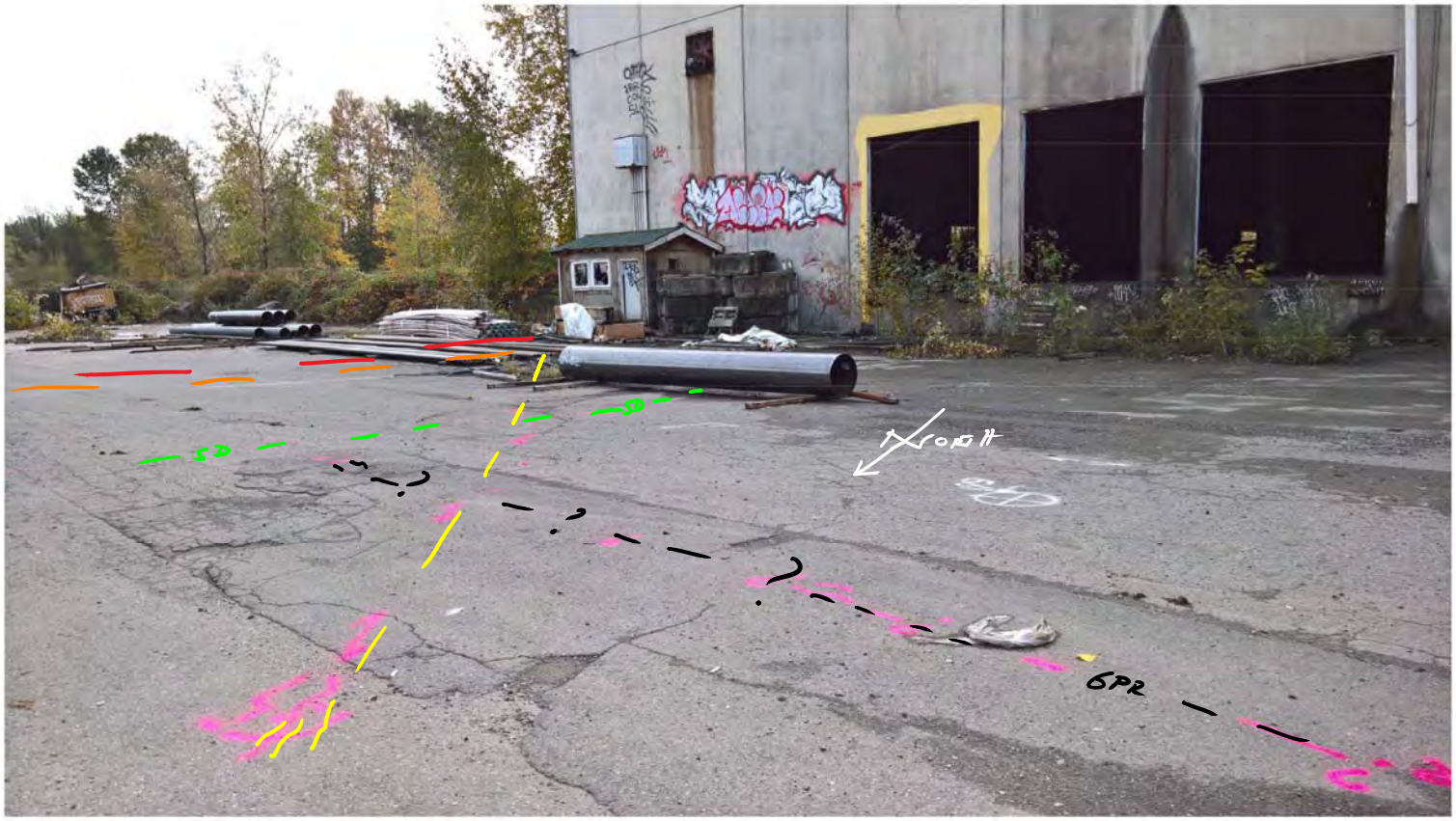
END TEXT REPORT
MWB

.


ULS GEOMARKOUT NOTES
MADE 2005716
PLOTS ARE APPROX - SEE PHOTOS
WELL SEALED TWO HITS
FORMER UST
CONDUCTIVE PIPE
CONCRETE PAD
S 202ND ST
S 204TH ST
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
HB-4
HB-5
HB-6
HB-9
HB-10
HB-11
HB-12
HB-14
HB-15
DP-1
DP-2
DP-3
DP-4
DP-5
DP-6
B-1
B-2
B-3
B-4
B-5
B-6
B-7
Figure No.
2
Title
Property Layout Map with Proposed Sampling Locations
Client/Project
City of Kent EPA Brownfields
Phase I ESA - 7730 S. 202nd St.
Kent, WA
Project Location
185730173
0 50 100 Feet
1:1,200 (At original document size of 11x17)
N
Legend
Property Location
E&E 1987 Sample Location
MKE 1991 Sample Location
EMR 2003 Sample Location
Proposed Boring Location
Proposed Surface Sediment & Water Sample Locations
Drainage
King
Notes
1. Coordinate System: NAD 1983 HARN StatePlane Washington North FIPS 4601 Feet
2. Data Sources Include: Stantec, King County, URS, Esri
3. Orthophotography: NAIP 2013
Stantec
Page 01 of 01


UTILITY CLEARANCES
7730 SOUTH 202 , KENT WA
GEOMARKOUT
WWB
20 OCT 16
SECONER BLDG


BACKFILL AREA
UST EXCAVATION
CONDUCTIVE
LINEATION
GENERAL
LOCAREA - 3 SBS
SD
SD
FORMER UST AREA
NORTH BLDG


SD
SD
FRONT
SD
GPR


BF FORMER
UST AREA


BF
BF
NEAR
SURFACE
METAL?


Fire Hydrant
NO SIGNAL
ON WATER
N
NE
BLDG
BLDG


BLDG


EAST BLDG


CAUTION
WHEN OVERDRILLING
AIR VAC
ADVISED
??
WELL
??
FH
NORTH
MW-5


MW
?? FH?


??
FH

Appendix B

Boring Logs

PROJECT: Former Maralco
LOCATION: Kent, WA
PROJECT NUMBER:

WELL / PROBEHOLE / BOREHOLE NO: B-4 PAGE 1 OF 1

Stantec

DRILLING: STARTED 10/27/2016 COMPLETED: 10/27/2016
~~INSTALLATION: STARTED~~ ~~COMPLETED~~:
DRILLING COMPANY: ESN NW
DRILLING EQUIPMENT: AMS 9630 PRO-PTO *
DRILLING METHOD: direct-push
SAMPLING EQUIPMENT: continuous core

NORTHING (ft):
LATITUDE:
GROUND ELEV (ft):
INITIAL DTW (ft): 7.5'
STATIC DTW (ft):
~~WELL CASING DIAMETER (in)~~:
LOGGED BY: CBS

EASTING (ft):
LONGITUDE:
TOC ELEV (ft):
BOREHOLE DEPTH (ft): 20'
~~WELL DEPTH (ft)~~:
BOREHOLE DIAMETER (in): 2.5"
CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		Af	3" asphalt Artificial Fill = grey-brn gravel/sand mixture					∅		
1.5'		SP	FINE SAND (SP), grey, sl. moist, ∅ odor, ∅ stain, trace clay							
2'		SP	FINE SAND (SP), medium grey-brown, micaceous, slightly moist to moist, no HC odor, no stain, massive					∅		
5									5	
7.5'					7' @ 09:00			∅		GW @ 7.5'
		CL	CLAY (CL), grey, very moist to wet, no stain, no HC odor.					∅		
8.5'		ML	SILTY (ML) to CLAYEY SILT, v. moist to wet, boggy/swamp odor		8.5' @ 09:02 (no HC),		medium brown	∅		
9.5'		SP	FINE SAND (SP), grey, saturated, massive, no odor, no stain. Color change to red-brn 10.5-11'					∅		
10									10	
11'		ML	CLAYEY SILT (ML), medium grey, V. moist, boggy odor (no HC), no stain, high PI.					∅		
12'		SM	SILTY FINE TO VERY FINE SAND (SM), medium grey, saturated, faint thin bedding, no odor, no stain.					∅		
					15' @ 09:10					
15.25	15	SP	FINE SAND (SP), dark brown, micaceous, saturated.					∅	15	
16.5'		ML	SILT TO CLAYEY SILT (ML), grey, wet, ∅ odor.					∅		
17'		ML	SILT (ML), medium grey-brown, wet to saturated, trace v. fine sand, massive, low PI, no odor, no stain							
19'		ML	SILT (ML), medium brown, moist, trace clay, medium	PI,				∅		

Backfilled w/ bentonite chips, hydrated in place.

TD = 20'

* this rig ≈ Geoprobe 5400 in power/torque

Soil samples = 7'; 8.5' (for BTEX/Terracon); and 15' for Sample (via temp. well) @ 09:30 AM

PROJECT: Former Maralco
LOCATION: Kent, WA
PROJECT NUMBER:

WELL / PROBEHOLE / BOREHOLE NO: B-5 PAGE 1 OF 1

Stantec

DRILLING: STARTED 10/27/2016 COMPLETED: 10/27/2016
~~INSTALLATION: STARTED COMPLETED:~~
DRILLING COMPANY: ESN NW
DRILLING EQUIPMENT: AMS 9630 PRO-PTO
DRILLING METHOD: direct push
SAMPLING EQUIPMENT: cont. core

NORTHING (ft):
LATITUDE:
GROUND ELEV (ft):
INITIAL DTW (ft): 9'
STATIC DTW (ft):
~~WELL CASING DIAMETER (in):~~
LOGGED BY: CBS

EASTING (ft):
LONGITUDE:
TOC ELEV (ft):
BOREHOLE DEPTH (ft): 20'
~~WELL DEPTH (ft):~~
BOREHOLE DIAMETER (in): 2.5"
CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
			soil w/grass = surface					∅		
		Af	Artificial Fill = gravel/sand/silt mix							
3'										
		SP	FINE SAND (SP), yellow-brn, slightly moist, no odor, no stain, massive to slightly bedded. Color change to medium brn → red-brown 6.5-7'. Increasing moisture w/depth.					∅		
5									5	
								∅		
					8' @ 10:30					
8.5'										
		SM	SILTY FINE SAND (SM), medium grey, saturated, thinly-laminated to massive, no odor, no stain, color change to brn 10.5-11.5'							
10					10.5' @ 10:32			∅	10	
11.5'										
		ML	SILT to CLAYEY SILT (ML), grey, wet, baggy odor (no HC)					∅		
		SM	SILTY FINE SAND (SM), medium to dark grey, saturated, no odor, no stain, thinly-laminated to massive, micaceous							
15					15' @ 10:40				15	
15.5'										
		ML	SILT TO CLAYEY SILT (ML), grey, wet to saturated, trace to some v. fine sand, no odor, no stain.							
			SILTY FINE TO V. FINE SAND (SM), grey, saturated, thinly-laminated, micaceous, no odor, no stain.							

GW @ 9'

backfilled w/ bentonite chips, hydrated in place

GEO FORM 304 BLANK 20-FOOT GINT LOG GPJ SECOR INTL.GDT 10/15/08

Soil samples = 8'; 10.5' (for BTEX/Terracore); and 15' grab sample (via temp. well) @ 11:10 am

TD = 20'

* western-most boring @ former diesel UST

Soil samples = 6'; 16' (including BTEX/Terracore due to slight HC odor); + 20' (due to slight HC odor @ bottom of boring)

gw sample (via temp. casing) @ 12:20pm

PROJECT: Former Maralco
LOCATION: Kent, WA
PROJECT NUMBER:

WELL / PROBEHOLE / BOREHOLE NO: B-3 *
PAGE 1 OF 1

Stantec

DRILLING: STARTED 10/27/2016 COMPLETED: 10/27/2016
~~INSTALLATION: STARTED~~ ~~COMPLETED~~
DRILLING COMPANY: ESN NW
DRILLING EQUIPMENT: AMS 9630 PRO-PTO
DRILLING METHOD: direct-push
SAMPLING EQUIPMENT: cont core

NORTHING (ft):
EASTING (ft):
LATITUDE:
LONGITUDE:
GROUND ELEV (ft):
TOC ELEV (ft):
INITIAL DTW (ft): 7'
BOREHOLE DEPTH (ft): 20'
STATIC DTW (ft):
~~WELL DEPTH (ft):~~
~~WELL CASING DIAMETER (in):~~
BOREHOLE DIAMETER (in): 2.5"
LOGGED BY: CBS
CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
			3" asphalt							
		Af	Artificial Fill = gravel/ sand/ silt mix.					∅		
2.25' 2.5'		SP	V. FINE SAND (SP), grey, dry, no odor,		no stain.			∅		
		SP	V. FINE SAND (SP), brown, dry, laminated, no odor, no stain.					∅		
5		SP	FINE SAND (SP), grey-brn, slightly moist to moist, no odor, no stain					∅	5	
					6' @ 11:25 AM					
6.5' - 6.75'			FINE GRAVEL/ COARSE SAND (GW/SW), moist, ∅ stain, no odor					∅		GW @ 7'
		SM → ML	SILTY FINE SAND (SM) grading to FINE SANDY SILT (ML) → SILT (ML), y/w-brn, saturated, no stain,					∅		
8.25' 9'		ML	no odor, massive, micaceous							
10			CLAYEY SILT (ML), light grey, v. moist to wet, trace v. fine sand, no stain, no odor, massive					∅	10	
		SM	SILTY FINE SAND (SM), grey, saturated, micaceous, massive, no odor, no stain.					∅		
15			(slight diesel/HC odor 15'-17')					2	15	
					16' @ 11:40 AM					
17										
		ML	SILT to CLAYEY SILT (ML), brown-grey, w/ some v. fine sand, wet → saturated, no stain, no odor, massive.					∅		
19.25		SP	FINE SAND (SP), dark grey-brn, saturated, slightly laminated to massive, slight to trace diesel/HC odor, micaceous.		20' @ 11:45 AM			2		

TD = 20'

backfilled w/ bentonite

GEO FORM 304 BLANK 20-FOOT GINT LOG.GPJ SECOR INTL.GDT 10/15/08

* northern-most boring @ former diesel UST

PROJECT: Former Mirales	WELL / PROBEHOLE / BOREHOLE NO: B-1 *
LOCATION: Kent, WA	PAGE 1 OF 1
PROJECT NUMBER:	Stantec
DRILLING: STARTED 10/27/2016 COMPLETED: 10/27/2016	NORTHING (ft): EASTING (ft):
~~INSTALLATION: STARTED COMPLETED:~~	LATITUDE: LONGITUDE:
DRILLING COMPANY: ESN NW	GROUND ELEV (ft): TOC ELEV (ft):
DRILLING EQUIPMENT: AMS 9630 PRO-PTO	INITIAL DTW (ft): 6' BOREHOLE DEPTH (ft): 20'
DRILLING METHOD: direct-push	STATIC DTW (ft): ~~WELL DEPTH (ft):~~
SAMPLING EQUIPMENT: 4" core	~~WELL CASING DIAMETER (in):~~ BOREHOLE DIAMETER (in): 2.5"
	LOGGED BY: CBS CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
			3" asphalt							
		Af	Artificial Fill = gravel/sand					Ø		
2'										
		SP	FINE SAND (SP), y/w-brn to medium brown, dry to slightly moist, laminated, micaceous, no stain, no odor.					Ø		
5				X	5' @ Noon			Ø	5	
6'										GW @ 6'
7'		SP	FINE SAND (SP), brown, saturated, no stain, no odor.					Ø		
		ML/CL	CLAYEY SILT (ML) TO CLAY (CL) wet, mottled medium to light grey + brn, trace v. fine sand, no stain, no odor.					Ø		
9'										
		SP	FINE SAND (SP), dark grey-brn, wet → saturated, laminated, no odor, no stain.					Ø		
10									10	
10.5'		ML/CL	Same as 7-9' (above)					Ø		
11.5'										
		SM	SILTY FINE SAND (SM), medium to dark grey-brown, wet → saturated, no stain, no odor, massive to slightly laminated.					Ø		
15			Note: slight diesel/HC odor 15-17'					2	15	
				X	17' @ 12:10 pm					
18										
18.75'		ML	CLAYEY SILT (ML), y/w-brn to grey-brn, trace HC odor					1-2		
		SM	FINE SAND (SP), wet, dark grey-brn, faint HC/diesel odor		20' @ 12:12 pm			1		

backfilled w/ bentonite

Soil Samples = 5'; 17' (incl. BTEX/Terracon due to slight HC odor; 20' (due to slight HC odor)

gw Sample (via temp. casing) collected @ 13:00

TD = 20'

GEO FORM 304 BLANK 20-FOOT GINT LOG.GPJ SECOR INTL.GDT 10/15/08

Southern-most boring @ former diesel UST

PROJECT: Former Maralco
LOCATION: Kent, WA.
PROJECT NUMBER:

WELL / PROBEHOLE / BOREHOLE NO: B-2 #
PAGE 1 OF 1

Stantec

DRILLING: STARTED 10/27/2016 COMPLETED: 10/27/2016
~~INSTALLATION: STARTED COMPLETED:~~
DRILLING COMPANY: ESN NW
DRILLING EQUIPMENT: AMS 9630 PRO-PTO
DRILLING METHOD: direct-push
SAMPLING EQUIPMENT: Con't core

NORTHING (ft):
LATITUDE:
GROUND ELEV (ft):
INITIAL DTW (ft): 5'
STATIC DTW (ft):
~~WELL CASING DIAMETER (in):~~
LOGGED BY: CBS

EASTING (ft):
LONGITUDE:
TOC ELEV (ft):
BOREHOLE DEPTH (ft): 20'
~~WELL DEPTH (ft):~~
BOREHOLE DIAMETER (in): 2.5"
CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
			3" asphalt					∅		backfilled w/ bentonite
		Af	Artificial Fill: gravel/sand							
2.5'										
3'		SM	SILTY VERY FINE SAND (SM), dry, dark brown, laminated, no stain, no odor.					∅		
					4' @ 12:50					
		SP	FINE SAND (SP), grey-brn, slightly moist → saturated (below 5'), no stain, no odor.					∅	5	
5			6-6.25': SW (well-graded sand, fine thru coarse-grained.							
7.25'								∅		
		ML	CLAYEY SILT TO SILT (ML), wet, medium grey, no stain, no odor, medium PI, massive					∅		
10		SM	SILTY FINE SAND (SM), grey-brown, saturated, no stain, no HC odor but "boggy" odor, massive to faintly laminated.					∅	10	
15			2" silt (ML) layer @ 15'						15	
					16.5' @ 12:58					
17.5'										
		ML	SILT w/ clay TO CLAYEY SILT (ML), wet, massive, medium PI, no odor, no stain							
		SP	FINE SAND (SP), dark grey-brn, saturated, no odor, no stain, laminated.							

TD = 20'

Soil samples = 4'; 16.5' (no BTEX/Terra cor = no odors (HC)
gw sample collected @ 13:25

SE portion of
* inside abandoned warehouse; raised floor 4.5' above surrounding outside ground.

PROJECT: Maralco
LOCATION: Kent, WA
PROJECT NUMBER:

WELL / PROBEHOLE / BOREHOLE NO: B-6 *
PAGE 1 OF 1

Stantec

DRILLING: STARTED 10/27/2016 COMPLETED: 10/27/2016
~~INSTALLATION: STARTED COMPLETED:~~
DRILLING COMPANY: ESN NW
DRILLING EQUIPMENT: AMS 9630 PRO-PTO
DRILLING METHOD: direct-push
SAMPLING EQUIPMENT: continuous core

NORTHING (ft):
EASTING (ft):
LATITUDE:
LONGITUDE:
GROUND ELEV (ft):
TOC ELEV (ft):
INITIAL DTW (ft): 8.5'
BOREHOLE DEPTH (ft): 20'
~~STATIC DTW (ft):~~
~~WELL DEPTH (ft):~~
~~WELL CASING DIAMETER (in):~~
BOREHOLE DIAMETER (in): 2.5"
LOGGED BY: CBS
CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
			7" concrete warehouse floor. Refusal @ 2.5' (best sampler barrel on large cobble) stepped over 2' to the east ± successful; 7" concrete.					Ø		
		Af	Artificial Fill: gravel/sand/soil, light brn, dry, no odor					Ø		
5								Ø	5	
								Ø		
7'				X	7.5' 14:35			Ø		
7.75		ML	SILT (ML), brown, dry, no stain, no odor, some clay, trace v. fine sand.					Ø		
		SM	SILTY FINE SAND (SM), moist to saturated (@ 8.5'), medium to dark grey-brn, no odor, no stain, micaceous.					Ø		GW @ 8.5'
9'				X	9.5' 14:38			Ø		
10								Ø	10	
		SP	FINE SAND (SP), medium to dark brn-grey, saturated, no odor, no stain, massive.					Ø		
12'								Ø		
		SM/ML	SILTY FINE SAND (SM)/FINE SANDY SILT (ML), grey-brn, saturated, no odor, no stain, massive → laminated					Ø		
13'								Ø		
		ML	SILT (ML), grey-brn, saturated, no odor, no stain, trace to v. fine sd fine sand					Ø		
14.5'								Ø		
15				X	15' @ 14:45			Ø	15	
		SM	SILTY FINE SAND (SM), saturated, grey-brn, laminated, no stain, no odor.					Ø		backfilled w/ bentonite

Soil samples: 7.5'; 9.5' (for BTEX/Terracore); + 15'
Gw samples collected @ 15:15

TD = 20'

GEO FORM 304 BLANK 20-FOOT GINT LOG.GPJ SECOR INTL GDT 10/15/08

Appendix C

Groundwater Purge Logs

Stantec

Water Sample Field Data Sheet

Bellevue Office
October 2016

Project Name: ~~Caliber Care~~ Merrill
Project No.: 185750123
Project Manager: Chris Gdaak
Lab: ESC
Field Technician: Nate Magnusson
Well ID: MW-2

Date Purged: 10/28/16 & 11/2/16 Start (2400hr): 1330 End (2400hr): 1410
Date Sampled: ~~10/3~~ 11/2/16 Sample Time (2400hr): 1401
Sample Type: Groundwater Low-Flow Used? X

Casing Diameter: 2" 1.9 3" _____ 4" _____
Casing Volume (Gallons per foot): (0.17) (0.38) 0.67

	10/28	11/2
Depth to Bottom (ft):	16.40	16.40
Depth to Water (ft):	5.44	5.81
Water Column Height (ft):	11.19	

Actual Purge (gal): _____

Field Measurements

Date	Time	Volume	Temp	Conductivity	pH	Color	O.R.P.
11/2/16	1340	4 L	11.78	0.143	7.15	Cl-	47.7
	1350	8 L	11.81	0.144	6.62	Cl-	47.4
	1355	10 L	11.84	0.144	6.61	Cl-	47.4
	1400	12 L	11.83	0.155	6.59	Cl-	47.3

Calculated Variance of Final Three Samples:
Temp: _____ Conductivity: _____ pH: _____ Color: _____ O.R.P.: _____

Acceptable Variance Limits:
Temp: _____ Conductivity: _____ pH: _____ Color: _____ O.R.P.: _____

Depth to Purge Intake During Purge: _____ **Sample DTW:** _____

Quantity of Sample Vessel & Preservative:			Analyses:
TPH-G		Pesticides	
BTEX		~~PP~~ Metals RCRA	
TPH-O	X	EDB/EDC	
TPH-D	X	Naphth	
Total Lead			
Purging Equipment:			**Sampling Equipment:**
Bailer			

Flow Through Cell Disconnected Prior to Sample Collection?: Yes X No _____

Well Pad Condition: good Well Casing Condition: good
Well Vault Condition: good Seal Present?: Y Bolts Present?: Y
Well Integrity: good Well Tag: N

Signature: Nate A. Magnusson

Page 1 of 1

Appendix D

Laboratory Report and Chain-of-Custody Documentation

ANALYTICAL REPORT

November 09, 2016

Stantec- Bellevue, WA

Sample Delivery Group:	L869381
Samples Received:	10/29/2016
Project Number:	185750123A
Description:	Maralco, Phase II ESA

Report To: Cyrus Gorman
11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Entire Report Reviewed By:

Brian Ford
Technical Service Representative

B-4-9' L869381-01 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 09:02 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX	WG923098	1	10/27/16 09:02	11/04/16 02:29	BMB

B-4-15' L869381-02 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 09:10 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922813	1	11/02/16 11:36	11/02/16 15:56	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 04:02	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:33	VSS
Total Solids by Method 2540 G-2011	WG922975	1	11/03/16 08:20	11/03/16 08:30	KDW
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 10:56	JER
Wet Chemistry by Method 9056A	WG923165	1	11/03/16 11:08	11/03/16 21:56	SAM

B-4-7' L869381-03 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 09:00 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922813	1	11/02/16 11:36	11/02/16 16:11	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 04:05	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 18:47	VSS
Total Solids by Method 2540 G-2011	WG922975	1	11/03/16 08:20	11/03/16 08:30	KDW
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 11:00	JER
Wet Chemistry by Method 9056A	WG923165	1	11/03/16 11:08	11/03/16 22:19	SAM

B-5-10' L869381-04 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 10:32 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX	WG923098	1	10/27/16 10:32	11/04/16 02:50	BMB

B-5-8' L869381-05 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 10:30 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922813	1	11/02/16 11:36	11/02/16 16:14	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 04:07	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:36	VSS
Total Solids by Method 2540 G-2011	WG922975	1	11/03/16 08:20	11/03/16 08:30	KDW
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 11:01	JER
Wet Chemistry by Method 9056A	WG923165	1	11/03/16 11:08	11/04/16 01:00	SAM

B-5-15' L869381-06 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 10:40 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922813	1	11/02/16 11:36	11/02/16 16:23	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 04:10	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:39	VSS
Total Solids by Method 2540 G-2011	WG922975	1	11/03/16 08:20	11/03/16 08:30	KDW
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 11:02	JER
Wet Chemistry by Method 9056A	WG923165	1	11/03/16 11:08	11/04/16 01:23	SAM

B-5-15' L869381-06 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 10:40 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG923165	5	11/03/16 11:08	11/04/16 02:09	SAM

B-6-9.5' L869381-07 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 14:38 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX	WG923098	1	10/27/16 14:38	11/04/16 03:11	BMB

B-6-7.5' L869381-08 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 14:35 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922813	1	11/02/16 11:36	11/02/16 16:26	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 04:13	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:42	VSS
Total Solids by Method 2540 G-2011	WG922975	1	11/03/16 08:20	11/03/16 08:30	KDW
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 11:03	JER
Wet Chemistry by Method 9056A	WG923183	1	11/03/16 14:09	11/04/16 06:44	SAM

B-6-15' L869381-09 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 14:45 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922813	1	11/02/16 11:36	11/02/16 16:29	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 04:16	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:45	VSS
Total Solids by Method 2540 G-2011	WG922975	1	11/03/16 08:20	11/03/16 08:30	KDW
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 11:04	JER
Wet Chemistry by Method 9056A	WG923183	1	11/03/16 14:09	11/04/16 07:30	SAM

B-1-17' L869381-10 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 12:10 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX	WG923098	1	10/27/16 12:10	11/04/16 03:32	BMB

B-1-17' L869381-11 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 12:10 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922194	1	11/02/16 17:53	11/03/16 11:18	KMP
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG923175	1	11/05/16 16:44	11/07/16 14:37	DMG
Total Solids by Method 2540 G-2011	WG922975	1	11/03/16 08:20	11/03/16 08:30	KDW

B-1-5' L869381-12 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 12:00 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922194	1	11/02/16 17:53	11/03/16 11:39	KMP
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG923175	1	11/05/16 16:44	11/07/16 14:54	DMG
Total Solids by Method 2540 G-2011	WG922976	1	11/03/16 08:06	11/03/16 08:17	KDW

B-2-4' L869381-13 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 12:50 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922194	1	11/02/16 17:53	11/03/16 12:01	KMP
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG923175	1	11/05/16 16:44	11/07/16 16:58	DMG
Total Solids by Method 2540 G-2011	WG922976	1	11/03/16 08:06	11/03/16 08:17	KDW

B-2-16.5' L869381-14 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 12:58 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922194	1	11/02/16 17:53	11/03/16 12:22	KMP
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG923175	1	11/05/16 16:44	11/07/16 17:15	DMG
Total Solids by Method 2540 G-2011	WG922976	1	11/03/16 08:06	11/03/16 08:17	KDW

B-3-16' L869381-15 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 11:40 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX	WG923098	1	10/27/16 11:40	11/08/16 14:06	DWR

B-3-16' L869381-16 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 11:40 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922194	1	11/02/16 17:53	11/03/16 12:43	KMP
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG923175	1	11/05/16 16:44	11/07/16 17:32	DMG
Total Solids by Method 2540 G-2011	WG922976	1	11/03/16 08:06	11/03/16 08:17	KDW

B-3-6' L869381-17 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 11:25 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922194	1	11/02/16 17:53	11/03/16 13:25	KMP
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG923175	10	11/05/16 16:44	11/07/16 21:20	DMG
Total Solids by Method 2540 G-2011	WG922976	1	11/03/16 08:06	11/03/16 08:17	KDW

B-4-15' L869381-18 Waste

Collected by: Carol Shestag | Collected date/time: 10/27/16 09:10 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG923664	1	11/04/16 05:28	11/04/16 09:53	TRB
Metals (ICP) by Method 6010C	WG923644	1	11/03/16 23:22	11/04/16 02:46	CCE
Preparation by Method 1311	WG923641	1	11/03/16 21:03	11/03/16 21:03	LJN

B-4-7' L869381-19 Waste

Collected by: Carol Shestag
Collected date/time: 10/27/16 09:00
Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG923664	1	11/04/16 05:28	11/04/16 09:55	TRB
Metals (ICP) by Method 6010C	WG923644	1	11/03/16 23:22	11/04/16 02:57	CCE
Preparation by Method 1311	WG923641	1	11/03/16 21:03	11/03/16 21:03	LJN

B-5-8' L869381-20 Waste

Collected by: Carol Shestag
Collected date/time: 10/27/16 10:30
Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG923721	1	11/04/16 09:42	11/04/16 12:04	TRB
Metals (ICP) by Method 6010C	WG923732	1	11/04/16 10:23	11/04/16 15:05	CCE
Preparation by Method 1311	WG923481	1	11/03/16 12:50	11/03/16 12:50	BG

B-5-15' L869381-21 Waste

Collected by: Carol Shestag
Collected date/time: 10/27/16 10:40
Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG923664	1	11/04/16 05:28	11/04/16 09:58	TRB
Metals (ICP) by Method 6010C	WG923644	1	11/03/16 23:22	11/04/16 03:00	CCE
Preparation by Method 1311	WG923641	1	11/03/16 21:03	11/03/16 21:03	LJN

B-6-7.5' L869381-22 Waste

Collected by: Carol Shestag
Collected date/time: 10/27/16 14:35
Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG923721	1	11/04/16 09:42	11/04/16 12:19	TRB
Metals (ICP) by Method 6010C	WG923732	1	11/04/16 10:23	11/04/16 14:53	CCE
Preparation by Method 1311	WG923481	1	11/03/16 12:50	11/03/16 12:50	BG

B-6-15' L869381-23 Waste

Collected by: Carol Shestag
Collected date/time: 10/27/16 14:45
Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG923664	1	11/04/16 05:28	11/04/16 10:01	TRB
Metals (ICP) by Method 6010C	WG923644	1	11/03/16 23:22	11/04/16 03:02	CCE
Preparation by Method 1311	WG923641	1	11/03/16 21:03	11/03/16 21:03	LJN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	U		0.0339	0.100	1	11/04/2016 02:29	WG923098
Benzene	0.00132		0.000120	0.000500	1	11/04/2016 02:29	WG923098
Toluene	0.000476	B J	0.000150	0.00500	1	11/04/2016 02:29	WG923098
Ethylbenzene	U		0.000110	0.000500	1	11/04/2016 02:29	WG923098
Total Xylene	U		0.000460	0.00150	1	11/04/2016 02:29	WG923098
(S) a,a,a-Trifluorotoluene(PID)	*112*			*54.0-114*		*11/04/2016 02:29*	WG923098
(S) a,a,a-Trifluorotoluene(FID)	*111*			*59.0-128*		*11/04/2016 02:29*	WG923098

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	73.2		1	11/03/2016 08:30	WG922975

Wet Chemistry by Method 350.1

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Ammonia Nitrogen	5.92	J	2.15	6.83	1	11/03/2016 10:56	WG922902

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	309		1.09	13.7	1	11/03/2016 21:56	WG923165
Fluoride	2.75		0.357	1.37	1	11/03/2016 21:56	WG923165
Nitrate	U		0.0159	1.37	1	11/03/2016 21:56	WG923165

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0288		0.00383	0.0273	1	11/02/2016 15:56	WG922813

Metals (ICP) by Method 6010C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	2.73		0.888	2.73	1	11/02/2016 04:02	WG922544
Barium	55.7		0.232	0.683	1	11/02/2016 04:02	WG922544
Cadmium	0.128	J	0.0957	0.683	1	11/02/2016 04:02	WG922544
Chromium	14.5		0.191	1.37	1	11/02/2016 04:02	WG922544
Lead	3.26		0.260	0.683	1	11/02/2016 04:02	WG922544
Selenium	1.41	J	1.01	2.73	1	11/02/2016 04:02	WG922544
Silver	U		0.383	1.37	1	11/02/2016 04:02	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12200		22.5	68.3	5	11/02/2016 19:33	WG922239

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.3		1	11/03/2016 08:30	WG922975

Wet Chemistry by Method 350.1

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Ammonia Nitrogen	15.2		1.84	5.86	1	11/03/2016 11:00	WG922902

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	44.4		0.932	11.7	1	11/03/2016 22:19	WG923165
Fluoride	5.03		0.306	1.17	1	11/03/2016 22:19	WG923165
Nitrate	2.25		0.0136	1.17	1	11/03/2016 22:19	WG923165

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0230	J	0.00328	0.0234	1	11/02/2016 16:11	WG922813

Metals (ICP) by Method 6010C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	U		0.762	2.34	1	11/02/2016 04:05	WG922544
Barium	39.6		0.199	0.586	1	11/02/2016 04:05	WG922544
Cadmium	0.115	J	0.0821	0.586	1	11/02/2016 04:05	WG922544
Chromium	13.0		0.164	1.17	1	11/02/2016 04:05	WG922544
Lead	2.37		0.223	0.586	1	11/02/2016 04:05	WG922544
Selenium	U		0.868	2.34	1	11/02/2016 04:05	WG922544
Silver	U		0.328	1.17	1	11/02/2016 04:05	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9370	O1 V	19.3	58.6	5	11/02/2016 18:47	WG922239

Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	U		0.0339	0.100	1	11/04/2016 02:50	WG923098
Benzene	0.000604		0.000120	0.000500	1	11/04/2016 02:50	WG923098
Toluene	0.000557	B J	0.000150	0.00500	1	11/04/2016 02:50	WG923098
Ethylbenzene	U		0.000110	0.000500	1	11/04/2016 02:50	WG923098
Total Xylene	U		0.000460	0.00150	1	11/04/2016 02:50	WG923098
(S) a,a,a-Trifluorotoluene(PID)	*111*			*54.0-114*		*11/04/2016 02:50*	WG923098
(S) a,a,a-Trifluorotoluene(FID)	*110*			*59.0-128*		*11/04/2016 02:50*	WG923098

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.9		1	11/03/2016 08:30	WG922975

Wet Chemistry by Method 350.1

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Ammonia Nitrogen	U		1.65	5.27	1	11/03/2016 11:01	WG922902

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	41.4		0.838	10.5	1	11/04/2016 01:00	WG923165
Fluoride	31.8		0.275	1.05	1	11/04/2016 01:00	WG923165
Nitrate	0.954	J	0.0122	1.05	1	11/04/2016 01:00	WG923165

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.00295	0.0211	1	11/02/2016 16:14	WG922813

Metals (ICP) by Method 6010C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	3.46		0.685	2.11	1	11/02/2016 04:07	WG922544
Barium	19.1		0.179	0.527	1	11/02/2016 04:07	WG922544
Cadmium	0.0759	J	0.0737	0.527	1	11/02/2016 04:07	WG922544
Chromium	8.32		0.147	1.05	1	11/02/2016 04:07	WG922544
Lead	2.14		0.200	0.527	1	11/02/2016 04:07	WG922544
Selenium	U		0.780	2.11	1	11/02/2016 04:07	WG922544
Silver	U		0.295	1.05	1	11/02/2016 04:07	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5730		17.4	52.7	5	11/02/2016 19:36	WG922239

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	72.3		1	11/03/2016 08:30	WG922975

Wet Chemistry by Method 350.1

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Ammonia Nitrogen	33.1		2.17	6.92	1	11/03/2016 11:02	WG922902

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	4280		5.51	69.2	5	11/04/2016 02:09	WG923165
Fluoride	0.544	J P1	0.361	1.38	1	11/04/2016 01:23	WG923165
Nitrate	U		0.0161	1.38	1	11/04/2016 01:23	WG923165

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0281		0.00387	0.0277	1	11/02/2016 16:23	WG922813

Metals (ICP) by Method 6010C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	U		0.899	2.77	1	11/02/2016 04:10	WG922544
Barium	42.1		0.235	0.692	1	11/02/2016 04:10	WG922544
Cadmium	U		0.0969	0.692	1	11/02/2016 04:10	WG922544
Chromium	11.4		0.194	1.38	1	11/02/2016 04:10	WG922544
Lead	2.57		0.263	0.692	1	11/02/2016 04:10	WG922544
Selenium	U		1.02	2.77	1	11/02/2016 04:10	WG922544
Silver	U		0.387	1.38	1	11/02/2016 04:10	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8840		22.8	69.2	5	11/02/2016 19:39	WG922239

Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	U		0.0339	0.100	1	11/04/2016 03:11	WG923098
Benzene	0.000140	J	0.000120	0.000500	1	11/04/2016 03:11	WG923098
Toluene	0.000765	B J	0.000150	0.00500	1	11/04/2016 03:11	WG923098
Ethylbenzene	U		0.000110	0.000500	1	11/04/2016 03:11	WG923098
Total Xylene	U		0.000460	0.00150	1	11/04/2016 03:11	WG923098
(S) a,a,a-Trifluorotoluene(PID)	*111*			*54.0-114*		*11/04/2016 03:11*	WG923098
(S) a,a,a-Trifluorotoluene(FID)	*110*			*59.0-128*		*11/04/2016 03:11*	WG923098

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	76.3		1	11/03/2016 08:30	WG922975

Wet Chemistry by Method 350.1

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Ammonia Nitrogen	27.7		2.06	6.55	1	11/03/2016 11:03	WG922902

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	212		1.04	13.1	1	11/04/2016 06:44	WG923183
Fluoride	7.72		0.342	1.31	1	11/04/2016 06:44	WG923183
Nitrate	U		0.0152	1.31	1	11/04/2016 06:44	WG923183

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.141		0.00367	0.0262	1	11/02/2016 16:26	WG922813

Metals (ICP) by Method 6010C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	2.47	J	0.852	2.62	1	11/02/2016 04:13	WG922544
Barium	70.2		0.223	0.655	1	11/02/2016 04:13	WG922544
Cadmium	0.153	J	0.0917	0.655	1	11/02/2016 04:13	WG922544
Chromium	18.0		0.183	1.31	1	11/02/2016 04:13	WG922544
Lead	4.35		0.249	0.655	1	11/02/2016 04:13	WG922544
Selenium	U		0.970	2.62	1	11/02/2016 04:13	WG922544
Silver	U		0.367	1.31	1	11/02/2016 04:13	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	16600		21.6	65.5	5	11/02/2016 19:42	WG922239

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	68.9		1	11/03/2016 08:30	WG922975

Wet Chemistry by Method 350.1

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Ammonia Nitrogen	9.72	J6	2.28	7.26	1	11/03/2016 11:04	WG922902

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	183		1.15	14.5	1	11/04/2016 07:30	WG923183
Fluoride	35.9		0.379	1.45	1	11/04/2016 07:30	WG923183
Nitrate	U		0.0168	1.45	1	11/04/2016 07:30	WG923183

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0163	J	0.00406	0.0290	1	11/02/2016 16:29	WG922813

Metals (ICP) by Method 6010C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	2.88	J	0.943	2.90	1	11/02/2016 04:16	WG922544
Barium	52.2		0.247	0.726	1	11/02/2016 04:16	WG922544
Cadmium	0.234	J	0.102	0.726	1	11/02/2016 04:16	WG922544
Chromium	20.1		0.203	1.45	1	11/02/2016 04:16	WG922544
Lead	6.00		0.276	0.726	1	11/02/2016 04:16	WG922544
Selenium	1.11	J	1.07	2.90	1	11/02/2016 04:16	WG922544
Silver	U		0.406	1.45	1	11/02/2016 04:16	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	19800		23.9	72.6	5	11/02/2016 19:45	WG922239

Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	U		0.0339	0.100	1	11/04/2016 03:32	WG923098
Benzene	0.000522		0.000120	0.000500	1	11/04/2016 03:32	WG923098
Toluene	0.000524	B J	0.000150	0.00500	1	11/04/2016 03:32	WG923098
Ethylbenzene	U		0.000110	0.000500	1	11/04/2016 03:32	WG923098
Total Xylene	U		0.000460	0.00150	1	11/04/2016 03:32	WG923098
(S) a,a,a-Trifluorotoluene(PID)	*111*			*54.0-114*		*11/04/2016 03:32*	WG923098
(S) a,a,a-Trifluorotoluene(FID)	*109*			*59.0-128*		*11/04/2016 03:32*	WG923098

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	74.3		1	11/03/2016 08:30	WG922975

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.78	5.38	1	11/07/2016 14:37	WG923175
Residual Range Organics (RRO)	U		4.44	13.5	1	11/07/2016 14:37	WG923175
(S) o-Terphenyl	*75.3*			*50.0-150*		*11/07/2016 14:37*	WG923175

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Anthracene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Acenaphthene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Acenaphthylene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Benzo(a)anthracene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Benzo(a)pyrene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Benzo(b)fluoranthene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Benzo(g,h,i)perylene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Benzo(k)fluoranthene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Chrysene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Dibenz(a,h)anthracene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Fluoranthene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Fluorene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Indeno(1,2,3-cd)pyrene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Naphthalene	0.00473	J	0.00269	0.0269	1	11/03/2016 11:18	WG922194
Phenanthrene	0.000954	J	0.000808	0.00808	1	11/03/2016 11:18	WG922194
Pyrene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
1-Methylnaphthalene	U		0.00269	0.0269	1	11/03/2016 11:18	WG922194
2-Methylnaphthalene	U		0.00269	0.0269	1	11/03/2016 11:18	WG922194
2-Chloronaphthalene	U		0.00269	0.0269	1	11/03/2016 11:18	WG922194
(S) Nitrobenzene-d5	*84.1*			*22.1-146*		*11/03/2016 11:18*	WG922194
(S) 2-Fluorobiphenyl	*92.3*			*40.6-122*		*11/03/2016 11:18*	WG922194
(S) p-Terphenyl-d14	*92.0*			*32.2-131*		*11/03/2016 11:18*	WG922194

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.9		1	11/03/2016 08:17	WG922976

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U	J3	1.45	4.40	1	11/07/2016 14:54	WG923175
Residual Range Organics (RRO)	U	J3 J6	3.63	11.0	1	11/07/2016 14:54	WG923175
(S) o-Terphenyl	*103*			*50.0-150*		*11/07/2016 14:54*	WG923175

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Anthracene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Acenaphthene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Acenaphthylene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Benzo(a)anthracene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Benzo(a)pyrene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Benzo(b)fluoranthene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Benzo(g,h,i)perylene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Benzo(k)fluoranthene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Chrysene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Dibenz(a,h)anthracene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Fluoranthene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Fluorene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Indeno(1,2,3-cd)pyrene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Naphthalene	U		0.00220	0.0220	1	11/03/2016 11:39	WG922194
Phenanthrene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Pyrene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
1-Methylnaphthalene	U		0.00220	0.0220	1	11/03/2016 11:39	WG922194
2-Methylnaphthalene	U		0.00220	0.0220	1	11/03/2016 11:39	WG922194
2-Chloronaphthalene	U		0.00220	0.0220	1	11/03/2016 11:39	WG922194
(S) Nitrobenzene-d5	*81.3*			*22.1-146*		*11/03/2016 11:39*	WG922194
(S) 2-Fluorobiphenyl	*94.3*			*40.6-122*		*11/03/2016 11:39*	WG922194
(S) p-Terphenyl-d14	*80.2*			*32.2-131*		*11/03/2016 11:39*	WG922194

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.7		1	11/03/2016 08:17	WG922976

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.52	4.61	1	11/07/2016 16:58	WG923175
Residual Range Organics (RRO)	U		3.81	11.5	1	11/07/2016 16:58	WG923175
(S) o-Terphenyl	*97.6*			*50.0-150*		*11/07/2016 16:58*	WG923175

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Anthracene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Acenaphthene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Acenaphthylene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Benzo(a)anthracene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Benzo(a)pyrene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Benzo(b)fluoranthene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Benzo(g,h,i)perylene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Benzo(k)fluoranthene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Chrysene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Dibenz(a,h)anthracene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Fluoranthene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Fluorene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Indeno(1,2,3-cd)pyrene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Naphthalene	U		0.00231	0.0231	1	11/03/2016 12:01	WG922194
Phenanthrene	0.00132	J	0.000692	0.00692	1	11/03/2016 12:01	WG922194
Pyrene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
1-Methylnaphthalene	U		0.00231	0.0231	1	11/03/2016 12:01	WG922194
2-Methylnaphthalene	U		0.00231	0.0231	1	11/03/2016 12:01	WG922194
2-Chloronaphthalene	U		0.00231	0.0231	1	11/03/2016 12:01	WG922194
(S) Nitrobenzene-d5	*84.3*			*22.1-146*		*11/03/2016 12:01*	WG922194
(S) 2-Fluorobiphenyl	*90.5*			*40.6-122*		*11/03/2016 12:01*	WG922194
(S) p-Terphenyl-d14	*96.9*			*32.2-131*		*11/03/2016 12:01*	WG922194

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.4		1	11/03/2016 08:17	WG922976

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.66	5.04	1	11/07/2016 17:15	WG923175
Residual Range Organics (RRO)	U		4.16	12.6	1	11/07/2016 17:15	WG923175
(S) o-Terphenyl	*57.5*			*50.0-150*		*11/07/2016 17:15*	WG923175

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Anthracene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Acenaphthene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Acenaphthylene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Benzo(a)anthracene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Benzo(a)pyrene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Benzo(b)fluoranthene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Benzo(g,h,i)perylene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Benzo(k)fluoranthene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Chrysene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Dibenz(a,h)anthracene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Fluoranthene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Fluorene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Indeno(1,2,3-cd)pyrene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Naphthalene	U		0.00252	0.0252	1	11/03/2016 12:22	WG922194
Phenanthrene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Pyrene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
1-Methylnaphthalene	U		0.00252	0.0252	1	11/03/2016 12:22	WG922194
2-Methylnaphthalene	U		0.00252	0.0252	1	11/03/2016 12:22	WG922194
2-Chloronaphthalene	U		0.00252	0.0252	1	11/03/2016 12:22	WG922194
(S) Nitrobenzene-d5	*86.5*			*22.1-146*		*11/03/2016 12:22*	WG922194
(S) 2-Fluorobiphenyl	*99.8*			*40.6-122*		*11/03/2016 12:22*	WG922194
(S) p-Terphenyl-d14	*92.5*			*32.2-131*		*11/03/2016 12:22*	WG922194

Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	U		0.0339	0.100	1	11/08/2016 14:06	WG923098
Benzene	0.000205	J	0.000120	0.000500	1	11/08/2016 14:06	WG923098
Toluene	0.000619	B J	0.000150	0.00500	1	11/08/2016 14:06	WG923098
Ethylbenzene	U		0.000110	0.000500	1	11/08/2016 14:06	WG923098
Total Xylene	U		0.000460	0.00150	1	11/08/2016 14:06	WG923098
(S) a,a,a-Trifluorotoluene(PID)	*90.8*			*54.0-114*		*11/08/2016 14:06*	WG923098
(S) a,a,a-Trifluorotoluene(FID)	*97.9*			*59.0-128*		*11/08/2016 14:06*	WG923098

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	72.7		1	11/03/2016 08:17	WG922976

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.82	5.50	1	11/07/2016 17:32	WG923175
Residual Range Organics (RRO)	U		4.54	13.8	1	11/07/2016 17:32	WG923175
(S) o-Terphenyl	*61.1*			*50.0-150*		*11/07/2016 17:32*	WG923175

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Anthracene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Acenaphthene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Acenaphthylene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Benzo(a)anthracene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Benzo(a)pyrene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Benzo(b)fluoranthene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Benzo(g,h,i)perylene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Benzo(k)fluoranthene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Chrysene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Dibenz(a,h)anthracene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Fluoranthene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Fluorene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Indeno(1,2,3-cd)pyrene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Naphthalene	U		0.00275	0.0275	1	11/03/2016 12:43	WG922194
Phenanthrene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Pyrene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
1-Methylnaphthalene	U		0.00275	0.0275	1	11/03/2016 12:43	WG922194
2-Methylnaphthalene	U		0.00275	0.0275	1	11/03/2016 12:43	WG922194
2-Chloronaphthalene	U		0.00275	0.0275	1	11/03/2016 12:43	WG922194
(S) Nitrobenzene-d5	*75.9*			*22.1-146*		*11/03/2016 12:43*	WG922194
(S) 2-Fluorobiphenyl	*89.2*			*40.6-122*		*11/03/2016 12:43*	WG922194
(S) p-Terphenyl-d14	*76.2*			*32.2-131*		*11/03/2016 12:43*	WG922194

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.8		1	11/03/2016 08:17	WG922976

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		14.9	45.1	10	11/07/2016 21:20	WG923175
Residual Range Organics (RRO)	U		37.2	113	10	11/07/2016 21:20	WG923175
(S) o-Terphenyl	*124*			*50.0-150*		*11/07/2016 21:20*	WG923175

Sample Narrative:

NWTPHDX L869381-17 WG923175: Dilution due to matrix

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Anthracene	U		0.000676	0.00676	1	11/03/2016 13:25	WG922194
Acenaphthene	U		0.000676	0.00676	1	11/03/2016 13:25	WG922194
Acenaphthylene	U		0.000676	0.00676	1	11/03/2016 13:25	WG922194
Benzo(a)anthracene	0.000687	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Benzo(a)pyrene	0.000855	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Benzo(b)fluoranthene	0.00114	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Benzo(g,h,i)perylene	0.00184	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Benzo(k)fluoranthene	U		0.000676	0.00676	1	11/03/2016 13:25	WG922194
Chrysene	0.00153	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Dibenz(a,h)anthracene	U		0.000676	0.00676	1	11/03/2016 13:25	WG922194
Fluoranthene	0.00111	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Fluorene	U		0.000676	0.00676	1	11/03/2016 13:25	WG922194
Indeno(1,2,3-cd)pyrene	0.000801	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Naphthalene	U		0.00225	0.0225	1	11/03/2016 13:25	WG922194
Phenanthrene	0.00198	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Pyrene	0.00159	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
1-Methylnaphthalene	U		0.00225	0.0225	1	11/03/2016 13:25	WG922194
2-Methylnaphthalene	0.00249	J	0.00225	0.0225	1	11/03/2016 13:25	WG922194
2-Chloronaphthalene	U		0.00225	0.0225	1	11/03/2016 13:25	WG922194
(S) Nitrobenzene-d5	*89.2*			*22.1-146*		*11/03/2016 13:25*	WG922194
(S) 2-Fluorobiphenyl	*94.5*			*40.6-122*		*11/03/2016 13:25*	WG922194
(S) p-Terphenyl-d14	*95.3*			*32.2-131*		*11/03/2016 13:25*	WG922194

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		11/3/2016 9:03:14 PM	WG923641
Fluid	1		11/3/2016 9:03:14 PM	WG923641
Initial pH	7.09		11/3/2016 9:03:14 PM	WG923641
Final pH	4.90		11/3/2016 9:03:14 PM	WG923641

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Mercury	ND		0.0100	0.20	1	11/04/2016 09:53	WG923664

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Arsenic	ND		0.100	5	1	11/04/2016 02:46	WG923644
Barium	0.127		0.0500	100	1	11/04/2016 02:46	WG923644
Cadmium	ND		0.0200	1	1	11/04/2016 02:46	WG923644
Chromium	ND		0.100	5	1	11/04/2016 02:46	WG923644
Lead	ND		0.0500	5	1	11/04/2016 02:46	WG923644
Selenium	ND		0.100	1	1	11/04/2016 02:46	WG923644
Silver	ND		0.0500	5	1	11/04/2016 02:46	WG923644

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		11/3/2016 9:03:14 PM	WG923641
Fluid	1		11/3/2016 9:03:14 PM	WG923641
Initial pH	7.12		11/3/2016 9:03:14 PM	WG923641
Final pH	4.91		11/3/2016 9:03:14 PM	WG923641

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	11/04/2016 09:55	WG923664

Metals (ICP) by Method 6010C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	11/04/2016 02:57	WG923644
Barium	0.0560		0.0500	100	1	11/04/2016 02:57	WG923644
Cadmium	ND		0.0200	1	1	11/04/2016 02:57	WG923644
Chromium	ND		0.100	5	1	11/04/2016 02:57	WG923644
Lead	ND		0.0500	5	1	11/04/2016 02:57	WG923644
Selenium	ND		0.100	1	1	11/04/2016 02:57	WG923644
Silver	ND		0.0500	5	1	11/04/2016 02:57	WG923644

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		11/3/2016 12:50:25 PM	WG923481
Fluid	1		11/3/2016 12:50:25 PM	WG923481
Initial pH	6.58		11/3/2016 12:50:25 PM	WG923481
Final pH	4.85		11/3/2016 12:50:25 PM	WG923481

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	11/04/2016 12:04	WG923721

Metals (ICP) by Method 6010C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	11/04/2016 15:05	WG923732
Barium	0.0539		0.0500	100	1	11/04/2016 15:05	WG923732
Cadmium	ND		0.0200	1	1	11/04/2016 15:05	WG923732
Chromium	ND		0.100	5	1	11/04/2016 15:05	WG923732
Lead	ND		0.0500	5	1	11/04/2016 15:05	WG923732
Selenium	ND		0.100	1	1	11/04/2016 15:05	WG923732
Silver	ND		0.0500	5	1	11/04/2016 15:05	WG923732

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		11/3/2016 9:03:14 PM	WG923641
Fluid	1		11/3/2016 9:03:14 PM	WG923641
Initial pH	8.08		11/3/2016 9:03:14 PM	WG923641
Final pH	4.93		11/3/2016 9:03:14 PM	WG923641

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	11/04/2016 09:58	WG923664

Metals (ICP) by Method 6010C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	11/04/2016 03:00	WG923644
Barium	0.0736		0.0500	100	1	11/04/2016 03:00	WG923644
Cadmium	ND		0.0200	1	1	11/04/2016 03:00	WG923644
Chromium	ND		0.100	5	1	11/04/2016 03:00	WG923644
Lead	ND		0.0500	5	1	11/04/2016 03:00	WG923644
Selenium	ND		0.100	1	1	11/04/2016 03:00	WG923644
Silver	ND		0.0500	5	1	11/04/2016 03:00	WG923644

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		11/3/2016 12:50:25 PM	WG923481
Fluid	1		11/3/2016 12:50:25 PM	WG923481
Initial pH	7.27		11/3/2016 12:50:25 PM	WG923481
Final pH	4.89		11/3/2016 12:50:25 PM	WG923481

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	11/04/2016 12:19	WG923721

Metals (ICP) by Method 6010C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	11/04/2016 14:53	WG923732
Barium	0.177		0.0500	100	1	11/04/2016 14:53	WG923732
Cadmium	ND		0.0200	1	1	11/04/2016 14:53	WG923732
Chromium	ND		0.100	5	1	11/04/2016 14:53	WG923732
Lead	ND		0.0500	5	1	11/04/2016 14:53	WG923732
Selenium	ND		0.100	1	1	11/04/2016 14:53	WG923732
Silver	ND		0.0500	5	1	11/04/2016 14:53	WG923732

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		11/3/2016 9:03:14 PM	WG923641
Fluid	1		11/3/2016 9:03:14 PM	WG923641
Initial pH	9.18		11/3/2016 9:03:14 PM	WG923641
Final pH	4.96		11/3/2016 9:03:14 PM	WG923641

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	11/04/2016 10:01	WG923664

Metals (ICP) by Method 6010C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	11/04/2016 03:02	WG923644
Barium	0.0989		0.0500	100	1	11/04/2016 03:02	WG923644
Cadmium	ND		0.0200	1	1	11/04/2016 03:02	WG923644
Chromium	ND		0.100	5	1	11/04/2016 03:02	WG923644
Lead	ND		0.0500	5	1	11/04/2016 03:02	WG923644
Selenium	ND		0.100	1	1	11/04/2016 03:02	WG923644
Silver	ND		0.0500	5	1	11/04/2016 03:02	WG923644

Method Blank (MB)

(MB) R3175784-1 11/03/16 08:30

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000400			

L869381-11 Original Sample (OS) • Duplicate (DUP)

(OS) L869381-11 11/03/16 08:30 • (DUP) R3175784-3 11/03/16 08:30

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	74.3	74.3	1	0.0160		5

Laboratory Control Sample (LCS)

(LCS) R3175784-2 11/03/16 08:30

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3175783-1 11/03/16 08:17

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00110			

L869381-13 Original Sample (OS) • Duplicate (DUP)

(OS) L869381-13 11/03/16 08:17 • (DUP) R3175783-3 11/03/16 08:17

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	86.7	86.3	1	0.434		5

Laboratory Control Sample (LCS)

(LCS) R3175783-2 11/03/16 08:17

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3175568-1 11/03/16 10:46

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Ammonia Nitrogen	U		1.57	5.00

L869365-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869365-01 11/03/16 10:52 • (DUP) R3175568-4 11/03/16 10:53

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ammonia Nitrogen	4.26	ND	1	200	P1	20

L869697-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869697-01 11/03/16 11:18 • (DUP) R3175568-7 11/03/16 11:19

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ammonia Nitrogen	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175568-2 11/03/16 10:48 • (LCSD) R3175568-3 11/03/16 10:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ammonia Nitrogen	2760	2180	2270	79.0	82.0	58.0-114			4.00	20

L869381-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-09 11/03/16 11:04 • (MS) R3175568-5 11/03/16 11:05 • (MSD) R3175568-6 11/03/16 11:06

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Ammonia Nitrogen	726	9.72	377	380	51.0	51.0	1	80.0-120	J6	J6	1.00	20

Method Blank (MB)

(MB) R3175762-1 11/03/16 11:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	U		0.795	10.0
Fluoride	U		0.261	1.00
Nitrate	U		0.0116	1.00

L868989-21 Original Sample (OS) • Duplicate (DUP)

(OS) L868989-21 11/03/16 13:45 • (DUP) R3175762-4 11/03/16 14:08

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	180	191	1	6		15
Fluoride	3.71	3.58	1	4		15
Nitrate	14.6	16.2	1	10		15

L869381-06 Original Sample (OS) • Duplicate (DUP)

(OS) L869381-06 11/04/16 01:23 • (DUP) R3175762-7 11/04/16 01:46

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	0.544	0.429	1	24	J P1	15
Nitrate	U	0	1	0		15

L869381-06 Original Sample (OS) • Duplicate (DUP)

(OS) L869381-06 11/04/16 02:09 • (DUP) R3175762-8 11/04/16 02:32

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	4280	4660	5	8		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175762-2 11/03/16 12:13 • (LCSD) R3175762-3 11/03/16 12:36

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	200	215	214	108	107	80-120			1	15
Fluoride	20.0	22.5	22.2	113	111	80-120			2	15
Nitrate	20.0	22.5	22.5	113	112	80-120			0	15

L869121-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869121-03 11/03/16 18:30 • (MS) R3175762-5 11/03/16 18:53 • (MSD) R3175762-6 11/03/16 19:16

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	500	39.3	523	524	97	97	1	80-120			0	15
Fluoride	50.0	3.58	38.9	39.9	71	73	1	80-120	J6	J6	3	15
Nitrate	50.0	ND	27.0	26.0	54	52	1	80-120	J6	J6	4	15

Method Blank (MB)

(MB) R3175833-1 11/04/16 04:26

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	U		0.795	10.0
Fluoride	U		0.261	1.00
Nitrate	U		0.0116	1.00

L869381-08 Original Sample (OS) • Duplicate (DUP)

(OS) L869381-08 11/04/16 06:44 • (DUP) R3175833-4 11/04/16 07:07

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	212	210	1	1		15
Fluoride	7.72	7.6	1	2		15
Nitrate	U	0	1	0		15

L869816-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869816-01 11/04/16 18:52 • (DUP) R3175833-7 11/04/16 19:15

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	42.4	43.4	1	2		15
Fluoride	11.7	11.7	1	0		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175833-2 11/04/16 04:49 • (LCSD) R3175833-3 11/04/16 05:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	200	214	213	107	107	80-120			0	15
Fluoride	20.0	22.0	22.0	110	110	80-120			0	15
Nitrate	20.0	22.1	22.2	111	111	80-120			0	15

L869587-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869587-04 11/04/16 15:26 • (MS) R3175833-5 11/04/16 15:48 • (MSD) R3175833-6 11/04/16 16:11

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	500	41.0	545	541	101	100	1	80-120			1	15
Fluoride	50.0	6.89	27.0	26.1	40	38	1	80-120	J6	J6	3	15

L869587-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869587-04 11/04/16 15:26 • (MS) R3175833-5 11/04/16 15:48 • (MSD) R3175833-6 11/04/16 16:11

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate	50.0	0.509	55.0	53.5	109	106	1	80-120			3	15

Method Blank (MB)

(MB) R3175877-1 11/04/16 09:02

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Mercury	U		0.00333	0.0100

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175877-2 11/04/16 09:05 • (LCSD) R3175877-3 11/04/16 09:07

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Mercury	0.0300	0.0305	0.0327	102	109	80-120			7	20

L869947-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869947-04 11/04/16 09:10 • (MS) R3175877-4 11/04/16 09:20 • (MSD) R3175877-5 11/04/16 09:22

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Mercury	0.0300	ND	0.0308	0.0300	103	100	1	75-125			3	20

L869023-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869023-02 11/04/16 09:25 • (MS) R3175877-6 11/04/16 09:27 • (MSD) R3175877-7 11/04/16 09:30

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Mercury	0.0300	ND	0.0294	0.0321	98	107	1	75-125			9	20

Method Blank (MB)

(MB) R3175922-1 11/04/16 11:57

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.00333	0.0100

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175922-2 11/04/16 11:59 • (LCSD) R3175922-3 11/04/16 12:02

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.0300	0.0309	0.0310	103	103	80-120			0	20

L869381-20 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-20 11/04/16 12:04 • (MS) R3175922-4 11/04/16 12:07 • (MSD) R3175922-5 11/04/16 12:09

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.0300	ND	0.0301	0.0298	100	99	1	75-125			1	20

L869871-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869871-02 11/04/16 12:12 • (MS) R3175922-6 11/04/16 12:14 • (MSD) R3175922-7 11/04/16 12:17

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.0300	ND	0.0299	0.0301	100	100	1	75-125			0	20

Method Blank (MB)

(MB) R3175402-1 11/02/16 15:48

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0028	0.0200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175402-2 11/02/16 15:51 • (LCSD) R3175402-3 11/02/16 15:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.300	0.274	0.283	91	94	80-120			3	20

L869381-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-02 11/02/16 15:56 • (MS) R3175402-4 11/02/16 15:59 • (MSD) R3175402-5 11/02/16 16:02

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.410	0.0288	0.474	0.484	109	111	1	75-125			2	20

Method Blank (MB)

(MB) R3175124-1 11/02/16 02:55

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.65	2.00
Barium	U		0.17	0.500
Cadmium	U		0.07	0.500
Chromium	U		0.14	1.00
Lead	U		0.19	0.500
Selenium	U		0.74	2.00
Silver	U		0.28	1.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175124-2 11/02/16 02:57 • (LCSD) R3175124-3 11/02/16 03:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	102	103	102	103	80-120			2	20
Barium	100	105	106	105	106	80-120			1	20
Cadmium	100	102	103	102	103	80-120			1	20
Chromium	100	101	102	101	102	80-120			1	20
Lead	100	102	103	102	103	80-120			1	20
Selenium	100	101	103	101	103	80-120			1	20
Silver	100	101	102	101	102	80-120			1	20

L869107-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869107-05 11/02/16 03:02 • (MS) R3175124-6 11/02/16 03:10 • (MSD) R3175124-7 11/02/16 03:13

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	117	8.20	115	118	91	94	1	75-125			3	20
Barium	117	92.3	238	242	125	128	1	75-125		J5	2	20
Cadmium	117	ND	113	117	97	100	1	75-125			3	20
Chromium	117	20.4	130	135	94	98	1	75-125			4	20
Lead	117	13.0	130	134	100	104	1	75-125			3	20
Selenium	117	ND	111	114	94	97	1	75-125			3	20
Silver	117	ND	113	116	97	100	1	75-125			3	20

Method Blank (MB)

(MB) R3175759-1 11/04/16 02:39

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	U		0.0333	0.100
Barium	U		0.0167	0.0500
Cadmium	U		0.00667	0.0200
Chromium	U		0.0333	0.100
Lead	U		0.0167	0.0500
Selenium	U		0.0333	0.100
Silver	U		0.0167	0.0500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175759-2 11/04/16 02:41 • (LCSD) R3175759-3 11/04/16 02:44

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	10.0	9.27	9.35	93	94	80-120			1	20
Barium	10.0	9.37	9.40	94	94	80-120			0	20
Cadmium	10.0	9.20	9.25	92	92	80-120			0	20
Chromium	10.0	9.21	9.15	92	91	80-120			1	20
Lead	10.0	9.23	9.23	92	92	80-120			0	20
Selenium	10.0	9.34	9.39	93	94	80-120			1	20
Silver	10.0	9.13	9.21	91	92	80-120			1	20

L869381-18 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-18 11/04/16 02:46 • (MS) R3175759-5 11/04/16 02:52 • (MSD) R3175759-6 11/04/16 02:54

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	10.0	ND	9.70	9.47	97	95	1	75-125			2	20
Barium	10.0	0.127	9.49	9.32	94	92	1	75-125			2	20
Cadmium	10.0	ND	9.46	9.28	95	93	1	75-125			2	20
Chromium	10.0	ND	9.20	9.02	92	90	1	75-125			2	20
Lead	10.0	ND	9.50	9.31	95	93	1	75-125			2	20
Selenium	10.0	ND	9.81	9.65	98	96	1	75-125			2	20
Silver	10.0	ND	9.27	9.14	93	91	1	75-125			1	20

Method Blank (MB)

(MB) R3175962-1 11/04/16 14:45

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	U		0.0333	0.100
Barium	U		0.0167	0.0500
Cadmium	U		0.00667	0.0200
Chromium	U		0.0333	0.100
Lead	U		0.0167	0.0500
Selenium	U		0.0333	0.100
Silver	U		0.0167	0.0500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175962-2 11/04/16 14:48 • (LCSD) R3175962-3 11/04/16 14:50

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	10.0	8.91	8.80	89	88	80-120			1	20
Barium	10.0	9.16	9.09	92	91	80-120			1	20
Cadmium	10.0	9.00	8.92	90	89	80-120			1	20
Chromium	10.0	8.86	8.82	89	88	80-120			0	20
Lead	10.0	8.91	8.81	89	88	80-120			1	20
Selenium	10.0	8.94	8.85	89	89	80-120			1	20
Silver	10.0	8.61	8.54	86	85	80-120			1	20

L869381-22 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-22 11/04/16 14:53 • (MS) R3175962-5 11/04/16 14:59 • (MSD) R3175962-6 11/04/16 15:02

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	10.0	ND	9.29	9.32	93	93	1	75-125			0	20
Barium	10.0	0.177	9.26	9.26	91	91	1	75-125			0	20
Cadmium	10.0	ND	9.21	9.21	92	92	1	75-125			0	20
Chromium	10.0	ND	8.96	9.03	90	90	1	75-125			1	20
Lead	10.0	ND	9.01	9.02	90	90	1	75-125			0	20
Selenium	10.0	ND	9.44	9.47	94	95	1	75-125			0	20
Silver	10.0	ND	8.89	8.95	89	89	1	75-125			1	20

Method Blank (MB)

(MB) R3175414-1 11/02/16 18:38

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	4.96	J	2.3	50.0

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175414-2 11/02/16 18:41 • (LCSD) R3175414-3 11/02/16 18:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	1060	1100	106	110	80-120			4	20

L869381-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-03 11/02/16 18:47 • (MS) R3175414-6 11/02/16 18:57 • (MSD) R3175414-7 11/02/16 19:00

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	234	9370	11100	10600	149	106	5	75-125	V		5	20

Method Blank (MB)

(MB) R3176319-5 11/03/16 20:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Gasoline Range Organics-NWTPH	U		0.0339	0.100
Toluene	0.000193	J	0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
(S) a,a,a-Trifluorotoluene(FID)	*111*			*59.0-128*
(S) a,a,a-Trifluorotoluene(PID)	*110*			*54.0-144*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176319-1 11/03/16 18:26 • (LCSD) R3176319-2 11/03/16 18:47

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0539	0.0536	108	107	70.0-130			0.610	39
Toluene	0.0500	0.0551	0.0548	110	110	70.0-130			0.580	42
Ethylbenzene	0.0500	0.0534	0.0531	107	106	70.0-130			0.590	44
Total Xylene	0.150	0.168	0.167	112	111	70.0-130			0.570	44
(S) a,a,a-Trifluorotoluene(FID)				*110*	*110*	*59.0-128*				
(S) a,a,a-Trifluorotoluene(PID)				*114*	*113*	*54.0-144*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176319-3 11/03/16 19:08 • (LCSD) R3176319-4 11/03/16 19:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5.50	5.90	5.89	107	107	67.0-135			0.130	20
(S) a,a,a-Trifluorotoluene(FID)				*112*	*113*	*59.0-128*				
(S) a,a,a-Trifluorotoluene(PID)				*119*	*116*	*54.0-144*				

L869639-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869639-01 11/08/16 14:28 • (MS) R3176600-1 11/08/16 17:03 • (MSD) R3176600-2 11/08/16 17:25

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.000550	0.0337	0.0228	66.3	44.5	1	32.0-137			38.5	39
Toluene	0.0500	ND	0.0261	0.0150	50.8	28.5	1	20.0-142		J3	54.2	42
Ethylbenzene	0.0500	ND	0.0190	0.00901	37.6	17.7	1	10.0-150		J3	71.1	44
Total Xylene	0.150	ND	0.0600	0.0287	39.7	18.8	1	12.0-149		J3	70.6	44

L869639-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869639-01 11/08/16 14:28 • (MS) R3176600-1 11/08/16 17:03 • (MSD) R3176600-2 11/08/16 17:25

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
(S) a,a,a-Trifluorotoluene(FID)					*92.5*	*89.2*		*59.0-128*				
(S) a,a,a-Trifluorotoluene(PID)					*89.7*	*84.7*		*54.0-144*				

L869639-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869639-01 11/08/16 14:28 • (MS) R3176600-3 11/08/16 17:47 • (MSD) R3176600-4 11/08/16 18:10

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5.50	ND	1.47	0.405	26.7	7.36	1	55.0-109	J6	J3 J6	113	20
(S) a,a,a-Trifluorotoluene(FID)					*88.4*	*87.6*		*59.0-128*				
(S) a,a,a-Trifluorotoluene(PID)					*86.9*	*82.6*		*54.0-144*				

Method Blank (MB)

(MB) R3176262-3 11/07/16 16:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*106*			*50.0-150*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176262-4 11/07/16 16:24 • (LCSD) R3176262-5 11/07/16 16:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	30.0	26.1	30.7	86.9	102	50.0-150			16.4	20
Residual Range Organics (RRO)	30.0	17.5	21.2	58.4	70.7	50.0-150			19.0	20
(S) o-Terphenyl				*110*	*122*	*50.0-150*				

L869381-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-12 11/07/16 14:54 • (MS) R3176262-1 11/07/16 15:11 • (MSD) R3176262-2 11/07/16 15:28

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	33.0	U	29.2	23.4	88.1	70.6	1	50.0-150		J3	21.9	20
Residual Range Organics (RRO)	33.0	U	20.0	15.6	60.4	47.1	1	50.0-150		J3 J6	24.8	20
(S) o-Terphenyl					*109*	*90.5*		*50.0-150*				

Method Blank (MB)

(MB) R3175501-3 11/03/16 07:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.000600	0.00600
Acenaphthene	U		0.000600	0.00600
Acenaphthylene	U		0.000600	0.00600
Benzo(a)anthracene	U		0.000600	0.00600
Benzo(a)pyrene	U		0.000600	0.00600
Benzo(b)fluoranthene	U		0.000600	0.00600
Benzo(g,h,i)perylene	U		0.000600	0.00600
Benzo(k)fluoranthene	U		0.000600	0.00600
Chrysene	U		0.000600	0.00600
Dibenz(a,h)anthracene	U		0.000600	0.00600
Fluoranthene	U		0.000600	0.00600
Fluorene	U		0.000600	0.00600
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600
Naphthalene	U		0.00200	0.0200
Phenanthrene	U		0.000600	0.00600
Pyrene	U		0.000600	0.00600
1-Methylnaphthalene	U		0.00200	0.0200
2-Methylnaphthalene	U		0.00200	0.0200
2-Chloronaphthalene	U		0.00200	0.0200
(S) p-Terphenyl-d14	*104*			*32.2-131*
(S) Nitrobenzene-d5	*89.7*			*22.1-146*
(S) 2-Fluorobiphenyl	*101*			*40.6-122*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175501-1 11/03/16 06:23 • (LCSD) R3175501-2 11/03/16 06:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	0.0640	0.0655	80.0	81.9	50.3-130			2.34	20
Acenaphthene	0.0800	0.0627	0.0637	78.4	79.7	52.4-120			1.66	20
Acenaphthylene	0.0800	0.0628	0.0643	78.5	80.3	49.6-120			2.25	20
Benzo(a)anthracene	0.0800	0.0633	0.0660	79.1	82.5	46.7-125			4.12	20
Benzo(a)pyrene	0.0800	0.0646	0.0666	80.8	83.2	42.3-119			3.01	20
Benzo(b)fluoranthene	0.0800	0.0568	0.0544	71.0	68.1	43.6-124			4.19	20
Benzo(g,h,i)perylene	0.0800	0.0633	0.0634	79.2	79.3	45.1-132			0.130	20
Benzo(k)fluoranthene	0.0800	0.0530	0.0561	66.3	70.1	46.1-131			5.67	20
Chrysene	0.0800	0.0648	0.0667	81.0	83.4	49.5-131			2.96	20
Dibenz(a,h)anthracene	0.0800	0.0720	0.0712	90.0	89.0	44.8-133			1.09	20
Fluoranthene	0.0800	0.0637	0.0644	79.6	80.5	49.3-128			1.16	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175501-1 11/03/16 06:23 • (LCSD) R3175501-2 11/03/16 06:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	0.0800	0.0637	0.0645	79.6	80.6	50.6-121			1.21	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0671	0.0667	83.9	83.3	46.1-135			0.710	20
Naphthalene	0.0800	0.0628	0.0638	78.5	79.7	49.6-115			1.48	20
Phenanthrene	0.0800	0.0624	0.0649	78.0	81.1	48.8-121			3.97	20
Pyrene	0.0800	0.0672	0.0684	84.0	85.5	44.7-130			1.78	20
1-Methylnaphthalene	0.0800	0.0648	0.0672	81.1	84.0	50.6-122			3.50	20
2-Methylnaphthalene	0.0800	0.0621	0.0638	77.7	79.8	50.4-120			2.67	20
2-Chloronaphthalene	0.0800	0.0657	0.0676	82.1	84.5	53.9-121			2.82	20
(S) p-Terphenyl-d14				*95.6*	*94.1*	*32.2-131*				
(S) Nitrobenzene-d5				*88.0*	*83.2*	*22.1-146*				
(S) 2-Fluorobiphenyl				*94.8*	*94.4*	*40.6-122*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

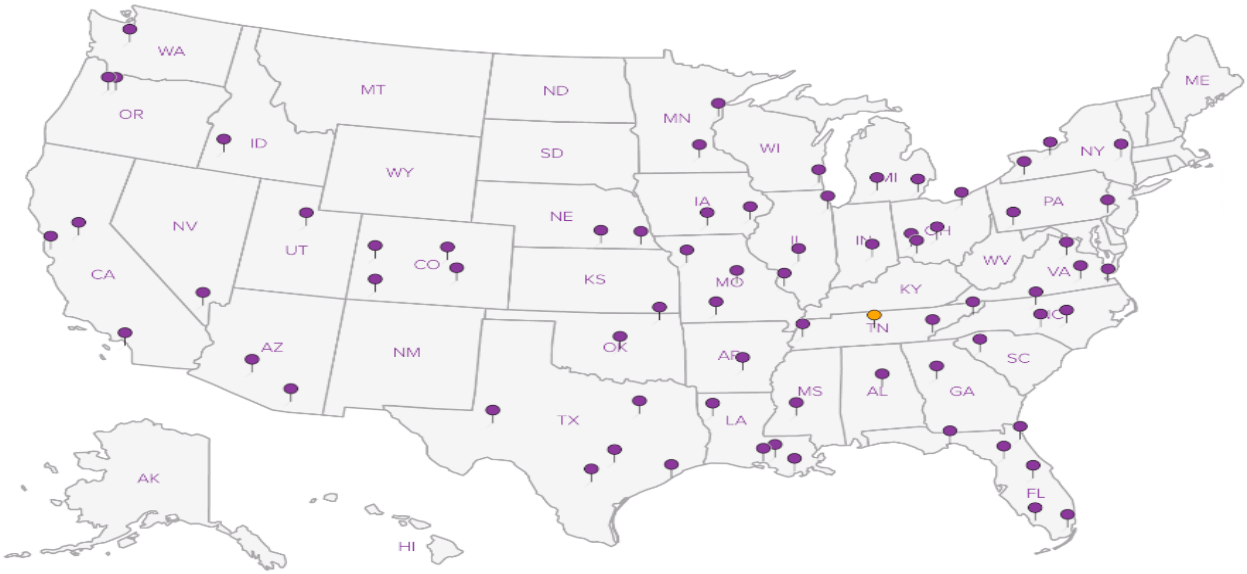
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Stantec- Bellevue, WA

11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Billing Information & Quote Number: Chris Gdak
Accounts Payable- ~~Phil Hebeman~~
11130 NE 33rd Pl, Ste 200
Bellevue, WA 98004

Report to: ~~Nate Magnuson~~ Cyrus Gorman
Email To: Chris.Gdak@stantec.com; Cyrus.Gorman@stantec.com;

Project Description: Maralco, Phase II ESA
City/State Collected: Kent, WA

Phone: 425-289-7374
Fax: 425-869-1190
Client Project # 185750123a
Lab Project # STANTECBWA-KENT

Collected by (print): CAROL SHESTAG
Site/Facility ID #
P.O. # 185750123

Collected by (signature):
Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X_Yes
FAX? ___No ___Yes

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl,F,NH3,NO3 4ozClr-NoPres	NWTPHDX 4ozClr-NoPres	NWTPHGXBTEX 40ml/NaHSO4/Syr/MeOH	PAHSIMD 4ozClr-NoPres	RCRA8 + Al metals 2ozClr-NoPres	TCLP RCRA8+Al 8ozClr-NoPres	VOCs Screen, TS 2ozClr-NoPres	TCLP Extraction			Lab Sample # (lab only)
B-4-9'	Grab	SS	9'	10/27/16	09:02	3			X					~~X~~ NO			01
B-4-15'	"	SS	15'	"	09:10	2	X				X			X			02
B-4-7'	"	SS	7'	"	09:00	2	X				X			X			03
B-5-10'	"	SS	10'	"	10:32	3			X								04
B-5-8'	"	SS	8'	"	10:30	2	X				X			X			05
B-5-15'	"	SS	15'	"	10:40	2	X				X			X			06
B-6-9.5'	"	SS	9.5'	"	14:38	3			X								07
B-6-7.5'	"	SS	7.5'	"	14:35	2	X				X			X			08
B-6-15'	"	SS	15'	"	14:45	3	X				X			X			09
B-1-17'	"	SS	17'	"	12:10	3			X								10

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks:Aluminum by Method 6020.

pH _____ Temp _____
Flow _____ Other _____

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

ESC LAB SCIENCES
OUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 869381
B225

Acctnum: STANTECBWA
Template: T117067
Prelogin: P573460
TSR: 110 - Brian Ford
PB:
Shipped Via:

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	10/28/2016	15:45	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received by/Lab by: (Signature)

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ _____
Temp: 2.4 °C Bottles Received: 36
Date: 10-29-16 Time: 0900

Condition: 009 (lab use only)
COC Seal Intact: ___Y ___N ___NA
pH Checked: NCF: X

Stantec- Bellevue, WA 11130 NE 33rd Pl, Suite 200 Bellevue, WA 98004	Billing Information & Quote Number: Chris Gdak Accounts Payable- ~~Phil Haberman~~ 11130 NE 33rd Pl, Ste 200 Bellevue, WA 98004	Chain of Custody Page 2 of 2 ESC LABS SOUTH LAB OF CHOICE 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859
Report to: ~~Nate Magnuson~~ Cyrus Gorman	Email To: Chris.Gdak@stantec.com; Cyrus.Gorman@stantec.com;	
Project Description: Maralco, Phase II ESA	City/State Collected: Kent, WA	L# 869381
Phone: 425-289-7374 Fax: 425-869-1190	Client Project # 185750123c	Lab Project # STANTECBWA-KENT
Collected by (print):	Site/Facility ID #	P.O. # 185750123
Collected by (signature):	Rush? (Lab MUST Be Notified) ___ Same Day ___ 200% ___ Next Day ___ 100% ___ Two Day ___ 50% ___ Three Day ___ 25%	Date Results Needed
Immediately Packed on Ice N___ Y X	Email? ___No X_Yes FAX? ___No ___Yes	No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl,F,NH3,NO3 4ozClr-NoPres	NWTPHDX 4ozClr-NoPres	NWTPHGXBTEX 40ml/NaHSO4/Syr/MeOH	PAHSIMD 4ozClr-NoPres	RCRA8 + Al metals 2ozClr-NoPres	TCLP RCRA8+Al 8ozClr-NoPres	VOCs Screen, TS 2ozClr-NoPres	TCLP Extraction	HOLD			
B-1-17'	Grab	SS	17'	10/27/16	12:10	1	X	X		X	X			X				11
B-1-5'	"	SS	5'	"	12:00	1	X	X		X	X			X				12
B-1-20'	"	SS	20'	"	12:12	1									X			
B-2-4'	"	SS	4'	"	12:50	1	X	X		X	X			X				13
B-2-16.5'	"	SS	16.5	"	12:58	1	X	X		X	X			X				14
B-3-16'	"	SS	16'	"	11:40	3			X									15
B-3-16'	"	SS	16'	"	"	1	X	X	X	X				X				16
B-3-6'	"	SS	6'	"	11:25	1	X	X	X	X				X				17
B-3-20'	"	SS	20'	"	11:45										X			
		SS																

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other _____

Remarks:Aluminum by Method 6020
Called to Lab Manager On-Call 12:23; left voicemail message
Corrected 10/29/2016 12:20 pm emailed to ESC " 12:25 "

pH _____ Temp _____
Flow _____ Other _____

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	10/28/2016	15:45	
Relinquished by : (Signature) re: updated COC	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____
Temp: 2.4 °C Bottles Received: 36
Date: 10/29/16 Time: 0900

Condition: (lab use only)
COC Seal Intact: ___Y ___N ___NA
pH Checked: NCF: N

Stantec- Bellevue, WA

11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Billing Information & Quote Number: Chris Gdak
Accounts Payable- ~~Phil Heberman~~
11130 NE 33rd Pl, Ste 200
Bellevue, WA 98004

Report to: ~~Nate Magnuson~~ Cyrus Gorman

Email To: Chris.Gdak@stantec.com; Cyrus.Gorman@stantec.com;

Project Description: Maralco, Phase II ESA

City/State Collected: Kent, WA

Phone: 425-289-7374
Fax: 425-869-1190

Client Project # 185750123a

Lab Project # STANTECBWA-KENT

Collected by (print):

Site/Facility ID #

P.O. # 185750123

Collected by (signature):

Immediately Packed on Ice N___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X_Yes
FAX? ___No ___Yes

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Cl,F,NH3,NO3 4ozClr-NoPres	NWTPHDX 4ozClr-NoPres	NWTPHGXBTEX 40ml/NaHSO4/Syr/MeOH	PAHSIMD 4ozClr-NoPres	RCRA8 + Al metals 2ozClr-NoPres	TCLP RCRA8+Al 8ozClr-NoPres	VOCs Screen, TS 2ozClr-NoPres	TCLP Extraction	Hold		Rem./Contaminant	Sample # (lab only)
B-1-17'	Grab	SS	17'	10/27/16	12:10	1	X				X			X				11
B-1-5'	"	SS	5'	"	12:00	1	X				X			X				12
B-1-20'	"	SS	20'	"	12:12	1									X			
B-2-4'	"	SS	4'	"	12:50	1	X				X			X				13
B-2-16.5'	"	SS	16.5	"	12:58	1	X				X			X				14
B-3-16'	"	SS	16'	"	11:40	3			X									15
B-3-16'	"	SS	16'	"	"	1	X		X					X				16
B-3-6'	"	SS	6'	"	11:25	1	X		X					X				17
B-3-20'	"	SS	20'	"	11:45										X			
		SS																

Chain of Custody Page 2 of 2

ESC LABORATORIES
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 869391

Table #

Acctnum: STANTECBWA
Template: T117067
Prelogin: P573460
TSR: 110 - Brian Ford
PB:
Shipped Via:

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks: Aluminum by Method 6020.

pH ___ Temp ___
Flow ___ Other ___

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	10/28/2016	15:45	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ ___
Temp: 2.4 °C Bottles Received: 36
Date: 10-29-16 Time: 0900

Condition: DW (lab use only)
COC Seal Intact: ___Y ___N ___NA
pH Checked: NCF: X

ESC
LAB SCIENCES
YOUR LAB OF CHOICE

Cooler Receipt Form

Client: STANTECBVA	SDG# 269381
Cooler Received/Opened On: 10/ 29 /16	Temperature Upon Receipt: 2.4 °c
Received By: Dakota Busby	
Signature:	

Receipt Check List	Yes	No	N/A
Were custody seals on outside of cooler and intact?			✓
Were custody papers properly filled out?	✓		
Did all bottles arrive in good condition?	✓		
Were correct bottles used for the analyses requested?	✓		
Was sufficient amount of sample sent in each bottle?	✓		
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)			✓
If applicable, was an observable VOA headspace present?			✓
Non Conformance Generated. (If yes see attached NCF)	X		

ESC Lab Sciences
Non-Conformance Form

Login #L869381	Client: STANTECBWA	Date:10/29	Evaluated by:Dakota

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time	x	Login Clarification Needed		**If Broken Container:**
	Improper temperature		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	Improper preservation		Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Court
	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
	Broken container:		Chain of Custody is missing		Date/Time:
	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments:

1. **Received B-4-16.5 instead of B-2-16.5. Same date and time. Logged per COC**
2. **Please clarify TCLP Extraction**

Client informed by:		Call		Email	x	Voice Mail		Date:10/31/16	Time:1300
TSR Initials:bjf	Client Contact: Cyrus Gorman								

Login Instructions:

1) Log per COC
2) M6010TCLP (RCRA8) and TCLP ALICP.

Brian Ford

From: Brian Ford
Sent: Monday, October 31, 2016 6:49 PM
To: Brian Ford
Subject: FW: ESC Lab Sciences Maralco L869248

L869381. Cancelling TCLP ALICP.

Thanks,
Brian Ford
ESC Lab Sciences
Direct: (615)773-9772
Mobile: (931)510-2229
bford@esclabsciences.com

From: Gorman, Cyrus [mailto:Cyrus.Gorman@stantec.com]
Sent: Monday, October 31, 2016 5:29 PM
To: Brian Ford
Subject: RE: ESC Lab Sciences Maralco L869248

Sorry for the confusion. For the TCLP sample, we only want to run the RCRA 8 metals.

Thank you,

Cyrus Gorman, L.G.
Project Manager
Stantec
4100 194th Street SW Suite 400 Lynnwood WA 98036-4613
Cell Phone: 425-599-9302
Direct: 206-494-5029
cyrus.gorman@stantec.com

From: Brian Ford [mailto:BFord@esclabsciences.com]
Sent: Monday, October 31, 2016 3:28 PM
To: Gorman, Cyrus <Cyrus.Gorman@stantec.com>
Subject: RE: ESC Lab Sciences Maralco L869248

Cyrus,

Are we cancelling aluminum on just the Maralco groundwaters only? Or also cancel for the Maralco soils as well.

Thanks,
Brian Ford

ESC Lab Sciences
Office: (615)773-9772
Cell: (931)510-2229
bford@esclabsciences.com

From: Gorman, Cyrus [mailto:Cyrus.Gorman@stantec.com]
Sent: Monday, October 31, 2016 5:14 PM
To: Brian Ford
Subject: RE: ESC Lab Sciences Maralco L869248

Brian,

Please skip the aluminum analysis. Sorry for the late notice.

Thank you.

Cyrus Gorman, L.G.
Project Manager
Stantec
4100 194th Street SW Suite 400 Lynnwood WA 98036-4613
Cell Phone: 425-599-9302
Direct: 206-494-5029
cyrus.gorman@stantec.com

ANALYTICAL REPORT

November 04, 2016

Stantec- Bellevue, WA

Sample Delivery Group:	L869248
Samples Received:	10/29/2016
Project Number:	185750123A
Description:	Maralco, Phase II ESA

Report To: Cyrus Gorman
11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Entire Report Reviewed By: Brian Ford

Brian Ford
Technical Service Representative

B-6-GW L869248-01 GW

Collected by: Carol Shestag | Collected date/time: 10/27/16 15:15 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:19	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:32	ST
Metals (ICPMS) by Method 6020	WG922947	1	11/02/16 11:09	11/03/16 16:56	LAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922800	2	11/01/16 20:30	11/02/16 05:21	FMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG922176	1	10/31/16 09:39	11/01/16 17:06	TRF
Wet Chemistry by Method 300.0	WG922052	1	10/29/16 12:28	10/29/16 12:28	SAM
Wet Chemistry by Method 300.0	WG922052	5	10/29/16 14:37	10/29/16 14:37	SAM
Wet Chemistry by Method 300.0	WG923169	10	11/03/16 18:41	11/03/16 18:41	CM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:01	11/02/16 14:01	DR

B-5-GW L869248-02 GW

Collected by: Carol Shestag | Collected date/time: 10/27/16 11:10 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:22	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:40	ST
Metals (ICPMS) by Method 6020	WG922947	1	11/02/16 11:09	11/03/16 16:59	LAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922800	2	11/01/16 20:30	11/02/16 05:44	FMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG922176	1	10/31/16 09:39	11/01/16 17:26	TRF
Wet Chemistry by Method 300.0	WG922052	1	10/29/16 11:02	10/29/16 11:02	SAM
Wet Chemistry by Method 300.0	WG923169	500	11/03/16 18:55	11/03/16 18:55	CM
Wet Chemistry by Method 350.1	WG922833	10	11/02/16 14:51	11/02/16 14:51	DR

B-4-GW L869248-03 GW

Collected by: Carol Shestag | Collected date/time: 10/27/16 09:30 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:24	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:43	ST
Metals (ICPMS) by Method 6020	WG922947	10	11/02/16 11:09	11/04/16 14:02	LAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922800	2	11/01/16 20:30	11/02/16 06:08	FMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG922176	1	10/31/16 09:39	11/01/16 17:45	TRF
Wet Chemistry by Method 300.0	WG922052	1	10/29/16 12:42	10/29/16 12:42	SAM
Wet Chemistry by Method 300.0	WG923169	5	11/03/16 19:10	11/03/16 19:10	CM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:04	11/02/16 14:04	DR

B-3-GW L869248-04 GW

Collected by: Carol Shestag | Collected date/time: 10/27/16 12:20 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:27	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:46	ST
Metals (ICPMS) by Method 6020	WG922947	1	11/02/16 11:09	11/03/16 17:12	LAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922800	2	11/01/16 20:30	11/02/16 06:31	FMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG922176	1	10/31/16 09:39	11/02/16 13:40	TRF
Wet Chemistry by Method 300.0	WG922052	1	10/29/16 11:16	10/29/16 11:16	SAM
Wet Chemistry by Method 300.0	WG922052	5	10/29/16 16:04	10/29/16 16:04	SAM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:06	11/02/16 14:06	DR

B-2-GW L869248-05 GW

Collected by: Carol Shestag | Collected date/time: 10/27/16 13:25 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:29	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:49	ST
Metals (ICPMS) by Method 6020	WG922947	10	11/02/16 11:09	11/04/16 14:05	LAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922800	1	11/01/16 20:30	11/02/16 06:54	FMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG922176	1	10/31/16 09:39	11/02/16 13:56	TRF
Wet Chemistry by Method 300.0	WG922052	1	10/29/16 12:13	10/29/16 12:13	SAM
Wet Chemistry by Method 300.0	WG922052	5	10/29/16 14:52	10/29/16 14:52	SAM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:07	11/02/16 14:07	DR

B-1-GW L869248-06 GW

Collected by: Carol Shestag | Collected date/time: 10/27/16 13:00 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:32	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:52	ST
Metals (ICPMS) by Method 6020	WG922947	10	11/02/16 11:09	11/04/16 14:08	LAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922800	1	11/01/16 20:30	11/02/16 07:18	FMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG922176	1	10/31/16 09:39	11/02/16 14:13	TRF
Wet Chemistry by Method 300.0	WG922052	1	10/29/16 11:59	10/29/16 11:59	SAM
Wet Chemistry by Method 300.0	WG922052	5	10/29/16 16:18	10/29/16 16:18	SAM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:09	11/02/16 14:09	DR

SW-10 L869248-07 GW

Collected by: Carol Shestag | Collected date/time: 10/28/16 10:40 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:34	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:55	ST
Metals (ICPMS) by Method 6020	WG922947	1	11/02/16 11:09	11/03/16 17:21	LAT
Wet Chemistry by Method 300.0	WG922071	1	10/29/16 23:09	10/29/16 23:09	CM
Wet Chemistry by Method 300.0	WG922071	100	10/30/16 00:07	10/30/16 00:07	CM
Wet Chemistry by Method 300.0	WG922071	5	10/29/16 23:52	10/29/16 23:52	CM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:15	11/02/16 14:15	DR

SW-11 L869248-08 GW

Collected by: Carol Shestag | Collected date/time: 10/28/16 11:05 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:42	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:57	ST
Metals (ICPMS) by Method 6020	WG922947	1	11/02/16 11:09	11/03/16 17:24	LAT
Wet Chemistry by Method 300.0	WG922071	1	10/30/16 00:21	10/30/16 00:21	CM
Wet Chemistry by Method 300.0	WG922071	5	10/30/16 00:36	10/30/16 00:36	CM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:17	11/02/16 14:17	DR

SW-900 L869248-09 GW

Collected by: Carol Shestag | Collected date/time: 10/28/16 00:00 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:45	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 16:00	ST

SW-900 L869248-09 GW

Collected by: Carol Shestag
Collected date/time: 10/28/16 00:00
Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 6020	WG922947	1	11/02/16 11:09	11/03/16 17:27	LAT
Wet Chemistry by Method 300.0	WG922071	1	10/30/16 00:50	10/30/16 00:50	CM
Wet Chemistry by Method 300.0	WG922071	5	10/30/16 01:33	10/30/16 01:33	CM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:18	11/02/16 14:18	DR

All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

Sample Handling and Receiving

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

ESC Sample ID	Project Sample ID	Method
L869248-03	B-4-GW	300.0
L869248-09	SW-900	300.0

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	111000		260	5000	5	10/29/2016 14:37	WG922052
Fluoride	52900		99.0	1000	10	11/03/2016 18:41	WG923169
Nitrate	U		22.7	100	1	10/29/2016 12:28	WG922052

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ammonia Nitrogen	516		38.0	250	1	11/02/2016 14:01	WG922833

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	0.338		0.0490	0.200	1	11/02/2016 16:19	WG922404

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	64.0		6.50	10.0	1	10/31/2016 15:32	WG922127
Barium	325		1.70	5.00	1	10/31/2016 15:32	WG922127
Cadmium	U		0.700	2.00	1	10/31/2016 15:32	WG922127
Chromium	44.3		1.40	10.0	1	10/31/2016 15:32	WG922127
Lead	40.3		1.90	5.00	1	10/31/2016 15:32	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 15:32	WG922127
Silver	U		2.80	5.00	1	10/31/2016 15:32	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Aluminum	43500		2.00	100	1	11/03/2016 16:56	WG922947

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	U		82.5	250	1	11/01/2016 17:06	WG922176
Residual Range Organics (RRO)	U		165	500	1	11/01/2016 17:06	WG922176
(S) o-Terphenyl	*127*			*50.0-150*		*11/01/2016 17:06*	WG922176

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	U		0.0280	0.100	2	11/02/2016 05:21	WG922800
Acenaphthene	U		0.0200	0.100	2	11/02/2016 05:21	WG922800
Acenaphthylene	U		0.0240	0.100	2	11/02/2016 05:21	WG922800
Benzo(a)anthracene	U		0.00820	0.100	2	11/02/2016 05:21	WG922800
Benzo(a)pyrene	U		0.0232	0.100	2	11/02/2016 05:21	WG922800
Benzo(b)fluoranthene	U		0.00424	0.100	2	11/02/2016 05:21	WG922800
Benzo(g,h,i)perylene	U		0.00454	0.100	2	11/02/2016 05:21	WG922800
Benzo(k)fluoranthene	U		0.0272	0.100	2	11/02/2016 05:21	WG922800
Chrysene	U		0.0216	0.100	2	11/02/2016 05:21	WG922800
Dibenz(a,h)anthracene	U		0.00792	0.100	2	11/02/2016 05:21	WG922800
Fluoranthene	U		0.0314	0.100	2	11/02/2016 05:21	WG922800
Fluorene	U		0.0170	0.100	2	11/02/2016 05:21	WG922800
Indeno(1,2,3-cd)pyrene	U		0.0296	0.100	2	11/02/2016 05:21	WG922800

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Naphthalene	U		0.0396	0.500	2	11/02/2016 05:21	WG922800
Phenanthrene	U		0.0164	0.100	2	11/02/2016 05:21	WG922800
Pyrene	U		0.0234	0.100	2	11/02/2016 05:21	WG922800
1-Methylnaphthalene	U		0.0164	0.500	2	11/02/2016 05:21	WG922800
2-Methylnaphthalene	U		0.0180	0.500	2	11/02/2016 05:21	WG922800
2-Chloronaphthalene	U		0.0129	0.500	2	11/02/2016 05:21	WG922800
(S) Nitrobenzene-d5	*45.4*			*45.1-170*		*11/02/2016 05:21*	WG922800
(S) 2-Fluorobiphenyl	*24.1*	J2		*57.7-153*		*11/02/2016 05:21*	WG922800
(S) p-Terphenyl-d14	*16.5*	J2		*53.2-156*		*11/02/2016 05:21*	WG922800

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	8970000		26000	500000	500	11/03/2016 18:55	WG923169
Fluoride	7740		9.90	100	1	10/29/2016 11:02	WG922052
Nitrate	U		22.7	100	1	10/29/2016 11:02	WG922052

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ammonia Nitrogen	39800		380	2500	10	11/02/2016 14:51	WG922833

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	0.0502	J	0.0490	0.200	1	11/02/2016 16:22	WG922404

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	43.9		6.50	10.0	1	10/31/2016 15:40	WG922127
Barium	3850		1.70	5.00	1	10/31/2016 15:40	WG922127
Cadmium	U		0.700	2.00	1	10/31/2016 15:40	WG922127
Chromium	18.7		1.40	10.0	1	10/31/2016 15:40	WG922127
Lead	9.40		1.90	5.00	1	10/31/2016 15:40	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 15:40	WG922127
Silver	U		2.80	5.00	1	10/31/2016 15:40	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Aluminum	7880		2.00	100	1	11/03/2016 16:59	WG922947

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	U		82.5	250	1	11/01/2016 17:26	WG922176
Residual Range Organics (RRO)	U		165	500	1	11/01/2016 17:26	WG922176
(S) o-Terphenyl	*93.8*			*50.0-150*		*11/01/2016 17:26*	WG922176

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	U		0.0280	0.100	2	11/02/2016 05:44	WG922800
Acenaphthene	U		0.0200	0.100	2	11/02/2016 05:44	WG922800
Acenaphthylene	U		0.0240	0.100	2	11/02/2016 05:44	WG922800
Benzo(a)anthracene	U		0.00820	0.100	2	11/02/2016 05:44	WG922800
Benzo(a)pyrene	U		0.0232	0.100	2	11/02/2016 05:44	WG922800
Benzo(b)fluoranthene	U		0.00424	0.100	2	11/02/2016 05:44	WG922800
Benzo(g,h,i)perylene	U		0.00454	0.100	2	11/02/2016 05:44	WG922800
Benzo(k)fluoranthene	U		0.0272	0.100	2	11/02/2016 05:44	WG922800
Chrysene	U		0.0216	0.100	2	11/02/2016 05:44	WG922800
Dibenz(a,h)anthracene	U		0.00792	0.100	2	11/02/2016 05:44	WG922800
Fluoranthene	U		0.0314	0.100	2	11/02/2016 05:44	WG922800
Fluorene	U		0.0170	0.100	2	11/02/2016 05:44	WG922800
Indeno(1,2,3-cd)pyrene	U		0.0296	0.100	2	11/02/2016 05:44	WG922800

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Naphthalene	U		0.0396	0.500	2	11/02/2016 05:44	WG922800
Phenanthrene	U		0.0164	0.100	2	11/02/2016 05:44	WG922800
Pyrene	U		0.0234	0.100	2	11/02/2016 05:44	WG922800
1-Methylnaphthalene	U		0.0164	0.500	2	11/02/2016 05:44	WG922800
2-Methylnaphthalene	U		0.0180	0.500	2	11/02/2016 05:44	WG922800
2-Chloronaphthalene	U		0.0129	0.500	2	11/02/2016 05:44	WG922800
(S) Nitrobenzene-d5	*97.1*			*45.1-170*		*11/02/2016 05:44*	WG922800
(S) 2-Fluorobiphenyl	*71.9*			*57.7-153*		*11/02/2016 05:44*	WG922800
(S) p-Terphenyl-d14	*59.2*			*53.2-156*		*11/02/2016 05:44*	WG922800

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	109000		260	5000	5	11/03/2016 19:10	WG923169
Fluoride	5090		9.90	100	1	10/29/2016 12:42	WG922052
Nitrate	363		22.7	100	1	10/29/2016 12:42	WG922052

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ammonia Nitrogen	4150		38.0	250	1	11/02/2016 14:04	WG922833

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	0.0681	J	0.0490	0.200	1	11/02/2016 16:24	WG922404

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	65.9		6.50	10.0	1	10/31/2016 15:43	WG922127
Barium	676		1.70	5.00	1	10/31/2016 15:43	WG922127
Cadmium	1.56	J	0.700	2.00	1	10/31/2016 15:43	WG922127
Chromium	108		1.40	10.0	1	10/31/2016 15:43	WG922127
Lead	28.5		1.90	5.00	1	10/31/2016 15:43	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 15:43	WG922127
Silver	U		2.80	5.00	1	10/31/2016 15:43	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Aluminum	363000		20.0	1000	10	11/04/2016 14:02	WG922947

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	U		82.5	250	1	11/01/2016 17:45	WG922176
Residual Range Organics (RRO)	U		165	500	1	11/01/2016 17:45	WG922176
(S) o-Terphenyl	*113*			*50.0-150*		*11/01/2016 17:45*	WG922176

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	U		0.0280	0.100	2	11/02/2016 06:08	WG922800
Acenaphthene	U		0.0200	0.100	2	11/02/2016 06:08	WG922800
Acenaphthylene	U		0.0240	0.100	2	11/02/2016 06:08	WG922800
Benzo(a)anthracene	U		0.00820	0.100	2	11/02/2016 06:08	WG922800
Benzo(a)pyrene	U		0.0232	0.100	2	11/02/2016 06:08	WG922800
Benzo(b)fluoranthene	U		0.00424	0.100	2	11/02/2016 06:08	WG922800
Benzo(g,h,i)perylene	U		0.00454	0.100	2	11/02/2016 06:08	WG922800
Benzo(k)fluoranthene	U		0.0272	0.100	2	11/02/2016 06:08	WG922800
Chrysene	U		0.0216	0.100	2	11/02/2016 06:08	WG922800
Dibenz(a,h)anthracene	U		0.00792	0.100	2	11/02/2016 06:08	WG922800
Fluoranthene	U		0.0314	0.100	2	11/02/2016 06:08	WG922800
Fluorene	U		0.0170	0.100	2	11/02/2016 06:08	WG922800
Indeno(1,2,3-cd)pyrene	U		0.0296	0.100	2	11/02/2016 06:08	WG922800

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Naphthalene	U		0.0396	0.500	2	11/02/2016 06:08	WG922800
Phenanthrene	U		0.0164	0.100	2	11/02/2016 06:08	WG922800
Pyrene	U		0.0234	0.100	2	11/02/2016 06:08	WG922800
1-Methylnaphthalene	U		0.0164	0.500	2	11/02/2016 06:08	WG922800
2-Methylnaphthalene	U		0.0180	0.500	2	11/02/2016 06:08	WG922800
2-Chloronaphthalene	U		0.0129	0.500	2	11/02/2016 06:08	WG922800
(S) Nitrobenzene-d5	*71.6*			*45.1-170*		*11/02/2016 06:08*	WG922800
(S) 2-Fluorobiphenyl	*39.8*	J2		*57.7-153*		*11/02/2016 06:08*	WG922800
(S) p-Terphenyl-d14	*29.5*	J2		*53.2-156*		*11/02/2016 06:08*	WG922800

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	341000		260	5000	5	10/29/2016 16:04	WG922052
Fluoride	496		9.90	100	1	10/29/2016 11:16	WG922052
Nitrate	55.6	J	22.7	100	1	10/29/2016 11:16	WG922052

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ammonia Nitrogen	7030		38.0	250	1	11/02/2016 14:06	WG922833

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	U		0.0490	0.200	1	11/02/2016 16:27	WG922404

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	33.8		6.50	10.0	1	10/31/2016 15:46	WG922127
Barium	164		1.70	5.00	1	10/31/2016 15:46	WG922127
Cadmium	U		0.700	2.00	1	10/31/2016 15:46	WG922127
Chromium	15.4		1.40	10.0	1	10/31/2016 15:46	WG922127
Lead	6.73		1.90	5.00	1	10/31/2016 15:46	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 15:46	WG922127
Silver	U		2.80	5.00	1	10/31/2016 15:46	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Aluminum	11000		2.00	100	1	11/03/2016 17:12	WG922947

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	235	J	82.5	250	1	11/02/2016 13:40	WG922176
Residual Range Organics (RRO)	U		165	500	1	11/02/2016 13:40	WG922176
(S) o-Terphenyl	*121*			*50.0-150*		*11/02/2016 13:40*	WG922176

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	U		0.0280	0.100	2	11/02/2016 06:31	WG922800
Acenaphthene	0.459		0.0200	0.100	2	11/02/2016 06:31	WG922800
Acenaphthylene	0.0735	J	0.0240	0.100	2	11/02/2016 06:31	WG922800
Benzo(a)anthracene	U		0.00820	0.100	2	11/02/2016 06:31	WG922800
Benzo(a)pyrene	U		0.0232	0.100	2	11/02/2016 06:31	WG922800
Benzo(b)fluoranthene	U		0.00424	0.100	2	11/02/2016 06:31	WG922800
Benzo(g,h,i)perylene	U		0.00454	0.100	2	11/02/2016 06:31	WG922800
Benzo(k)fluoranthene	U		0.0272	0.100	2	11/02/2016 06:31	WG922800
Chrysene	U		0.0216	0.100	2	11/02/2016 06:31	WG922800
Dibenz(a,h)anthracene	U		0.00792	0.100	2	11/02/2016 06:31	WG922800
Fluoranthene	U		0.0314	0.100	2	11/02/2016 06:31	WG922800
Fluorene	0.483		0.0170	0.100	2	11/02/2016 06:31	WG922800
Indeno(1,2,3-cd)pyrene	U		0.0296	0.100	2	11/02/2016 06:31	WG922800

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Naphthalene	0.614		0.0396	0.500	2	11/02/2016 06:31	WG922800
Phenanthrene	0.0249	J	0.0164	0.100	2	11/02/2016 06:31	WG922800
Pyrene	U		0.0234	0.100	2	11/02/2016 06:31	WG922800
1-Methylnaphthalene	2.38		0.0164	0.500	2	11/02/2016 06:31	WG922800
2-Methylnaphthalene	0.226	J	0.0180	0.500	2	11/02/2016 06:31	WG922800
2-Chloronaphthalene	U		0.0129	0.500	2	11/02/2016 06:31	WG922800
(S) Nitrobenzene-d5	*108*			*45.1-170*		*11/02/2016 06:31*	WG922800
(S) 2-Fluorobiphenyl	*86.5*			*57.7-153*		*11/02/2016 06:31*	WG922800
(S) p-Terphenyl-d14	*86.7*			*53.2-156*		*11/02/2016 06:31*	WG922800

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	177000		260	5000	5	10/29/2016 14:52	WG922052
Fluoride	850		9.90	100	1	10/29/2016 12:13	WG922052
Nitrate	177		22.7	100	1	10/29/2016 12:13	WG922052

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ammonia Nitrogen	4570		38.0	250	1	11/02/2016 14:07	WG922833

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	0.234		0.0490	0.200	1	11/02/2016 16:29	WG922404

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	45.2		6.50	10.0	1	10/31/2016 15:49	WG922127
Barium	590		1.70	5.00	1	10/31/2016 15:49	WG922127
Cadmium	1.50	J	0.700	2.00	1	10/31/2016 15:49	WG922127
Chromium	124		1.40	10.0	1	10/31/2016 15:49	WG922127
Lead	49.3		1.90	5.00	1	10/31/2016 15:49	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 15:49	WG922127
Silver	U		2.80	5.00	1	10/31/2016 15:49	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Aluminum	159000		20.0	1000	10	11/04/2016 14:05	WG922947

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	U		82.5	250	1	11/02/2016 13:56	WG922176
Residual Range Organics (RRO)	U		165	500	1	11/02/2016 13:56	WG922176
(S) o-Terphenyl	*125*			*50.0-150*		*11/02/2016 13:56*	WG922176

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	U		0.0140	0.0500	1	11/02/2016 06:54	WG922800
Acenaphthene	U		0.0100	0.0500	1	11/02/2016 06:54	WG922800
Acenaphthylene	U		0.0120	0.0500	1	11/02/2016 06:54	WG922800
Benzo(a)anthracene	U		0.00410	0.0500	1	11/02/2016 06:54	WG922800
Benzo(a)pyrene	U		0.0116	0.0500	1	11/02/2016 06:54	WG922800
Benzo(b)fluoranthene	U		0.00212	0.0500	1	11/02/2016 06:54	WG922800
Benzo(g,h,i)perylene	U		0.00227	0.0500	1	11/02/2016 06:54	WG922800
Benzo(k)fluoranthene	U		0.0136	0.0500	1	11/02/2016 06:54	WG922800
Chrysene	U		0.0108	0.0500	1	11/02/2016 06:54	WG922800
Dibenz(a,h)anthracene	U		0.00396	0.0500	1	11/02/2016 06:54	WG922800
Fluoranthene	U		0.0157	0.0500	1	11/02/2016 06:54	WG922800
Fluorene	U		0.00850	0.0500	1	11/02/2016 06:54	WG922800
Indeno(1,2,3-cd)pyrene	U		0.0148	0.0500	1	11/02/2016 06:54	WG922800

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Naphthalene	0.0429	J	0.0198	0.250	1	11/02/2016 06:54	WG922800
Phenanthrene	U		0.00820	0.0500	1	11/02/2016 06:54	WG922800
Pyrene	U		0.0117	0.0500	1	11/02/2016 06:54	WG922800
1-Methylnaphthalene	0.0167	J	0.00821	0.250	1	11/02/2016 06:54	WG922800
2-Methylnaphthalene	0.0165	J	0.00902	0.250	1	11/02/2016 06:54	WG922800
2-Chloronaphthalene	U		0.00647	0.250	1	11/02/2016 06:54	WG922800
(S) Nitrobenzene-d5	*112*			*45.1-170*		*11/02/2016 06:54*	WG922800
(S) 2-Fluorobiphenyl	*84.3*			*57.7-153*		*11/02/2016 06:54*	WG922800
(S) p-Terphenyl-d14	*72.9*			*53.2-156*		*11/02/2016 06:54*	WG922800

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	265000		260	5000	5	10/29/2016 16:18	WG922052
Fluoride	428		9.90	100	1	10/29/2016 11:59	WG922052
Nitrate	488		22.7	100	1	10/29/2016 11:59	WG922052

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ammonia Nitrogen	4070		38.0	250	1	11/02/2016 14:09	WG922833

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	0.0726	J	0.0490	0.200	1	11/02/2016 16:32	WG922404

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	68.6		6.50	10.0	1	10/31/2016 15:52	WG922127
Barium	608		1.70	5.00	1	10/31/2016 15:52	WG922127
Cadmium	1.13	J	0.700	2.00	1	10/31/2016 15:52	WG922127
Chromium	86.6		1.40	10.0	1	10/31/2016 15:52	WG922127
Lead	41.9		1.90	5.00	1	10/31/2016 15:52	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 15:52	WG922127
Silver	U		2.80	5.00	1	10/31/2016 15:52	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Aluminum	151000		20.0	1000	10	11/04/2016 14:08	WG922947

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	160	J	82.5	250	1	11/02/2016 14:13	WG922176
Residual Range Organics (RRO)	U		165	500	1	11/02/2016 14:13	WG922176
(S) o-Terphenyl	*119*			*50.0-150*		*11/02/2016 14:13*	WG922176

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	U		0.0140	0.0500	1	11/02/2016 07:18	WG922800
Acenaphthene	0.112		0.0100	0.0500	1	11/02/2016 07:18	WG922800
Acenaphthylene	0.0136	J	0.0120	0.0500	1	11/02/2016 07:18	WG922800
Benzo(a)anthracene	U		0.00410	0.0500	1	11/02/2016 07:18	WG922800
Benzo(a)pyrene	0.0812		0.0116	0.0500	1	11/02/2016 07:18	WG922800
Benzo(b)fluoranthene	U		0.00212	0.0500	1	11/02/2016 07:18	WG922800
Benzo(g,h,i)perylene	U		0.00227	0.0500	1	11/02/2016 07:18	WG922800
Benzo(k)fluoranthene	U		0.0136	0.0500	1	11/02/2016 07:18	WG922800
Chrysene	U		0.0108	0.0500	1	11/02/2016 07:18	WG922800
Dibenz(a,h)anthracene	U		0.00396	0.0500	1	11/02/2016 07:18	WG922800
Fluoranthene	U		0.0157	0.0500	1	11/02/2016 07:18	WG922800
Fluorene	0.0431	J	0.00850	0.0500	1	11/02/2016 07:18	WG922800
Indeno(1,2,3-cd)pyrene	U		0.0148	0.0500	1	11/02/2016 07:18	WG922800

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Naphthalene	0.167	J	0.0198	0.250	1	11/02/2016 07:18	WG922800
Phenanthrene	0.0124	J	0.00820	0.0500	1	11/02/2016 07:18	WG922800
Pyrene	U		0.0117	0.0500	1	11/02/2016 07:18	WG922800
1-Methylnaphthalene	0.147	J	0.00821	0.250	1	11/02/2016 07:18	WG922800
2-Methylnaphthalene	0.0585	J	0.00902	0.250	1	11/02/2016 07:18	WG922800
2-Chloronaphthalene	U		0.00647	0.250	1	11/02/2016 07:18	WG922800
(S) Nitrobenzene-d5	*111*			*45.1-170*		*11/02/2016 07:18*	WG922800
(S) 2-Fluorobiphenyl	*86.2*			*57.7-153*		*11/02/2016 07:18*	WG922800
(S) p-Terphenyl-d14	*87.8*			*53.2-156*		*11/02/2016 07:18*	WG922800

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	8940000		5190	100000	100	10/30/2016 00:07	WG922071
Fluoride	6630		9.90	100	1	10/29/2016 23:09	WG922071
Nitrate	10200		114	500	5	10/29/2016 23:52	WG922071

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ammonia Nitrogen	2680		38.0	250	1	11/02/2016 14:15	WG922833

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	U		0.0490	0.200	1	11/02/2016 16:34	WG922404

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	U		6.50	10.0	1	10/31/2016 15:55	WG922127
Barium	481		1.70	5.00	1	10/31/2016 15:55	WG922127
Cadmium	2.13		0.700	2.00	1	10/31/2016 15:55	WG922127
Chromium	1.91	J	1.40	10.0	1	10/31/2016 15:55	WG922127
Lead	U		1.90	5.00	1	10/31/2016 15:55	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 15:55	WG922127
Silver	U		2.80	5.00	1	10/31/2016 15:55	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Aluminum	730		2.00	100	1	11/03/2016 17:21	WG922947

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	379000		260	5000	5	10/30/2016 00:36	WG922071
Fluoride	4170		9.90	100	1	10/30/2016 00:21	WG922071
Nitrate	288	B	22.7	100	1	10/30/2016 00:21	WG922071

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ammonia Nitrogen	62.0	J	38.0	250	1	11/02/2016 14:17	WG922833

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	U		0.0490	0.200	1	11/02/2016 16:42	WG922404

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	U		6.50	10.0	1	10/31/2016 15:57	WG922127
Barium	15.5		1.70	5.00	1	10/31/2016 15:57	WG922127
Cadmium	U		0.700	2.00	1	10/31/2016 15:57	WG922127
Chromium	1.41	J	1.40	10.0	1	10/31/2016 15:57	WG922127
Lead	2.00	J	1.90	5.00	1	10/31/2016 15:57	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 15:57	WG922127
Silver	U		2.80	5.00	1	10/31/2016 15:57	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Aluminum	618		2.00	100	1	11/03/2016 17:24	WG922947

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	367000		260	5000	5	10/30/2016 01:33	WG922071
Fluoride	4210		9.90	100	1	10/30/2016 00:50	WG922071
Nitrate	288	B	22.7	100	1	10/30/2016 00:50	WG922071

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ammonia Nitrogen	60.0	J	38.0	250	1	11/02/2016 14:18	WG922833

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	U		0.0490	0.200	1	11/02/2016 16:45	WG922404

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	U		6.50	10.0	1	10/31/2016 16:00	WG922127
Barium	14.4		1.70	5.00	1	10/31/2016 16:00	WG922127
Cadmium	U		0.700	2.00	1	10/31/2016 16:00	WG922127
Chromium	U		1.40	10.0	1	10/31/2016 16:00	WG922127
Lead	U		1.90	5.00	1	10/31/2016 16:00	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 16:00	WG922127
Silver	U		2.80	5.00	1	10/31/2016 16:00	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Aluminum	373		2.00	100	1	11/03/2016 17:27	WG922947

Method Blank (MB)

(MB) R3174914-1 10/29/16 08:51

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chloride	182	J	51.9	1000
Fluoride	U		9.90	100
Nitrate	U		22.7	100

L869248-03 Original Sample (OS) • Duplicate (DUP)

(OS) L869248-03 10/29/16 12:42 • (DUP) R3174914-4 10/29/16 13:54

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	5090	5220	1	3		20
Nitrate	363	370	1	2		20

L869236-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869236-01 10/29/16 15:06 • (DUP) R3174914-7 10/29/16 15:50

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	8390	8380	1	0		20
Fluoride	27.4	27.0	1	0	J	20
Nitrate	216	207	1	4		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3174914-2 10/29/16 09:05 • (LCSD) R3174914-3 10/29/16 09:20

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	40000	39200	39300	98	98	90-110			0	20
Fluoride	8000	8210	8230	103	103	90-110			0	20
Nitrate	8000	8500	8540	106	107	90-110			1	20

L869248-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869248-06 10/29/16 11:59 • (MS) R3174914-5 10/29/16 15:21 • (MSD) R3174914-6 10/29/16 15:35

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluoride	5000	428	5570	5640	103	104	1	80-120			1	20
Nitrate	5000	488	5660	5820	103	107	1	80-120			3	20

Method Blank (MB)

(MB) R3174635-2 10/29/16 20:02

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Chloride	187	J	51.9	1000
Fluoride	U		9.90	100
Nitrate	36.0	J	22.7	100

L869236-03 Original Sample (OS) • Duplicate (DUP)

(OS) L869236-03 10/29/16 21:28 • (DUP) R3174635-5 10/29/16 21:43

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	5470	5590	1	2		20
Fluoride	31.1	31.6	1	2	J	20
Nitrate	1220	1200	1	2		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3174635-3 10/29/16 20:16 • (LCSD) R3174635-4 10/29/16 20:31

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Chloride	40000	40000	39400	100	99	90-110			1	20
Fluoride	8000	8330	8300	104	104	90-110			0	20
Nitrate	8000	8740	8630	109	108	90-110			1	20

L869272-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L869272-01 10/29/16 23:24 • (MS) R3174635-6 10/29/16 23:38

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	ug/l	ug/l	ug/l	%		%	
Chloride	50000	17400	65700	97	1	80-120	
Fluoride	5000	720	5560	97	1	80-120	

Method Blank (MB)

(MB) R3175800-1 11/03/16 10:43

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Chloride	88.8	J	51.9	1000
Fluoride	U		9.90	100

L869377-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869377-01 11/03/16 13:53 • (DUP) R3175800-4 11/03/16 14:07

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	47300	47300	1	0		20
Fluoride	230	208	1	10		20

L869243-02 Original Sample (OS) • Duplicate (DUP)

(OS) L869243-02 11/03/16 18:12 • (DUP) R3175800-6 11/03/16 18:26

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	48700	47700	5	2		20
Fluoride	ND	430	5	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175800-2 11/03/16 10:58 • (LCSD) R3175800-3 11/03/16 11:12

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Chloride	40000	38300	38400	96	96	90-110			0	20
Fluoride	8000	7810	7800	98	97	90-110			0	20

L869295-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L869295-11 11/03/16 16:17 • (MS) R3175800-5 11/03/16 16:31

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	ug/l	ug/l	ug/l	%		%	
Fluoride	5000	80.9	4900	96	1	80-120	

L869377-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869377-07 11/03/16 21:05 • (MS) R3175800-7 11/03/16 21:19 • (MSD) R3175800-8 11/03/16 21:34

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	44800	93000	93200	96	97	1	80-120			0	20
Fluoride	5000	220	5040	5050	96	97	1	80-120			0	20

Method Blank (MB)

(MB) R3175481-2 11/02/16 13:39

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Ammonia Nitrogen	U		38.0	250

L868976-01 Original Sample (OS) • Duplicate (DUP)

(OS) L868976-01 11/02/16 13:47 • (DUP) R3175481-5 11/02/16 13:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Ammonia Nitrogen	ND	0.000	1	0		20

L869245-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869245-01 11/02/16 14:47 • (DUP) R3175481-9 11/02/16 14:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Ammonia Nitrogen	43800	43700	10	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175481-3 11/02/16 13:40 • (LCSD) R3175481-4 11/02/16 13:42

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Ammonia Nitrogen	7500	7040	7110	94	95	90-110			1	20

L869242-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L869242-01 11/02/16 13:50 • (MS) R3175481-6 11/02/16 13:52

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	ug/l	ug/l	ug/l	%		%	
Ammonia Nitrogen	10000	ND	9430	94	1	90-110	

L869250-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869250-01 11/02/16 14:20 • (MS) R3175481-7 11/02/16 14:22 • (MSD) R3175481-8 11/02/16 14:23

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Ammonia Nitrogen	10000	ND	9680	9640	97	96	1	90-110			0	20

Method Blank (MB)

(MB) R3175355-1 11/02/16 15:28

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Mercury	U		0.0490	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175355-2 11/02/16 15:31 • (LCSD) R3175355-6 11/02/16 17:11

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Mercury	3.00	2.78	2.75	93	92	80-120			1	20

L868992-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L868992-04 11/02/16 15:44 • (MS) R3175355-4 11/02/16 15:46 • (MSD) R3175355-5 11/02/16 15:49

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Mercury	3.00	ND	2.80	2.85	93	95	1	75-125			2	20

Method Blank (MB)

(MB) R3174805-7 10/31/16 15:08

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Arsenic	U		6.50	10.0
Barium	U		1.70	5.00
Cadmium	U		0.700	2.00
Chromium	U		1.40	10.0
Lead	U		1.90	5.00
Selenium	U		7.40	10.0
Silver	U		2.80	5.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3174805-8 10/31/16 15:11 • (LCSD) R3174805-9 10/31/16 15:13

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Arsenic	1000	1010	991	101	99	80-120			2	20
Barium	1000	1030	1010	103	101	80-120			2	20
Cadmium	1000	1010	990	101	99	80-120			2	20
Chromium	1000	1010	982	101	98	80-120			3	20
Lead	1000	1010	990	101	99	80-120			2	20
Selenium	1000	1030	1010	103	101	80-120			2	20
Silver	1000	989	962	99	96	80-120			3	20

L869396-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869396-06 10/31/16 15:16 • (MS) R3174805-11 10/31/16 15:21 • (MSD) R3174805-12 10/31/16 15:24

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Arsenic	1000	U	1000	1010	100	101	1	75-125			0	20
Barium	1000	12.1	1020	1030	101	102	1	75-125			0	20
Cadmium	1000	U	1010	1010	101	101	1	75-125			0	20
Chromium	1000	U	990	988	99	99	1	75-125			0	20
Lead	1000	2.37	998	998	100	100	1	75-125			0	20
Selenium	1000	U	1020	1030	102	103	1	75-125			1	20
Silver	1000	U	973	978	97	98	1	75-125			1	20

Method Blank (MB)

(MB) R3175780-1 11/03/16 15:54

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Aluminum	4.45		2.00	100

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175780-2 11/03/16 15:57 • (LCSD) R3175780-3 11/03/16 16:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Aluminum	5000	5340	5320	107	106	80-120			0	20

L868992-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L868992-04 11/03/16 16:04 • (MS) R3175780-5 11/03/16 16:10 • (MSD) R3175780-6 11/03/16 16:13

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Aluminum	5000	ND	5150	5290	102	105	1	75-125			3	20

Method Blank (MB)

(MB) R3175291-1 11/01/16 11:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Diesel Range Organics (DRO)	U		83.3	250
Residual Range Organics (RRO)	U		167	500
(S) o-Terphenyl	*117*			*64.0-146*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175291-2 11/01/16 11:25 • (LCSD) R3175291-3 11/01/16 11:44

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Diesel Range Organics (DRO)	750	938	962	125	128	50.0-150			2.58	20
Residual Range Organics (RRO)	750	804	795	107	106	50.0-150			1.12	20
(S) o-Terphenyl				*121*	*118*	*64.0-146*				

Method Blank (MB)

(MB) R3175309-3 11/02/16 04:35

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Anthracene	U		0.0140	0.0500
Acenaphthene	U		0.0100	0.0500
Acenaphthylene	U		0.0120	0.0500
Benzo(a)anthracene	U		0.00410	0.0500
Benzo(a)pyrene	U		0.0116	0.0500
Benzo(b)fluoranthene	U		0.00212	0.0500
Benzo(g,h,i)perylene	U		0.00227	0.0500
Benzo(k)fluoranthene	U		0.0136	0.0500
Chrysene	U		0.0108	0.0500
Dibenz(a,h)anthracene	U		0.00396	0.0500
Fluoranthene	U		0.0157	0.0500
Fluorene	U		0.00850	0.0500
Indeno(1,2,3-cd)pyrene	U		0.0148	0.0500
Naphthalene	U		0.0198	0.250
Phenanthrene	U		0.00820	0.0500
Pyrene	U		0.0117	0.0500
1-Methylnaphthalene	U		0.00821	0.250
2-Methylnaphthalene	U		0.00902	0.250
2-Chloronaphthalene	U		0.00647	0.250
(S) Nitrobenzene-d5	*112*			*45.1-170*
(S) 2-Fluorobiphenyl	*94.2*			*57.7-153*
(S) p-Terphenyl-d14	*95.2*			*53.2-156*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175309-1 11/02/16 03:48 • (LCSD) R3175309-2 11/02/16 04:11

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	2.00	2.09	2.07	105	103	68.9-153			1.24	20
Acenaphthene	2.00	2.12	2.05	106	102	67.7-141			3.26	20
Acenaphthylene	2.00	2.05	1.96	103	98.0	66.9-141			4.49	20
Benzo(a)anthracene	2.00	1.94	1.91	97.0	95.4	63.1-147			1.69	20
Benzo(a)pyrene	2.00	2.05	1.99	103	99.7	62.2-150			2.82	20
Benzo(b)fluoranthene	2.00	2.01	2.00	100	100	58.4-148			0.0900	20
Benzo(g,h,i)perylene	2.00	1.92	1.88	96.1	93.8	57.4-152			2.33	20
Benzo(k)fluoranthene	2.00	2.08	2.01	104	100	60.5-154			3.45	20
Chrysene	2.00	2.13	2.06	106	103	64.8-155			3.26	20
Dibenz(a,h)anthracene	2.00	1.91	1.85	95.3	92.7	53.5-153			2.70	20
Fluoranthene	2.00	1.97	1.93	98.5	96.4	68.6-153			2.20	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175309-1 11/02/16 03:48 • (LCSD) R3175309-2 11/02/16 04:11

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	2.00	1.84	1.77	92.1	88.7	67.3-141			3.81	20
Indeno(1,2,3-cd)pyrene	2.00	1.95	1.88	97.6	94.2	57.0-155			3.52	20
Naphthalene	2.00	2.10	2.04	105	102	66.7-135			2.63	20
Phenanthrene	2.00	2.19	2.12	109	106	64.3-143			3.03	20
Pyrene	2.00	2.31	2.21	115	110	60.2-154			4.46	20
1-Methylnaphthalene	2.00	2.00	1.94	100	97.2	68.3-144			3.10	20
2-Methylnaphthalene	2.00	1.84	1.78	92.2	88.9	67.6-143			3.65	20
2-Chloronaphthalene	2.00	1.95	1.88	97.3	93.9	69.7-144			3.48	20
(S) Nitrobenzene-d5				*113*	*118*	*45.1-170*				
(S) 2-Fluorobiphenyl				*94.0*	*94.5*	*57.7-153*				
(S) p-Terphenyl-d14				*94.6*	*94.7*	*53.2-156*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.

ACCREDITATIONS & LOCATIONS

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

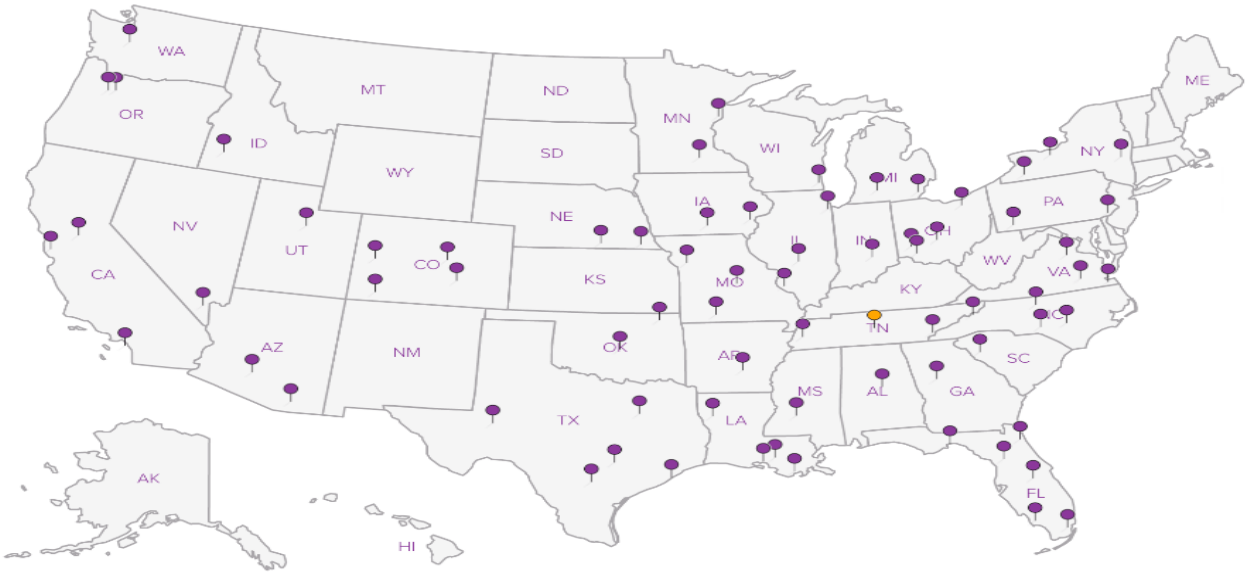
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Stantec- Bellevue, WA

11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Billing Information & Quote Number: Chris Gdak
Accounts Payable- ~~Phil Haberman~~
11130 NE 33rd Pl, Ste 200
Bellevue, WA 98004

Report to: ~~Nate Magnusson~~ Cyrus Gorman

Email To: Chris.Gdak@stantec.com; Cyrus.Gorman@stantec.com;

Project Description: Marelco, Phase II ESA

City/State Collected: Kent, WA

Phone: 425-289-7374
Fax: 425-869-1190

Client Project #: 185750123a

Lab Project #: STANTECBWA-KENT

Collected by (print): Carol Shertag

Site/Facility ID #:

P.O. #: 185750123

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X_Yes
FAX? ___No ___Yes

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

ESC LAB SCIENCES
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 86728

G007

Acctnum: STANTECBWA
Template: T117073
Prelogin: P573472
TSR: 110 - Brian Ford
PB:
Shipped Via

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No of Cntrs	*Cl,F,NO3 by 300 125mlHDPE-NoPres	NH3 125mlHDPE-H2SO4 (pH<2 Y/N)	NWTPHDXLVI 40mlAmb-HCl-BT (2) (Blue Top)	PAHSIMLVID 40mlAmb-NoPres-WT (2) (Blue Top)	Total RCRA8 + Al 250mlHDPE-HNO3 (Red-Dot Top)					Rem./Contaminant	Sample # (lab only)
B-6-GW	Grab	GW	—	10/27/16	15:15	7	X	X	X	X	X					01	Please decant water (away from sediment) prior to analysis to minimize high turbidity / NTU. Thanks — Carol Shertag
B-5-GW	"	GW	—	"	11:10	7	X	X	X	X	X					02	
B-4-GW	"	GW	—	"	09:30	7	X	X	X	X	X					03	
B-3-GW	"	GW	—	"	12:20	7	X	X	X	X	X					04	
B-2-GW	"	GW	—	"	13:25	7	X	X	X	X	X					05	
B-1-GW	"	GW	—	"	13:00	7	X	X	X	X	X					06	
SW-10	"	~~SW~~ GW	—	10/28/16	10:40	3	X	X			X					07	
SW-11	"	~~SW~~ GW	—	"	11:05	3	X	X			X					08	
SW-900	"	~~SW~~ GW	—	"	00:00	3	X	X			X					09	
		GW															

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks:*Nitrate has a 48 hour hold time.
Aluminum by method 6020.

pH ___ Temp ___
Flow ___ Other ___

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	10/28/16	15:15	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ ___
Temp: 3.4 °C Bottles Received: 51
Date: 10/29/16 Time: 0900

Condition: (lab use only) 02 JW7
COC Seal Intact: ___ Y ___ N ✓ NA
pH Checked: C2 NCF:

ESC
LAB SCIENCES
YOUR LAB OF CHOICE

Cooler Receipt Form

Client:	STANTECBUA	SDG#	469248
Cooler Received/Opened On: 10/19/16	Temperature Upon Receipt:		3.4 °c
Received By: Rickey Mosley			
Signature:			

Receipt Check List	Yes	No	N/A
Were custody seals on outside of cooler and intact?			✓
Were custody papers properly filled out?	✓		
Did all bottles arrive in good condition?	✓		
Were correct bottles used for the analyses requested?	✓		
Was sufficient amount of sample sent in each bottle?	✓		
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)	✓		
If applicable, was an observable VOA headspace present?			✓
Non Conformance Generated. (If yes see attached NCF)			

Andy Vann

ESC Lab Sciences
Non-Conformance Form

Login #L869248	Client: STANTECBWA	Date:10/29	Evaluated by:Matt S

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
x	Parameter(s) past holding time		Login Clarification Needed		**If Broken Container:**
	Improper temperature		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	Improper preservation		Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Couri
	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
	Broken container:		Chain of Custody is missing		Date/Time:
	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments: Nitrate OOH for B-4GW

Client informed by:		Call		Email	x	Voice Mail		Date:10/31/16	Time:1020
TSR Initials:bjf	Client Contact: Cyrus Gorman								

Login Instructions:

Proceed and qualify as needed.

ANALYTICAL REPORT

November 09, 2016

Stantec- Bellevue, WA

Sample Delivery Group:	L870054
Samples Received:	11/03/2016
Project Number:	185750123A
Description:	Maralco

Report To: Cyrus Gorman
11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Entire Report Reviewed By:

Brian Ford
Technical Service Representative

TABLE OF CONTENTS

MW-2 L870054-01 GW

Collected by: Nathan Magnusson
Collected date/time: 11/02/16 14:05
Received date/time: 11/03/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG923453	1	11/03/16 14:45	11/04/16 08:21	TRB
Metals (ICP) by Method 6010C	WG923492	1	11/03/16 14:09	11/03/16 21:03	ST
Metals (ICPMS) by Method 6020	WG923495	1	11/04/16 09:54	11/04/16 11:49	LAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG924187	1	11/06/16 20:35	11/07/16 13:31	FMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG923524	1	11/06/16 20:37	11/07/16 23:13	TRF
Wet Chemistry by Method 300.0	WG923421	1	11/03/16 11:57	11/03/16 11:57	SAM
Wet Chemistry by Method 350.1	WG923929	1	11/08/16 11:28	11/08/16 11:28	DR

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	3890		51.9	1000	1	11/03/2016 11:57	WG923421
Fluoride	80.7	J	9.90	100	1	11/03/2016 11:57	WG923421
Nitrate	U		22.7	100	1	11/03/2016 11:57	WG923421

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ammonia Nitrogen	U		38.0	250	1	11/08/2016 11:28	WG923929

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	U		0.0490	0.200	1	11/04/2016 08:21	WG923453

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	U		6.50	10.0	1	11/03/2016 21:03	WG923492
Barium	5.65		1.70	5.00	1	11/03/2016 21:03	WG923492
Cadmium	U		0.700	2.00	1	11/03/2016 21:03	WG923492
Chromium	U		1.40	10.0	1	11/03/2016 21:03	WG923492
Lead	2.59	J	1.90	5.00	1	11/03/2016 21:03	WG923492
Selenium	U		7.40	10.0	1	11/03/2016 21:03	WG923492
Silver	U		2.80	5.00	1	11/03/2016 21:03	WG923492

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Aluminum	174		2.00	100	1	11/04/2016 11:49	WG923495

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	U		82.5	250	1	11/07/2016 23:13	WG923524
Residual Range Organics (RRO)	U		165	500	1	11/07/2016 23:13	WG923524
(S) o-Terphenyl	*112*			*50.0-150*		*11/07/2016 23:13*	WG923524

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	U		0.0140	0.0500	1	11/07/2016 13:31	WG924187
Acenaphthene	U		0.0100	0.0500	1	11/07/2016 13:31	WG924187
Acenaphthylene	U		0.0120	0.0500	1	11/07/2016 13:31	WG924187
Benzo(a)anthracene	U		0.00410	0.0500	1	11/07/2016 13:31	WG924187
Benzo(a)pyrene	U		0.0116	0.0500	1	11/07/2016 13:31	WG924187
Benzo(b)fluoranthene	U		0.00212	0.0500	1	11/07/2016 13:31	WG924187
Benzo(g,h,i)perylene	U		0.00227	0.0500	1	11/07/2016 13:31	WG924187
Benzo(k)fluoranthene	U		0.0136	0.0500	1	11/07/2016 13:31	WG924187
Chrysene	U		0.0108	0.0500	1	11/07/2016 13:31	WG924187
Dibenz(a,h)anthracene	U		0.00396	0.0500	1	11/07/2016 13:31	WG924187
Fluoranthene	U		0.0157	0.0500	1	11/07/2016 13:31	WG924187
Fluorene	0.00874	J	0.00850	0.0500	1	11/07/2016 13:31	WG924187
Indeno(1,2,3-cd)pyrene	U		0.0148	0.0500	1	11/07/2016 13:31	WG924187

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Naphthalene	0.131	B J	0.0198	0.250	1	11/07/2016 13:31	WG924187
Phenanthrene	0.00915	J	0.00820	0.0500	1	11/07/2016 13:31	WG924187
Pyrene	U		0.0117	0.0500	1	11/07/2016 13:31	WG924187
1-Methylnaphthalene	0.0360	J	0.00821	0.250	1	11/07/2016 13:31	WG924187
2-Methylnaphthalene	0.0646	J	0.00902	0.250	1	11/07/2016 13:31	WG924187
2-Chloronaphthalene	U		0.00647	0.250	1	11/07/2016 13:31	WG924187
(S) Nitrobenzene-d5	*102*			*45.1-170*		*11/07/2016 13:31*	WG924187
(S) 2-Fluorobiphenyl	*115*			*57.7-153*		*11/07/2016 13:31*	WG924187
(S) p-Terphenyl-d14	*95.8*			*53.2-156*		*11/07/2016 13:31*	WG924187

Method Blank (MB)

(MB) R3175748-1 11/03/16 07:01

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Chloride	U		51.9	1000
Fluoride	U		9.90	100
Nitrate	U		22.7	100

L870061-12 Original Sample (OS) • Duplicate (DUP)

(OS) L870061-12 11/03/16 13:44 • (DUP) R3175748-4 11/03/16 14:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	14500	14600	1	0		20
Fluoride	ND	19.8	1	0		20
Nitrate	ND	0.000	1	0		20

L870118-01 Original Sample (OS) • Duplicate (DUP)

(OS) L870118-01 11/03/16 16:34 • (DUP) R3175748-6 11/03/16 17:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	ND	253	1	0		20
Fluoride	ND	0.000	1	0		20
Nitrate	ND	0.000	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175748-2 11/03/16 07:16 • (LCSD) R3175748-3 11/03/16 07:32

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Chloride	40000	38900	38900	97	97	90-110			0	20
Fluoride	8000	7920	7890	99	99	90-110			0	20
Nitrate	8000	8020	8010	100	100	90-110			0	20

L870061-13 Original Sample (OS) • Matrix Spike (MS)

(OS) L870061-13 11/03/16 14:15 • (MS) R3175748-5 11/03/16 14:31

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	ug/l	ug/l	ug/l	%		%	
Chloride	50000	12100	62400	100	1	80-120	
Fluoride	5000	ND	4770	95	1	80-120	

L870061-13 Original Sample (OS) • Matrix Spike (MS)

(OS) L870061-13 11/03/16 14:15 • (MS) R3175748-5 11/03/16 14:31

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Nitrate	5000	ND	4860	97	1	80-120	

L870118-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L870118-02 11/03/16 17:15 • (MS) R3175748-7 11/03/16 17:30 • (MSD) R3175748-8 11/03/16 17:45

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	ND	51000	51000	102	102	1	80-120			0	20
Fluoride	5000	ND	5200	5300	104	106	1	80-120			2	20
Nitrate	5000	ND	5160	4920	103	98	1	80-120			5	20

Method Blank (MB)

(MB) R3176579-1 11/08/16 10:50

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Ammonia Nitrogen	U		38.0	250

L869715-02 Original Sample (OS) • Duplicate (DUP)

(OS) L869715-02 11/08/16 10:58 • (DUP) R3176579-4 11/08/16 10:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Ammonia Nitrogen	2830	2820	1	0		20

L870014-01 Original Sample (OS) • Duplicate (DUP)

(OS) L870014-01 11/08/16 11:20 • (DUP) R3176579-6 11/08/16 11:26

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Ammonia Nitrogen	3620	3550	1	2		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176579-2 11/08/16 10:51 • (LCSD) R3176579-3 11/08/16 10:53

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Ammonia Nitrogen	7500	7390	7340	98	98	90-110			1	20

L869766-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L869766-01 11/08/16 11:01 • (MS) R3176579-5 11/08/16 11:03

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	ug/l	ug/l	ug/l	%		%	
Ammonia Nitrogen	10000	ND	10100	101	1	90-110	

L870054-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L870054-01 11/08/16 11:28 • (MS) R3176579-7 11/08/16 11:29 • (MSD) R3176579-8 11/08/16 11:31

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Ammonia Nitrogen	10000	U	9940	10000	99	100	1	90-110			1	20

Method Blank (MB)

(MB) R3175809-1 11/04/16 07:53

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Mercury	U		0.0490	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175809-2 11/04/16 07:55 • (LCSD) R3175809-3 11/04/16 07:58

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Mercury	3.00	3.01	2.94	100	98	80-120			2	20

L869858-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869858-16 11/04/16 08:01 • (MS) R3175809-4 11/04/16 08:03 • (MSD) R3175809-5 11/04/16 08:06

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Mercury	3.00	U	3.12	3.05	104	102	1	75-125			2	20

Method Blank (MB)

(MB) R3175734-1 11/03/16 20:26

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Arsenic	U		6.50	10.0
Barium	U		1.70	5.00
Cadmium	U		0.700	2.00
Chromium	U		1.40	10.0
Lead	U		1.90	5.00
Selenium	U		7.40	10.0
Silver	U		2.80	5.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175734-2 11/03/16 20:29 • (LCSD) R3175734-3 11/03/16 20:31

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Arsenic	1000	1010	998	101	100	80-120			1	20
Barium	1000	1020	1010	102	101	80-120			1	20
Cadmium	1000	1010	1000	101	100	80-120			1	20
Chromium	1000	991	981	99	98	80-120			1	20
Lead	1000	1000	995	100	100	80-120			1	20
Selenium	1000	1010	999	101	100	80-120			1	20
Silver	1000	1010	998	101	100	80-120			1	20

L869633-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869633-03 11/03/16 20:34 • (MS) R3175734-5 11/03/16 20:39 • (MSD) R3175734-6 11/03/16 20:41

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Arsenic	1000	U	1010	1010	101	101	1	75-125			0	20
Barium	1000	7.55	1020	1020	101	102	1	75-125			0	20
Cadmium	1000	U	1000	1010	100	101	1	75-125			0	20
Chromium	1000	U	986	983	99	98	1	75-125			0	20
Lead	1000	3.12	1000	1000	100	100	1	75-125			0	20
Selenium	1000	U	1010	1010	101	101	1	75-125			0	20
Silver	1000	U	998	1000	100	100	1	75-125			0	20

Method Blank (MB)

(MB) R3175926-1 11/04/16 11:39

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Aluminum	14.0	J	2.00	100

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175926-2 11/04/16 11:42 • (LCSD) R3175926-3 11/04/16 11:46

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Aluminum	5000	4810	4860	96	97	80-120			1	20

L870054-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L870054-01 11/04/16 11:49 • (MS) R3175926-5 11/04/16 11:55 • (MSD) R3175926-6 11/04/16 11:58

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Aluminum	5000	174	4750	4850	92	93	1	75-125			2	20

Method Blank (MB)

(MB) R3176520-1 11/07/16 22:23

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Diesel Range Organics (DRO)	U		83.3	250
Residual Range Organics (RRO)	U		167	500
(S) o-Terphenyl	*122*			*64.0-146*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176520-2 11/07/16 22:40 • (LCSD) R3176520-3 11/07/16 22:57

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Diesel Range Organics (DRO)	750	889	908	119	121	50.0-150			2.07	20
Residual Range Organics (RRO)	750	785	790	105	105	50.0-150			0.610	20
(S) o-Terphenyl				*118*	*118*	*64.0-146*				

Method Blank (MB)

(MB) R3176167-3 11/07/16 05:54

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Anthracene	U		0.0140	0.0500
Acenaphthene	U		0.0100	0.0500
Acenaphthylene	0.0129	J	0.0120	0.0500
Benzo(a)anthracene	0.00683	J	0.00410	0.0500
Benzo(a)pyrene	U		0.0116	0.0500
Benzo(b)fluoranthene	U		0.00212	0.0500
Benzo(g,h,i)perylene	U		0.00227	0.0500
Benzo(k)fluoranthene	U		0.0136	0.0500
Chrysene	U		0.0108	0.0500
Dibenz(a,h)anthracene	U		0.00396	0.0500
Fluoranthene	U		0.0157	0.0500
Fluorene	U		0.00850	0.0500
Indeno(1,2,3-cd)pyrene	U		0.0148	0.0500
Naphthalene	0.0504	J	0.0198	0.250
Phenanthrene	U		0.00820	0.0500
Pyrene	U		0.0117	0.0500
1-Methylnaphthalene	U		0.00821	0.250
2-Methylnaphthalene	U		0.00902	0.250
2-Chloronaphthalene	U		0.00647	0.250
(S) Nitrobenzene-d5	*116*			*33.8-179*
(S) 2-Fluorobiphenyl	*117*			*55.5-150*
(S) p-Terphenyl-d14	*107*			*46.2-163*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176167-1 11/07/16 05:10 • (LCSD) R3176167-2 11/07/16 05:32

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	2.00	2.34	2.31	117	115	68.9-153			1.22	20
Acenaphthene	2.00	2.22	2.22	111	111	67.7-141			0.270	20
Acenaphthylene	2.00	2.19	2.15	109	108	66.9-141			1.62	20
Benzo(a)anthracene	2.00	2.28	2.29	114	114	63.1-147			0.150	20
Benzo(a)pyrene	2.00	2.61	2.61	131	130	62.2-150			0.150	20
Benzo(b)fluoranthene	2.00	2.26	2.30	113	115	58.4-148			1.62	20
Benzo(g,h,i)perylene	2.00	2.60	2.56	130	128	57.4-152			1.87	20
Benzo(k)fluoranthene	2.00	2.55	2.50	128	125	60.5-154			2.34	20
Chrysene	2.00	2.38	2.38	119	119	64.8-155			0.310	20
Dibenz(a,h)anthracene	2.00	2.54	2.51	127	126	53.5-153			1.36	20
Fluoranthene	2.00	2.41	2.38	121	119	68.6-153			1.26	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176167-1 11/07/16 05:10 • (LCSD) R3176167-2 11/07/16 05:32

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	2.00	2.12	2.11	106	105	67.3-141			0.570	20
Indeno(1,2,3-cd)pyrene	2.00	2.59	2.54	129	127	57.0-155			1.94	20
Naphthalene	2.00	2.06	2.08	103	104	66.7-135			0.860	20
Phenanthrene	2.00	2.15	2.15	108	107	64.3-143			0.360	20
Pyrene	2.00	2.36	2.30	118	115	60.2-154			2.60	20
1-Methylnaphthalene	2.00	2.23	2.27	112	114	68.3-144			1.75	20
2-Methylnaphthalene	2.00	2.25	2.26	113	113	67.6-143			0.410	20
2-Chloronaphthalene	2.00	2.16	2.16	108	108	69.7-144			0.230	20
(S) Nitrobenzene-d5				*120*	*119*	*33.8-179*				
(S) 2-Fluorobiphenyl				*118*	*118*	*55.5-150*				
(S) p-Terphenyl-d14				*107*	*105*	*46.2-163*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.

ACCREDITATIONS & LOCATIONS

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**

***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

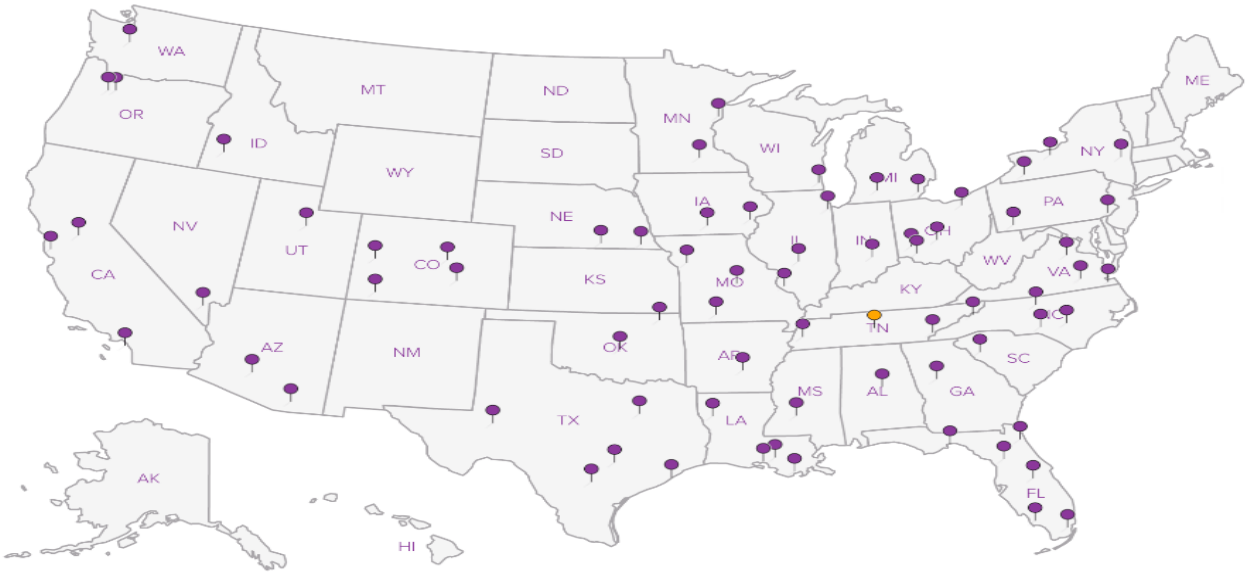
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Stantec- Bellevue, WA

11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Billing Information & Quote Number:

Accounts Payable- Phil Haberman
11130 NE 33rd Pl, Ste 200
Bellevue, WA 98004

Report to: ~~Nate Magnusson~~ Cyrus Gorman

Email To: Chris.Gdak@stantec.com; Cyrus.Gorman@stantec.com;

Project Description: Merlco

City/State Collected: Kent, WA

Phone: 425-289-7374
Fax: 425-869-1190

Client Project # 185750123 A

Lab Project # STANTECBWA-KENT

Collected by (print): Nathan Magnusson

Site/Facility ID #

P.O. # 185750153

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X_Yes
FAX? ___No ___Yes

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Cl,F,NO3 by 300 125mlHDPE-NoPres	NH3 125mlHDPE-H2SO4 x2	NWTPHDXLVI 40mlAmb-HCl-BT	PAHSIMLVID 40mlAmb-NoPres-WT	Total RCRA8 + Al 250mlHDPE-HNO3 x2						Rem./Contaminant	Sample # (lab only)
MW-2	G	GW	—	11/2/16	1405	7	X	X	X	X	X							-01
		GW																
		GW																
		GW																
		GW																
		GW																
		GW																
		GW																
		GW																
		GW																

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks:*Nitrate has a 48 hour hold time.
Aluminum by method 6020.

pH _____ Temp _____ 6827110957688

Flow _____ Other _____

Chain of Custody Page ___ of ___

ESC LAB SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L896654

A128

Acctnum: STANTECBWA
Template: T117073
Prelogin: P573472
TSR: 110 - Brian Ford
PB:

Shipped Via:

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Nate Mag	11/2/16	1550	FedEx
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☒ FedEx ☐ Courier ☐ ____

Temp: 2.8 °C Bottles Received: 7

Date: 11.3.16 Time: 0900

Condition: DW (lab use only)

COC Seal Intact: ___Y ___N ___NA

pH Checked: NCF:

ESC
L·A·B S·C·I·E·N·C·E·S
YOUR LAB OF CHOICE

Cooler Receipt Form

Client: STANTEC BWA	SDG#	L870054
Cooler Received/Opened On: **11/3/16**	Temperature Upon Receipt:	2.8 °c
Received By: **Nikki Farmer**		
Signature:		

Receipt Check List	Yes	No	N/A
Were custody seals on outside of cooler and intact?			✓
Were custody papers properly filled out?	✓		
Did all bottles arrive in good condition?	✓		
Were correct bottles used for the analyses requested?	✓		
Was sufficient amount of sample sent in each bottle?	✓		
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)	✓		
If applicable, was an observable VOA headspace present?		✓	
Non Conformance Generated. (If yes see attached NCF)			

ANALYTICAL REPORT

November 07, 2016

Stantec- Bellevue, WA

Sample Delivery Group:	L869365
Samples Received:	10/29/2016
Project Number:	185750123A
Description:	Maralco Phase II ESA

Report To: Cyrus Gorman
11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Entire Report Reviewed By: Brian Ford

Brian Ford
Technical Service Representative

SS-1 L869365-01 Solid

Collected by: CS / NM
Collected date/time: 10/28/16 11:30
Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922674	1	11/01/16 16:50	11/02/16 11:53	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 03:49	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:23	VSS
Total Solids by Method 2540 G-2011	WG922653	1	11/02/16 07:58	11/02/16 08:22	MEL
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 10:52	JER
Wet Chemistry by Method 9056A	WG923165	1	11/03/16 11:08	11/03/16 23:05	SAM
Wet Chemistry by Method 9056A	WG923852	5	11/05/16 11:19	11/05/16 21:39	CM

SS-2 L869365-02 Solid

Collected by: CS / NM
Collected date/time: 10/28/16 10:35
Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922674	1	11/01/16 16:50	11/02/16 11:56	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 03:51	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:26	VSS
Total Solids by Method 2540 G-2011	WG922653	1	11/02/16 07:58	11/02/16 08:22	MEL
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 10:54	JER
Wet Chemistry by Method 9056A	WG923165	1	11/03/16 11:08	11/03/16 23:28	SAM
Wet Chemistry by Method 9056A	WG923165	20	11/03/16 11:08	11/03/16 23:51	SAM

SS-900 L869365-03 Solid

Collected by: CS / NM
Collected date/time: 10/28/16 00:00
Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922674	1	11/01/16 16:50	11/02/16 11:59	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 03:59	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:30	VSS
Total Solids by Method 2540 G-2011	WG922653	1	11/02/16 07:58	11/02/16 08:22	MEL
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 10:55	JER
Wet Chemistry by Method 9056A	WG923165	1	11/03/16 11:08	11/03/16 20:47	SAM
Wet Chemistry by Method 9056A	WG923165	20	11/03/16 11:08	11/03/16 21:10	SAM

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	63.5		1	11/02/2016 08:22	WG922653

Wet Chemistry by Method 350.1

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Ammonia Nitrogen	4.26	J P1	2.47	7.87	1	11/03/2016 10:52	WG922902

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	82.3		1.25	15.7	1	11/03/2016 23:05	WG923165
Fluoride	226		2.05	7.87	5	11/05/2016 21:39	WG923852
Nitrate	3.62		0.0183	1.57	1	11/03/2016 23:05	WG923165

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0564		0.00441	0.0315	1	11/02/2016 11:53	WG922674

Metals (ICP) by Method 6010C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	6.78		1.02	3.15	1	11/02/2016 03:49	WG922544
Barium	58.5		0.268	0.787	1	11/02/2016 03:49	WG922544
Cadmium	0.619	J	0.110	0.787	1	11/02/2016 03:49	WG922544
Chromium	36.3		0.220	1.57	1	11/02/2016 03:49	WG922544
Lead	42.0		0.299	0.787	1	11/02/2016 03:49	WG922544
Selenium	1.87	J	1.16	3.15	1	11/02/2016 03:49	WG922544
Silver	U		0.441	1.57	1	11/02/2016 03:49	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	55500		26.0	78.7	5	11/02/2016 19:23	WG922239

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	40.1		1	11/02/2016 08:22	WG922653

Wet Chemistry by Method 350.1

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Ammonia Nitrogen	6.65	J	3.91	12.5	1	11/03/2016 10:54	WG922902

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	26800		39.6	498	20	11/03/2016 23:51	WG923165
Fluoride	383		13.0	49.8	20	11/03/2016 23:51	WG923165
Nitrate	13.8		0.0289	2.49	1	11/03/2016 23:28	WG923165

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.116		0.00697	0.0498	1	11/02/2016 11:56	WG922674

Metals (ICP) by Method 6010C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	4.30	J	1.62	4.98	1	11/02/2016 03:51	WG922544
Barium	60.2		0.423	1.25	1	11/02/2016 03:51	WG922544
Cadmium	2.74		0.174	1.25	1	11/02/2016 03:51	WG922544
Chromium	54.4		0.349	2.49	1	11/02/2016 03:51	WG922544
Lead	53.7		0.473	1.25	1	11/02/2016 03:51	WG922544
Selenium	U		1.84	4.98	1	11/02/2016 03:51	WG922544
Silver	0.776	J	0.697	2.49	1	11/02/2016 03:51	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	22200		41.1	125	5	11/02/2016 19:26	WG922239

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	32.0		1	11/02/2016 08:22	WG922653

Wet Chemistry by Method 350.1

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Ammonia Nitrogen	U		4.91	15.6	1	11/03/2016 10:55	WG922902

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	29900		49.8	626	20	11/03/2016 21:10	WG923165
Fluoride	579		16.3	62.6	20	11/03/2016 21:10	WG923165
Nitrate	8.21		0.0363	3.13	1	11/03/2016 20:47	WG923165

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.158		0.00876	0.0626	1	11/02/2016 11:59	WG922674

Metals (ICP) by Method 6010C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	9.47		2.03	6.26	1	11/02/2016 03:59	WG922544
Barium	120		0.532	1.56	1	11/02/2016 03:59	WG922544
Cadmium	5.56		0.219	1.56	1	11/02/2016 03:59	WG922544
Chromium	112		0.438	3.13	1	11/02/2016 03:59	WG922544
Lead	113		0.595	1.56	1	11/02/2016 03:59	WG922544
Selenium	3.09	J	2.32	6.26	1	11/02/2016 03:59	WG922544
Silver	3.14		0.876	3.13	1	11/02/2016 03:59	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	81100		51.6	156	5	11/02/2016 19:30	WG922239

Method Blank (MB)

(MB) R3175456-1 11/02/16 08:22

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00110			

L869363-07 Original Sample (OS) • Duplicate (DUP)

(OS) L869363-07 11/02/16 08:22 • (DUP) R3175456-3 11/02/16 08:22

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	81.9	82.1	1	0.254		5

Laboratory Control Sample (LCS)

(LCS) R3175456-2 11/02/16 08:22

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3175568-1 11/03/16 10:46

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Ammonia Nitrogen	U		1.57	5.00

L869365-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869365-01 11/03/16 10:52 • (DUP) R3175568-4 11/03/16 10:53

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ammonia Nitrogen	4.26	ND	1	200	P1	20

L869697-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869697-01 11/03/16 11:18 • (DUP) R3175568-7 11/03/16 11:19

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ammonia Nitrogen	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175568-2 11/03/16 10:48 • (LCSD) R3175568-3 11/03/16 10:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ammonia Nitrogen	2760	2180	2270	79.0	82.0	58.0-114			4.00	20

L869381-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-09 11/03/16 11:04 • (MS) R3175568-5 11/03/16 11:05 • (MSD) R3175568-6 11/03/16 11:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Ammonia Nitrogen	500	6.70	260	262	51.0	51.0	1	80.0-120	J6	J6	1.00	20

Method Blank (MB)

(MB) R3175762-1 11/03/16 11:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	U		0.795	10.0
Fluoride	U		0.261	1.00
Nitrate	U		0.0116	1.00

L868989-21 Original Sample (OS) • Duplicate (DUP)

(OS) L868989-21 11/03/16 13:45 • (DUP) R3175762-4 11/03/16 14:08

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	180	191	1	6		15
Fluoride	3.71	3.58	1	4		15
Nitrate	14.6	16.2	1	10		15

L869381-06 Original Sample (OS) • Duplicate (DUP)

(OS) L869381-06 11/04/16 01:23 • (DUP) R3175762-7 11/04/16 01:46

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	0.544	0.429	1	24	J P1	15
Nitrate	U	0	1	0		15

L869381-06 Original Sample (OS) • Duplicate (DUP)

(OS) L869381-06 11/04/16 02:09 • (DUP) R3175762-8 11/04/16 02:32

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	4280	4660	5	8		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175762-2 11/03/16 12:13 • (LCSD) R3175762-3 11/03/16 12:36

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	200	215	214	108	107	80-120			1	15
Fluoride	20.0	22.5	22.2	113	111	80-120			2	15
Nitrate	20.0	22.5	22.5	113	112	80-120			0	15

Method Blank (MB)

(MB) R3176145-1 11/05/16 11:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Fluoride	U		0.261	1.00

L869858-04 Original Sample (OS) • Duplicate (DUP)

(OS) L869858-04 11/05/16 15:55 • (DUP) R3176145-4 11/05/16 16:18

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	U	0	1	0		15

L869858-18 Original Sample (OS) • Duplicate (DUP)

(OS) L869858-18 11/06/16 00:20 • (DUP) R3176145-7 11/06/16 00:43

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	2.21	2.39	1	8		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176145-2 11/05/16 12:03 • (LCSD) R3176145-3 11/05/16 12:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluoride	20.0	19.9	21.6	100	108	80-120			8	15

L869858-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869858-09 11/05/16 18:36 • (MS) R3176145-5 11/05/16 18:59 • (MSD) R3176145-6 11/05/16 19:21

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluoride	67.2	3.80	24.7	23.1	31	29	1	80-120	J6	J6	7	15

Method Blank (MB)

(MB) R3175352-1 11/02/16 10:51

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0028	0.0200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175352-2 11/02/16 10:54 • (LCSD) R3175352-3 11/02/16 10:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.300	0.279	0.281	93	94	80-120			1	20

L869282-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869282-01 11/02/16 11:00 • (MS) R3175352-4 11/02/16 11:03 • (MSD) R3175352-5 11/02/16 11:15

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.457	0.00550	0.339	0.339	73	73	1	75-125	J6	J6	0	20

Method Blank (MB)

(MB) R3175124-1 11/02/16 02:55

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.65	2.00
Barium	U		0.17	0.500
Cadmium	U		0.07	0.500
Chromium	U		0.14	1.00
Lead	U		0.19	0.500
Selenium	U		0.74	2.00
Silver	U		0.28	1.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175124-2 11/02/16 02:57 • (LCSD) R3175124-3 11/02/16 03:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	102	103	102	103	80-120			2	20
Barium	100	105	106	105	106	80-120			1	20
Cadmium	100	102	103	102	103	80-120			1	20
Chromium	100	101	102	101	102	80-120			1	20
Lead	100	102	103	102	103	80-120			1	20
Selenium	100	101	103	101	103	80-120			1	20
Silver	100	101	102	101	102	80-120			1	20

L869107-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869107-05 11/02/16 03:02 • (MS) R3175124-6 11/02/16 03:10 • (MSD) R3175124-7 11/02/16 03:13

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	117	8.20	115	118	91	94	1	75-125			3	20
Barium	117	92.3	238	242	125	128	1	75-125		J5	2	20
Cadmium	117	ND	113	117	97	100	1	75-125			3	20
Chromium	117	20.4	130	135	94	98	1	75-125			4	20
Lead	117	13.0	130	134	100	104	1	75-125			3	20
Selenium	117	ND	111	114	94	97	1	75-125			3	20
Silver	117	ND	113	116	97	100	1	75-125			3	20

Method Blank (MB)

(MB) R3175414-1 11/02/16 18:38

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	4.96	J	2.3	50.0

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175414-2 11/02/16 18:41 • (LCSD) R3175414-3 11/02/16 18:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	1060	1100	106	110	80-120			4	20

L869381-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-03 11/02/16 18:47 • (MS) R3175414-6 11/02/16 18:57 • (MSD) R3175414-7 11/02/16 19:00

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	200	8000	9480	9050	149	106	5	75-125	V		5	20

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

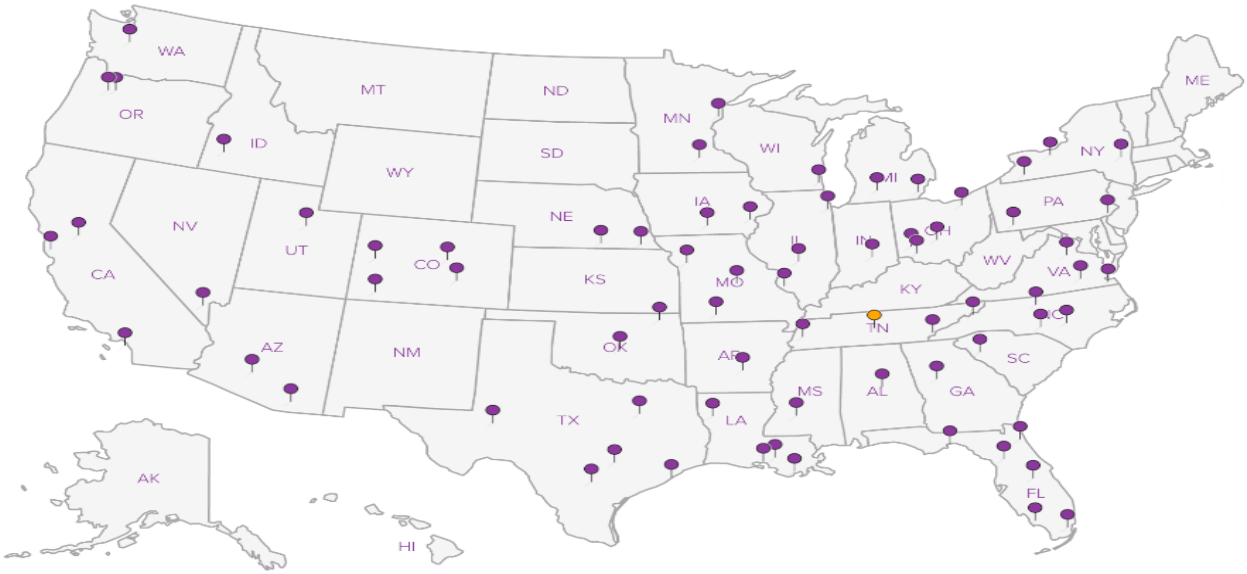
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Stantec- Bellevue, WA

11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Billing Information & Quote Number: Chris Gdak
Accounts Payable- ~~Phil Haberman~~
11130 NE 33rd Pl, Ste 200
Bellevue, WA 98004

Report to: ~~Nate Magnusson~~ Cyrus Gorman

Email To: Chris.Gdak@stantec.com; Cyrus.Gorman@stantec.com;

Project Description: Maralco; Phase II ESA

City/State Collected: Kent, WA

Phone: 425-289-7374
Fax: 425-869-1190

Client Project # 185750123a

Lab Project # STANTECBWA-KENT

Collected by (print): CARL SHESTAG / NATE MACNESSON

Site/Facility ID #

P.O. # 185750123

Collected by (signature):

Immediately Packed on Ice N___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X__Yes
FAX? ___No ___Yes

Chain of Custody Page 1 of 1

ESC LAB SCIENCES
THE LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 169365
B224

Acctnum: STANTECBWA
Template: T117067
Prelogin: P573460
TSR: 110 - Brian Ford
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl, F, NH3, NO3 4ozClr-NoPres	NWTPHDX 4ozClr-NoPres	NWTPHGX8TEX 40ml/NaHSO4/Syr/MeOH	PAHSIMD 4ozClr-NoPres	RCRA8 + Al metals 2ozClr-NoPres	TCLP RCRA8+Al 8ozClr-NoPres	VOCs Screen, TS 2ozClr-NoPres				Item/Contaminant	Sample # (lab only)
SS-1	Grab	~~SS~~ OT	6"	10/28/16	11:30	3	X				X							01
SS-2	"	~~SS~~ OT	6"	"	10:35	~~3~~ 2	X				X							02
SS-900	"	~~SS~~ OT	6"	"	00:00	~~2~~ 1	X				X							03
		SS																
		SS																
		SS																
		SS																
		SS																
		SS																
		SS																

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other Sediment

Remarks:Aluminum by Method 6020.

pH ____ Temp ____
Flow ____ Other ____

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	10/28/2016	15:45	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			Dey

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ ____
Temp: 2-4 °C Bottles Received: 9
Date: 10-29-16 Time: 0900

Condition: DW39 (lab use only) 2
COC Seal Intact: ___Y ___N ___NA
pH Checked: NCF:

ESC
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Cooler Receipt Form

Client: STANTECBWA	SDG#	869365
Cooler Received/Opened On: 10/ 29 /16	Temperature Upon Receipt:	2.4 °c
Received By: Dakota Busby		
Signature: Dak		

Receipt Check List	Yes	No	N/A
Were custody seals on outside of cooler and intact?			✓
Were custody papers properly filled out?	✓		
Did all bottles arrive in good condition?	✓		
Were correct bottles used for the analyses requested?	✓		
Was sufficient amount of sample sent in each bottle?	✓		
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)			✓
If applicable, was an observable VOA headspace present?			✓
Non Conformance Generated. (If yes see attached NCF)			

Appendix E

Data Validation Report

DATA VALIDATION WORKSHEET

GENERAL INFORMATION:

Lab Name:	ESC Lab Sciences
Lab SDG/Project/Work Order:	L869381
Project Name:	City of Kent Brownfield (Cooperative Agreement BF-00J65701) Maralco Property
Stantec Project Number:	185750123
Client:	City of Kent
Validator Name:	Kim Vik
Date of Validation:	November 18, 2016

SAMPLE INFORMATION:

Number of Samples:	20 submitted (2 sets of 2 have the same name; 17 unique submitted sample names)	
Matrix:	Soil	
Number of Trip Blanks:	None	
Number of Equipment Blanks:	None	
Number of Field Duplicates *(include duplicate information)*	None.	
Date of Sample Collection:	October 27, 2016	
Sample:	**Analyses:**	**Batch:**
B-4-9’	TPH-G/BTEX (Method NWTPH-Gx)	WG923098
B-4-15’	Mercury (Method 7470A)	WG922813
	ICP Metals (Method 6010C)	WG922544
	ICPMS Metals (Method 6020)	WG922239
	Total Solids (Method 2540 G-2011)	WG922975
	Wet Chemistry (Method 350.1)	WG922902
	Wet Chemistry (Method 9056A)	WG923165
B-4-7’	Mercury (Method 7470A)	WG922813
	ICP Metals (Method 6010C)	WG922544
	ICPMS Metals (Method 6020)	WG922239
	Total Solids (Method 2540 G-2011)	WG922975
	Wet Chemistry (Method 350.1)	WG922902
	Wet Chemistry (Method 9056A)	WG923165
B-5-10’	TPH-G/BTEX (Method NWTPH-Gx)	WG923098
B-5-8’	Mercury (Method 7470A)	WG922813
	ICP Metals (Method 6010C)	WG922544
	ICPMS Metals (Method 6020)	WG922239
	Total Solids (Method 2540 G-2011)	WG922975
	Wet Chemistry (Method 350.1)	WG922902
	Wet Chemistry (Method 9056A)	WG923165

B-5-15’	Mercury (Method 7470A)	WG922813
	ICP Metals (Method 6010C)	WG922544
	ICPMS Metals (Method 6020)	WG922239
	Total Solids (Method 2540 G-2011)	WG922975
	Wet Chemistry (Method 350.1)	WG922902
	Wet Chemistry (Method 9056A)	WG923165
B-6-9.5’-	TPH-G/BTEX (Method NWTPH-Gx)	WG923098
B-6-7.5’	Mercury (Method 7470A)	WG922813
	ICP Metals (Method 6010C)	WG922544
	ICPMS Metals (Method 6020)	WG922239
	Total Solids (Method 2540 G-2011)	WG922975
	Wet Chemistry (Method 350.1)	WG922902
	Wet Chemistry (Method 9056A)	WG923183
B-6-15’	Mercury (Method 7470A)	WG922813
	ICP Metals (Method 6010C)	WG922544
	ICPMS Metals (Method 6020)	WG922239
	Total Solids (Method 2540 G-2011)	WG922975
	Wet Chemistry (Method 350.1)	WG922902
	Wet Chemistry (Method 9056A)	WG923183
B-1-17’	TPH-G/BTEX (Method NWTPH-Gx)	WG923098
B-1-17’ (*sample submitted and analyzed as a separate sample*)	SVOCs (Method 8270D-SIM)	WG922194
	TPH-D/TPH-O (Method NWTPH-Dx)	WG923175
	Total Solids (Method 2540 G-2011)	WG922975
B-1-5’	SVOCs (Method 8270D-SIM)	WG922194
	TPH-D/TPH-O (Method NWTPH-Dx)	WG923175
	Total Solids (Method 2540 G-2011)	WG922976
B-2-4’	SVOCs (Method 8270D-SIM)	WG922194
	TPH-D/TPH-O (Method NWTPH-Dx)	WG923175
	Total Solids (Method 2540 G-2011)	WG922976
B-2-16.5’	SVOCs (Method 8270D-SIM)	WG922194
	TPH-D/TPH-O (Method NWTPH-Dx)	WG923175
	Total Solids (Method 2540 G-2011)	WG922976
B-3-16’	TPH-G/BTEX (Method NWTPH-Gx)	WG923098
B-3-16’ (*sample submitted and analyzed as a separate sample*)	SVOCs (Method 8270D-SIM)	WG922194
	TPH-D/TPH-O (Method NWTPH-Dx)	WG923175
	Total Solids (Method 2540 G-2011)	WG922976
B-3-6’	SVOCs (Method 8270D-SIM)	WG922194
	TPH-D/TPH-O (Method NWTPH-Dx)	WG923175
	Total Solids (Method 2540 G-2011)	WG922976

B-4-15' (*not on COC; lab labeled "waste"; analyzed as a liquid*)	Mercury (Method 7470A) ICP Metals (Method 6010C) Preparation (Method 1311)	WG923664 WG923644 WG923641
B-4-7' (*not on COC; lab labeled "waste"; analyzed as a liquid*)	Mercury (Method 7470A) ICP Metals (Method 6010C) Preparation (Method 1311)	WG923664 WG923644 WG923641
B-5-8' (*not on COC; lab labeled "waste"; analyzed as a liquid*)	Mercury (Method 7470A) ICP Metals (Method 6010C) Preparation (Method 1311)	WG923721 WG923732 WG923481
B-5-15' (*not on COC; lab labeled "waste"; analyzed as a liquid*)	Mercury (Method 7470A) ICP Metals (Method 6010C) Preparation (Method 1311)	WG923664 WG923644 WG923641
B-6-7.5' (*not on COC; lab labeled "waste"; analyzed as a liquid*)	Mercury (Method 7470A) ICP Metals (Method 6010C) Preparation (Method 1311)	WG923721 WG923732 WG923481
B-6-15' (*not on COC; lab labeled "waste"; analyzed as a liquid*)	Mercury (Method 7470A) ICP Metals (Method 6010C) Preparation (Method 1311)	WG923664 WG923644 WG923641

GENERAL DATA VALIDATION:

Chain of Custody:
COC is complete, with the Non-Conformance Form (NCF) from the lab. The NCF stated that there needed to be a login clarification. The original COC was revised where analyses were changed and/or omitted. All requested analyses were performed per the updated COC.

Holding Times:
All analyses were run within the required holding times. No qualifiers are needed.

Trip Blank Review:
No trip blanks were submitted with this SDG even though volatile organics were analyzed.

Surrogates:
All sample surrogates are within control. No qualifiers are needed.

QC Surrogates:
All QC surrogates were within control.

Lab Notes:
NCF indicated that a login clarification was needed. The original COC was revised.

Elevated Reporting Limits:
Aluminum (Method 6020) analyses were run on dilutions for sample B-6-7.5' and B-6-15'; the associated reporting limits were elevated.

PER ANALYSES:

Total Solids, *Method 2540 G-2011* (Batches: WG922975, WG922976)

Method Blanks:
Total Solids method blank results were 0.000400% (Batch WG922975) and 0.00110% (Batch WG922976). No qualifiers are needed.

Lab Duplicates:
The relative percent difference (RPD) between the original sample and the lab duplicate sample was within the control limit of 5% for both batches. No qualifiers are needed.

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD):
The LCS percent recovery was within the acceptance limits in both batches. An LCSD sample was not run in either batch. No qualifiers are needed.

Wet Chemistry: Ammonia Nitrogen, *Method 350.1* (Batch: WG922902)

Method Blank:
Ammonia nitrogen was not detected above the Method Detection Limit (MDL) in the laboratory method blank. No qualifiers are needed.

Lab Duplicates:
Two laboratory duplicates were run. The RPDs between the original samples and the lab duplicate samples were within the control limit of 20%. No qualifiers are needed.

LCS/LCSD:
The LCS and LCSD percent recoveries were within the specified acceptance limits. The

RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.
Matrix Spike/Matrix Spike Duplicate (MS/MSD): The MS and MSD percent recoveries were within the specified acceptance limits. The RPD between the MS and MSD was within the control limit of 20%. No qualifiers are needed.
Wet Chemistry: Chloride, Fluoride, Nitrate, *Method 9056A* (Batches: WG923165, WG923183)
Method Blanks: No analytes were detected above the MDL in the laboratory method blank in either batch. No qualifiers are needed.
Lab Duplicates: Three laboratory duplicates were run in Batch WG923165 and two were run in Batch WG923183. The RPDs between the original samples and the lab duplicate samples were within the control limit of 15% for both batches with the exception of the RPD for fluoride in one lab duplicate. The lab noted that the RPD was not applicable for that sample. No qualifiers are needed.
LCS/LCSD: The LCS and LCSD percent recoveries were within the specified acceptance limits for both batches. The RPD between the LCS and LCSD was within the control limit of 15% for both batches. No qualifiers are needed.
MS/MSD: The MS and MSD percent recoveries were within the specified acceptance limits in both batches except for fluoride and nitrate in Batch WG923165 and fluoride in Batch WG923183. The lab noted that due to the matrix interference, accurate spike values could not be determined. The RPD between the MS and MSD was within the control limit of 15% in both batches. Based on the review of the other data including the LCS/LCSD, no qualifiers are needed.
Mercury, *Method 7470A* (Batches: WG923664, WG923721, WG922813)
Method Blanks: Mercury was not detected above the MDL in the laboratory method blank in any batch. No qualifiers are needed.
LCS/LCSC: The LCS and LCSD percent recoveries were within the specified acceptance limits in all batches. The RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.
MS/MSD: Two MS/MSD samples were run for Batches WG923664 and WG923721, and one for Batch WG922813. The MS and MSD percent recoveries were within the specified acceptance limits for all batches. The RPD between the MS and MSD was within the control limit of 20% for all batches. No qualifiers are needed.
Metals (ICP), *Method 6010C* (Batches: WG922544, WG923732)
Method Blanks: No analytes were detected above the MDLs in the laboratory method blank in either batch. No qualifiers are needed.

LCS/LCSD:
The LCS and LCSD percent recoveries for all analytes were within the specified acceptance limits for both batches. The RPDs between the LCS and LCSD were within the control limit of 20% for all analytes in both batches. No qualifiers are needed.

MS/MSD:
The MS and MSD percent recoveries for all analytes were within the specified acceptance limits for both batches. The RPDs between the MS and MSD were within the control limit of 20% for all analytes in both batches. No qualifiers are needed.

Metals (ICPMS): Aluminum only, *Method 6020* (Batch: WG922239)

Method Blank:
Aluminum was detected at 4.96 mg/Kg which is between the MDL and the Reporting Detection Limit (RDL). Results for potentially affected samples were all greater than 10X the method blank result; therefore, no action is needed. No qualifiers are needed.

LCS/LCSD:
The LCS and LCSD percent recoveries were within the specified acceptance limits. The RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.

MS/MSD:
The MS percent recovery was higher than the upper acceptance limit (UAL), but the MSD percent recovery was within the specified acceptance limits. The RPD between the MS and MSD was within the control limit of 20%. The lab noted that the sample concentration was too high to evaluate the spike recovery. It should be noted that the sample was run on a 5x dilution which could affect that recovery. No qualifiers are needed.

Volatile Organics: Gasoline Range Organics (GRO) and Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX), *Method NWTPH-Gx/8021B* (Batch: WG923098)

Method Blank:
Toluene was detected at 0.000193 mg/Kg which is between the MDL and the RDL. Affected samples include B-6-9.5', B-1-17' and B-3-16'. Toluene results for these samples will be qualified as "undetected at the RDL", or 0.00500 U. No other analytes were detected in the method blank. No other qualifiers are needed. The table in the last section of this memo ("Determination") lists the qualified data to be used.

LCS/LCSD:
Two LCS/LCSD samples were run for this batch. The LCS and LCSD percent recoveries for all analytes were within the specified acceptance limits. The RPD between the LCS and LCSD was within the control limits ranging from 20% to 44%. No qualifiers are needed.

MS/MSD:
Two MS/MSD samples were run for this batch. The MS and MSD percent recoveries were within the specified acceptance limits, except for GRO where the percent recovery for both the MS and MSD were slightly lower than the lower acceptance limit (LAL). The RPDs for toluene, ethylbenzene, total xylenes and GRO were outside the control limits ranging from 20% to 44%. The lab noted that there was matrix interference

which prevented accurate determinations. Based on the review of the other QC results and the fact that the sample matrix is soil, no action is needed due to the matrix interference. No qualifiers are needed.
Semi-Volatile Organics: Diesel Range Organics (DRO) and Residual Range Organics (RRO), *Method NWTPH-Dx* (Batch: WG923175)
Method Blank: DRO and RRO were not detected above the MDL in the method blank. No qualifiers are needed.
LCS/LCSD: The LCS and LCSD percent recoveries for DRO and RRO were within the specified acceptance limits. The RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.
MS/MSD: The MS and MSD percent recoveries were within the specified acceptance limits, except for the MSD percent recovery for RRO which was slightly lower than the LAL. The RPDs for both DRO and RRO were outside the control limit of 20%. The lab noted that there was matrix interference which prevented accurate determinations. Based on the review of the other QC results and the fact that the sample matrix is soil, no action is needed due to the matrix interference. No qualifiers are needed
Semi-Volatile Organics: Polycyclic Aromatic Hydrocarbons (PAHs), *Method 8270-SIM* (Batch: WG922194)
Method Blank: No analytes were detected above the MDLs in the laboratory method blank. No qualifiers are needed.
LCS/LCSD: The LCS and LCSD percent recoveries for all analytes were within the specified acceptance limits. The RPDs between the LCS and LCSD for all analytes were within the control limit of 20%. No qualifiers are needed.

FIELD DUPLICATE REVIEW:

No field duplicates were collected or submitted for this SDG.

DETERMINATION:
The data in this work order have been validated and determined to be acceptable for use with the following qualifications:

Sample ID	Analyte (Method)	Original Result (mg/Kg)	Qualified Result (mg/Kg)	Reason
B-6-9.5'	Toluene (Method 8021B)	0.000765 J	**0.00500 U**	Method blank contamination.
B-1-17'	Toluene (Method 8021B)	0.000524 J	**0.00500 U**	Method blank contamination.
B-3-16'	Toluene (Method 8021B)	0.000619 J	**0.00500 U**	Method blank contamination.

NOTES:

Laboratory assigned flags (J). Analytical results flagged by the laboratory as estimated values in the final laboratory report are assigned a qualifier of **J** to denote that the result is an estimated value based on the analyses. This qualifier is not one that is assigned based on data validation review or quality of data. In the case where the laboratory reports sample results between the Method Detection Limit (MDL) and Reporting Detection Limit (RDL), the resulting data was flagged with **J** to denote that the result is estimated; the result is considered non-detect at the MRL because it falls below the MRL.

Data validation assigned qualifiers (U, UJ, J, R). The following qualifiers may be assigned to data in this data set based on the results of the data validation procedure (documented on this form). Based on the review of laboratory quality control data provided by the laboratory, the sample results may be qualified with:

- U Indicates the analyte was analyzed for, but was not detected above the reported sample quantitation limit (method reporting limit or MRL). Results assigned this qualifier are considered undetected at the MRL.

- UJ Indicates the analyte was not detected above the quantitation limit or MRL; however, the MRL is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. Results assigned this qualifier are considered undetected at the estimated MRL.

- J Indicates the analyte was positively indentified; however, the associated numerical value is the approximate concentration of the analyte in the sample. Results assigned this qualifier as considered and detected at an estimated value.

- R Indicates the presence or absence of the analyte cannot be confirmed due to serious laboratory deficiencies in the ability to analyze the sample and meet quality control criteria. Results assigned this qualifier are rejected and considered unusable.

SEE ATTACHED DATA QUALIFIER FORM FOR
DATA VALIDATION AND LABORATORYASSIGNED QUALIFIERS
(IF APPLICABLE) .

REFERENCES:

CE. 2005. *Environmental Quality – Guidance for Evaluating Performance-Based Chemical Data (Engineering Manual), EM 200-1-10*. US Corps of Engineers. June 30, 2005.

EPA. 2002. *Guidance on Environmental Data Verification and Data Validation, EPA QA/G-8.* USEPA. November 2002.

EPA. 1999. *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, EPA 540/R-99/008.* USEPA. *October 1999*.

EPA. 2004. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA 540-R-04-004*. USEPA. October 2004.

EPA. 2006. *Tier I Data Validation Manual for the Ohio EPA, Division of Hazardous Waste Management*. Ohio EPA. February 2006.

TNI. 2009. *Volume 1, Management and Technical Requirements for Laboratories Performing Environmental Analysis, Module 4: Quality System for Chemical Testing, TNI Standard*. The NELAC Institute. September 2009.

#QUALIFIERS ASSIGNED

ESC LAB SCIENCES
YOUR LAB OF CHOICE

ANALYTICAL REPORT

November 09, 2016

myESC
REAL TIME DATA ACCESS

11/18/16

Stantec- Bellevue, WA

Sample Delivery Group:	L869381
Samples Received:	10/29/2016
Project Number:	185750123A
Description:	Maralco, Phase II ESA

Report To: Cyrus Gorman
11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Entire Report Reviewed By: Brian Ford

Brian Ford
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

ONE LAB. NATIONWIDE.

23 soil samples

Same?

B-1-20 ⇒ hold
B-3-20 ⇒ hold

Same?

?

WASTE?

not on COC

Samples:
B-4-9
B-5-10
B-6-9.5
B-1-17
BS/BSD

NOT analyzed for TPH Gx/BTEX

These are all Aqueous; not solid

17 Soil
6 (Nask?

B-4-9' L869381-01 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 09:02 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX	WG923098	1	10/27/16 09:02	11/04/16 02:29	BMB

B-4-15' L869381-02 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 09:10 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922813	1	11/02/16 11:36	11/02/16 15:56	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 04:02	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:33	VSS
Total Solids by Method 2540 G-2011	WG922975	1	11/03/16 08:20	11/03/16 08:30	KDW
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 10:56	JER
Wet Chemistry by Method 9056A	WG923165	1	11/03/16 11:08	11/03/16 21:56	SAM

B-4-7' L869381-03 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 09:00 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922813	1	11/02/16 11:36	11/02/16 16:11	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 04:05	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 18:47	VSS
Total Solids by Method 2540 G-2011	WG922975	1	11/03/16 08:20	11/03/16 08:30	KDW
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 11:00	JER
Wet Chemistry by Method 9056A	WG923165	1	11/03/16 11:08	11/03/16 22:19	SAM

B-5-10' L869381-04 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 10:32 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX	WG923098	1	10/27/16 10:32	11/04/16 02:50	BMB

B-5-8' L869381-05 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 10:30 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922813	1	11/02/16 11:36	11/02/16 16:14	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 04:07	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:36	VSS
Total Solids by Method 2540 G-2011	WG922975	1	11/03/16 08:20	11/03/16 08:30	KDW
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 11:01	JER
Wet Chemistry by Method 9056A	WG923165	1	11/03/16 11:08	11/04/16 01:00	SAM

B-5-15' L869381-06 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 10:40 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922813	1	11/02/16 11:36	11/02/16 16:23	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 04:10	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:39	VSS
Total Solids by Method 2540 G-2011	WG922975	1	11/03/16 08:20	11/03/16 08:30	KDW
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 11:02	JER
Wet Chemistry by Method 9056A	WG923165	1	11/03/16 11:08	11/04/16 01:23	SAM

B-5-15' L869381-06 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 10:40 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG923165	5	11/03/16 11:08	11/04/16 02:09	SAM

B-6-9.5' L869381-07 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 14:38 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX	WG923098	1	10/27/16 14:38	11/04/16 03:11	BMB

B-6-7.5' L869381-08 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 14:35 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922813	1	11/02/16 11:36	11/02/16 16:26	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 04:13	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:42	VSS
Total Solids by Method 2540 G-2011	WG922975	1	11/03/16 08:20	11/03/16 08:30	KDW
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 11:03	JER
Wet Chemistry by Method 9056A	WG923183	1	11/03/16 14:09	11/04/16 06:14	SAM

B-6-15' L869381-09 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 14:45 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922813	1	11/02/16 11:36	11/02/16 16:29	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 04:16	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:45	VSS
Total Solids by Method 2540 G-2011	WG922975	1	11/03/16 08:20	11/03/16 08:30	KDW
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 11:04	JER
Wet Chemistry by Method 9056A	WG923183	1	11/03/16 14:09	11/04/16 07:30	SAM

B-1-17' L869381-10 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 12:10 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX	WG923098	1	10/27/16 12:10	11/04/16 03:32	BMB

B-1-17' L869381-11 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 12:10 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922194	1	11/02/16 17:53	11/03/16 11:16	KMP
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG923175	1	11/05/16 16:44	11/07/16 14:37	DMG
Total Solids by Method 2540 G-2011	WG922975	1	11/03/16 08:20	11/03/16 08:30	KDW

B-1-5' L869381-12 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 12:00 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922194	1	11/02/16 17:53	11/03/16 11:39	KMP
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG923175	1	11/05/16 16:44	11/07/16 14:54	DMG
Total Solids by Method 2540 G-2011	WG922976	1	11/03/16 08:06	11/03/16 08:17	KDW

B-2-4' L869381-13 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 12:50 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922194	1	11/02/16 17:53	11/03/16 12:01	KMP
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG923175	1	11/05/16 16:44	11/07/16 16:58	DMG
Total Solids by Method 2540 G-2011	WG922976	1	11/03/16 08:06	11/03/16 08:17	KDW

B-2-16.5' L869381-14 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 12:58 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922194	1	11/02/16 17:53	11/03/16 12:22	KMP
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG923175	1	11/05/16 16:44	11/07/16 17:15	DMG
Total Solids by Method 2540 G-2011	WG922976	1	11/03/16 08:06	11/03/16 08:17	KDW

B-3-16' L869381-15 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 11:40 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX	WG923098	1	10/27/16 11:40	11/08/16 14:06	DWR

B-3-16' L869381-16 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 11:40 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922194	1	11/02/16 17:53	11/03/16 12:43	KMP
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG923175	1	11/05/16 16:44	11/07/16 17:32	DMG
Total Solids by Method 2540 G-2011	WG922976	1	11/03/16 08:06	11/03/16 08:17	KDW

B-3-6' L869381-17 Solid

Collected by: Carol Shestag | Collected date/time: 10/27/16 11:25 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922194	1	11/02/16 17:53	11/03/16 13:25	KMP
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG923175	10	11/05/16 16:44	11/07/16 21:20	DMG
Total Solids by Method 2540 G-2011	WG922976	1	11/03/16 08:06	11/03/16 08:17	KDW

B-4-15' L869381-18 Waste

Collected by: Carol Shestag | Collected date/time: 10/27/16 09:10 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG923664	1	11/04/16 05:28	11/04/16 09:53	TRB
Metals (ICP) by Method 6010C	WG923644	1	11/03/16 23:22	11/04/16 02:46	CCE
Preparation by Method 1311	WG923641	1	11/03/16 21:03	11/03/16 21:03	LJN

B-4-7' L869381-19 Waste

Collected by: Carol Shestag | Collected date/time: 10/27/16 09:00 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG923664	1	11/04/16 05:28	11/04/16 09:55	TRB
Metals (ICP) by Method 6010C	WG923644	1	11/03/16 23:22	11/04/16 02:57	CCE
Preparation by Method 1311	WG923641	1	11/03/16 21:03	11/03/16 21:03	LJN

B-5-8' L869381-20 Waste

Collected by: Carol Shestag | Collected date/time: 10/27/16 10:30 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG923721	1	11/04/16 09:42	11/04/16 12:04	TRB
Metals (ICP) by Method 6010C	WG923732	1	11/04/16 10:23	11/04/16 15:05	CCE
Preparation by Method 1311	WG923481	1	11/03/16 12:50	11/03/16 12:50	BG

B-5-15' L869381-21 Waste

Collected by: Carol Shestag | Collected date/time: 10/27/16 10:40 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG923664	1	11/04/16 05:28	11/04/16 09:58	TRB
Metals (ICP) by Method 6010C	WG923644	1	11/03/16 23:22	11/04/16 03:00	CCE
Preparation by Method 1311	WG923641	1	11/03/16 21:03	11/03/16 21:03	LJN

B-6-7.5' L869381-22 Waste

Collected by: Carol Shestag | Collected date/time: 10/27/16 14:35 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG923721	1	11/04/16 09:42	11/04/16 12:19	TRB
Metals (ICP) by Method 6010C	WG923732	1	11/04/16 10:23	11/04/16 14:53	CCE
Preparation by Method 1311	WG923481	1	11/03/16 12:50	11/03/16 12:50	BG

B-6-15' L869381-23 Waste

Collected by: Carol Shestag | Collected date/time: 10/27/16 14:45 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG923664	1	11/04/16 05:28	11/04/16 10:01	TRB
Metals (ICP) by Method 6010C	WG923644	1	11/03/16 23:22	11/04/16 03:02	CCE
Preparation by Method 1311	WG923641	1	11/03/16 21:03	11/03/16 21:03	LJN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford

Brian Ford
Technical Service Representative

Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	U		0.0339	0.100	1	11/04/2016 02:29	WG923098
Benzene	0.00132		0.000120	0.000500	1	11/04/2016 02:29	WG923098
Toluene	0.000476	BJ	0.000150	0.00500	1	11/04/2016 02:29	WG923098
Ethylbenzene	U		0.000110	0.000500	1	11/04/2016 02:29	WG923098
Total Xylene	U		0.000460	0.00150	1	11/04/2016 02:29	WG923098
(S) a,a,a-Trifluorotoluene(FID)	*112*			*54.0-114*		*11/04/2016 02:29*	WG923098
(S) a,a,a-Trifluorotoluene(FID)	*111*			*59.0-128*		*11/04/2016 02:29*	WG923098

Cp
Tc
Ss
Cn
Sr
Qc
Gl
Al
Sc

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	%				
Total Solids	73.2		1	11/03/2016 09:30	WG922975

Wet Chemistry by Method 350.1

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Ammonia Nitrogen	5.92	J	2.15	6.83	1	11/03/2016 10:56	WG922902

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Chloride	309		1.09	13.7	1	11/03/2016 21:56	WG923165
Fluoride	2.75		0.357	1.37	1	11/03/2016 21:56	WG923165
Nitrate	U		0.0459	1.37	1	11/03/2016 21:56	WG923165

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Mercury	0.0288		0.00383	0.0273	1	11/02/2016 15:56	WG922813

Metals (ICP) by Method 6010C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.73		0.888	2.73	1	11/02/2016 04:02	WG922544
Barium	55.7		0.232	0.683	1	11/02/2016 04:02	WG922544
Cadmium	0.128	J	0.0957	0.683	1	11/02/2016 04:02	WG922544
Chromium	14.5		0.191	1.37	1	11/02/2016 04:02	WG922544
Lead	3.26		0.260	0.683	1	11/02/2016 04:02	WG922544
Selenium	1.41	J	1.01	2.73	1	11/02/2016 04:02	WG922544
Silver	U		0.383	1.37	1	11/02/2016 04:02	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Aluminum	12200		22.5	68.3	5	11/02/2016 19:33	WG922837

Total Solids by Method 2540 G-2011

Analyte	Result %	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	65.3		1	11/03/2016 08:30	WG922975

Wet Chemistry by Method 350.1

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	15.2		1.84	5.86	1	11/03/2016 11:00	WG922902

Wet Chemistry by Method 9056A

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Chloride	44.4		0.932	11.7	1	11/03/2016 22:19	WG923165
Fluoride	5.03		0.306	1.17	1	11/03/2016 22:19	WG923165
Nitrate	2.25		0.0136	1.17	1	11/03/2016 22:19	WG923165

Mercury by Method 7471A

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0230	J	0.00328	0.0234	1	11/03/2016 16:31	WG922813

Metals (ICP) by Method 6010C

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Arsenic	U		0.762	2.34	1	11/02/2016 04:05	WG922544
Barium	39.6		0.199	0.586	1	11/02/2016 04:05	WG922544
Cadmium	0.115	J	0.0821	0.586	1	11/02/2016 04:05	WG922544
Chromium	13.0		0.464	1.17	1	11/02/2016 04:05	WG922544
Lead	2.37		0.223	0.586	1	11/02/2016 04:05	WG922544
Selenium	U		0.868	2.34	1	11/02/2016 04:05	WG922544
Silver	U		0.328	1.17	1	11/02/2016 04:05	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Aluminum	9370	Q1 V	19.3	58.6	5	11/02/2016 18:47	WG922239

per lab, sample concentration too high to evaluate accurate spike recoveries. Matrix interference noted.

Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	U		0.0339	0.100	1	11/04/2016 02:50	WG923098
Benzene	0.000604		0.000420	0.000500	1	11/04/2016 02:50	WG923098
Toluene	0.000557	B J √	0.000150	0.00500	1	11/04/2016 02:50	WG923098
Ethylbenzene	U		0.000110	0.000500	1	11/04/2016 02:50	WG923098
Total Xylenes	U		0.000460	0.00150	1	11/04/2016 02:50	WG923098
(S) α,α,α-Trifluorotoluene(FID)	*111*	/		*54.0-114*		*11/04/2016 02:50*	WG923098
(S) α,α,α-Trifluorotoluene(FID)	*110*	/		*59.0-128*		*11/04/2016 02:50*	WG923098

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	%				
Total Solids	94.9		1	11/03/2016 08:30	WG922975

Wet Chemistry by Method 350.1

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Ammonia Nitrogen	U		1.65	5.27	1	11/03/2016 11:01	WG922902

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Chloride	41.4		0.838	10.5	1	11/04/2016 01:00	WG923465
Fluoride	31.8		0.275	1.05	1	11/04/2016 01:00	WG923465
Nitrate	0.954	J	0.0122	1.05	1	11/04/2016 01:00	WG923465

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Mercury	U		0.00295	0.021	1	11/02/2016 16:14	WG922813

Metals (ICP) by Method 6010C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	3.46		0.685	2.11	1	11/02/2016 04:07	WG922544
Barium	19.1		0.179	0.527	1	11/02/2016 04:07	WG922544
Cadmium	0.0759	J	0.0737	0.527	1	11/02/2016 04:07	WG922544
Chromium	8.32		0.147	1.05	1	11/02/2016 04:07	WG922544
Lead	2.84		0.200	0.527	1	11/02/2016 04:07	WG922544
Selenium	U		0.780	2.11	1	11/02/2016 04:07	WG922544
Silver	U		0.295	1.05	1	11/02/2016 04:07	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Aluminum	5730		17.4	52.7	5	11/02/2016 19:36	WG922739

Total Solids by Method 2540 G-2011

Analyte	Result %	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	72.3		1	11/03/2016 08:30	WG922975

Wet Chemistry by Method 350.1

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	33.1		2.17	6.92	1	11/03/2016 11:02	WG922802

Wet Chemistry by Method 9056A

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Chloride	4280		5.51	69.2	5	11/04/2016 02:09	WG923165
Fluoride	0.544	J P1	0.361	1.38	1	11/04/2016 01:23	WG923165
Nitrate	U		0.0161	1.38	1	11/04/2016 01:23	WG923165

Mercury by Method 7471A

RPD not reqd

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0281		0.00387	0.0277	1	11/02/2016 16:23	WG922813

Metals (ICP) by Method 6010C

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Arsenic	U		0.899	2.77	1	11/02/2016 04:10	WG922544
Barium	42.1		0.235	0.692	1	11/02/2016 04:10	WG922544
Cadmium	U		0.0969	0.692	1	11/02/2016 04:10	WG922544
Chromium	11.4		0.194	1.38	1	11/02/2016 04:10	WG922544
Lead	2.57		0.263	0.692	1	11/02/2016 04:10	WG922544
Selenium	U		1.02	2.77	1	11/02/2016 04:10	WG922544
Silver	U		0.387	1.38	1	11/02/2016 04:10	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Aluminum	8840		22.8	69.2	5	11/02/2016 19:39	WG922814

Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	U		0.0339	0.100	1	11/04/2016 03:11	WG923098
Benzene	0.000140	J	0.000120	0.000500	1	11/04/2016 03:11	WG923098
Toluene	0.000765	B J	0.000150	0.00500	1	11/04/2016 03:11	WG923098
Ethylbenzene	U		0.000110	0.000500	1	11/04/2016 03:11	WG923098
Total Xylene	U		0.000460	0.00150	1	11/04/2016 03:11	WG923098
(S) a,a,a-Trifluorotoluene(PID)	*111*			*54.0-114*		*11/04/2016 03:11*	WG923098
(S) a,a,a-Trifluorotoluene(FID)	*110*			*59.0-128*		*11/04/2016 03:11*	WG923098

MB 0.000504

Cp Tc Ss Cn Sr Qc Gl Al Sc

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	%				
Total Solids	76.3		1	11/03/2016 08:30	WG922975

Wet Chemistry by Method 350.1

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Ammonia Nitrogen	27.7		2.06	6.55	1	11/03/2016 11:03	WG922902

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Chloride	212		1.04	13.1	1	11/04/2016 06:44	WG923163
Fluoride	7.72		0.342	1.31	1	11/04/2016 06:44	WG923163
Nitrate	U		0.0152	1.31	1	11/04/2016 06:44	WG923163

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Mercury	0.141		0.00367	0.0262	1	11/02/2016 16:26	WG922813

Metals (ICP) by Method 6010C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.47		0.852	2.62	1	11/02/2016 04:13	WG922544
Barium	70.2		0.223	0.655	1	11/02/2016 04:13	WG922544
Cadmium	0.153	J	0.0917	0.655	1	11/02/2016 04:13	WG922544
Chromium	18.0		0.183	1.31	1	11/02/2016 04:13	WG922544
Lead	4.35		0.249	0.655	1	11/02/2016 04:13	WG922544
Selenium	U		0.570	2.62	1	11/02/2016 04:13	WG922544
Silver	U		0.367	1.31	1	11/02/2016 04:13	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Aluminum	16600		21.6	65.5	5	11/02/2016 19:42	WG922836

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	%				
Total Solids	68.9		1	11/03/2016 08:30	WG922975

Wet Chemistry by Method 350.1

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Ammonia Nitrogen	9.72	J6	2.28	7.26	1	11/03/2016 11:04	WG922902

per lab - matrix interference

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Chloride	183		1.15	14.5	1	11/04/2016 07:30	WG923183
Fluoride	35.9		0.379	1.45	1	11/04/2016 07:30	WG923183
Nitrate	U		0.0168	1.45	1	11/04/2016 07:30	WG923183

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Mercury	0.0163	J	0.00406	0.0290	1	11/02/2016 16:29	WG922813

Metals (ICP) by Method 6010C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.88	J	0.943	2.90	1	11/02/2016 04:16	WG922544
Barium	52.2		0.247	0.726	1	11/02/2016 04:16	WG922544
Cadmium	0.234	J	0.102	0.726	1	11/02/2016 04:16	WG922544
Chromium	20.1		0.203	1.45	1	11/02/2016 04:16	WG922544
Lead	6.00		0.276	0.726	1	11/02/2016 04:16	WG922544
Selenium	1.11	J	1.07	2.90	1	11/02/2016 04:16	WG922544
Silver	U		0.406	1.45	1	11/02/2016 04:16	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Aluminum	19800		23.9	72.6	5	11/02/2016 19:45	WG922230

Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	U		0.0339	0.100	1	11/04/2016 03:32	WG923098
Benzene	0.000522		0.000120	0.000500	1	11/04/2016 03:32	WG923098
Toluene	0.000524	B J	0.000150	0.00500	1	11/04/2016 03:32	WG923098
Ethylbenzene	U		0.000110	0.000500	1	11/04/2016 03:32	WG923098
Total Xylene	U		0.000460	0.00150	1	11/04/2016 03:32	WG923098
(S) a,a,a-Trifluorotoluene(PID)	*111*			*54.0-114*		*11/04/2016 03:32*	WG923098
(S) a,a,a-Trifluorotoluene(FID)	*109*			*59.0-128*		*11/04/2016 03:32*	WG923098

MB 0.000524

Total Solids by Method 2540 G-2011

Analyte	Result %	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	74.3		1	11/03/2016 08:30	WG922875

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	U		1.78	5.38	1	11/07/2016 14:37	WG923175
Residual Range Organics (RRO)	U		4.44	13.5	1	11/07/2016 14:37	WG923175
(S) o-Terphenyl	*75.3*			*50.0-150*		*11/07/2016 14:37*	WG923175

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Acenaphthene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Acenaphthylene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Benzo(a)anthracene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Benzo(a)pyrene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Benzo(b)fluoranthene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Benzo(g,h,i)perylene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Benzo(k)fluoranthene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Chrysene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Dibenz(a,h)anthracene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Fluoranthene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Fluorene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Indeno(1,2,3-cd)pyrene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
Naphthalene	0.00473	J	0.00269	0.0269	1	11/03/2016 11:18	WG922194
Phenanthrene	0.000954	J	0.000808	0.00808	1	11/03/2016 11:18	WG922194
Pyrene	U		0.000808	0.00808	1	11/03/2016 11:18	WG922194
1-Methylnaphthalene	U		0.00269	0.0269	1	11/03/2016 11:18	WG922194
2-Methylnaphthalene	U		0.00269	0.0269	1	11/03/2016 11:18	WG922194
2-Chloronaphthalene	U		0.00269	0.0269	1	11/03/2016 11:18	WG922194
(S) Nitrobenzene-d5	*84.1*			*22.1-146*		*11/03/2016 11:18*	WG922194
(S) 2-Fluorobiphenyl	*92.3*			*40.6-122*		*11/03/2016 11:18*	WG922194
(S) p-Terphenyl-d14	*92.0*			*32.2-131*		*11/03/2016 11:18*	WG922194

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.9		1	11/03/2016 08:17	WG922976

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U	J3	1.45	4.40	1	11/07/2016 14:54	WG923175
Residual Range Organics (RRO)	U	J3, J6	3.63	11.0	1	11/07/2016 14:54	WG923175
(S) o-Terphenyl	*103*			*50.0-150*		*11/07/2016 14:54*	WG923175

matrix interference w/ batch problems

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Anthracene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Acenaphthene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Acenaphthylene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Benzo(a)anthracene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Benzo(a)pyrene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Benzo(b)fluoranthene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Benzo(g,h,i)perylene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Benzo(k)fluoranthene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Chrysene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Dibenz(a,h)anthracene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Fluoranthene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Fluorene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Indeno(1,2,3-cd)pyrene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Naphthalene	U		0.00220	0.0220	1	11/03/2016 11:39	WG922194
Phenanthrene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
Pyrene	U		0.000660	0.00660	1	11/03/2016 11:39	WG922194
1-Methylnaphthalene	U		0.00220	0.0220	1	11/03/2016 11:39	WG922194
2-Methylnaphthalene	U		0.00220	0.0220	1	11/03/2016 11:39	WG922194
2-Chloronaphthalene	U		0.00220	0.0220	1	11/03/2016 11:39	WG922194
(S) Nitrobenzene-d5	*81.3*			*22.1-146*		*11/03/2016 11:39*	WG922194
(S) 2-Fluorobiphenyl	*94.3*			*40.6-122*		*11/03/2016 11:39*	WG922194
(S) p-Terphenyl-d14	*80.2*			*32.2-131*		*11/03/2016 11:39*	WG922194

Total Solids by Method 2540 G-2011

Analyte	Result %	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	86.7		1	11/03/2016 08:17	WG922976

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	U		1.52	4.61	1	11/07/2016 16:58	WG923175
Residual Range Organics (RRO)	U		3.81	11.5	1	11/07/2016 16:58	WG923175
(S) o-Terphenyl	*97.6*			*50.0-150*		*11/07/2016 16:58*	WG923175

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Acenaphthene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Acenaphthylene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Benzo(a)anthracene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Benzo(a)pyrene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Benzo(b)fluoranthene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Benzo(g,h,i)perylene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Benzo(k)fluoranthene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Chrysene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Dibenz(a,h)anthracene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Fluoranthene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Fluorene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Indeno(1,2,3-cd)pyrene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
Naphthalene	U		0.00231	0.0231	1	11/03/2016 12:01	WG922194
Phenanthrene	0.00132	J	0.000692	0.00692	1	11/03/2016 12:01	WG922194
Pyrene	U		0.000692	0.00692	1	11/03/2016 12:01	WG922194
1-Methylnaphthalene	U		0.00231	0.0231	1	11/03/2016 12:01	WG922194
2-Methylnaphthalene	U		0.00231	0.0231	1	11/03/2016 12:01	WG922194
2-Chloronaphthalene	U		0.00231	0.0231	1	11/03/2016 12:01	WG922194
(S) Nitrobenzene-d5	*84.3*			*22.1-146*		*11/03/2016 12:01*	WG922194
(S) 2-Fluorobiphenyl	*90.5*			*40.6-122*		*11/03/2016 12:01*	WG922194
(S) p-Terphenyl-d14	*96.9*			*32.2-131*		*11/03/2016 12:01*	WG922194

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	%				
Total Solids	79.4		1	11/03/2016 08:17	WG922976

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	U		1.66	5.04	1	11/07/2016 17:15	WG923175
Residual Range Organics (RRO)	U		4.16	12.6	1	11/07/2016 17:15	WG923175
(S) o-Terphenyl	*57.5*			*50.0-150*		*11/07/2016 17:15*	WG923175

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Acenaphthene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Acenaphthylene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Benzo(a)anthracene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Benzo(a)pyrene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Benzo(b)fluoranthene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Benzo(g,h,i)perylene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Benzo(k)fluoranthene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Chrysene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Dibenz(a,h)anthracene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Fluoranthene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Fluorene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Indeno(1,2,3-cd)pyrene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Naphthalene	U		0.00252	0.0252	1	11/03/2016 12:22	WG922194
Phenanthrene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
Pyrene	U		0.000756	0.00756	1	11/03/2016 12:22	WG922194
1-Methylnaphthalene	U		0.00252	0.0252	1	11/03/2016 12:22	WG922194
2-Methylnaphthalene	U		0.00252	0.0252	1	11/03/2016 12:22	WG922194
2-Chloronaphthalene	U		0.00252	0.0252	1	11/03/2016 12:22	WG922194
(S) Nitrobenzene-d5	*86.5*			*22.1-146*		*11/03/2016 12:22*	WG922194
(S) 2-Fluorobiphenyl	*99.8*			*40.6-122*		*11/03/2016 12:22*	WG922194
(S) p-Terphenyl-d14	*92.5*			*32.2-131*		*11/03/2016 12:22*	WG922194

Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	U		0.0339	0.100	1	11/08/2016 14:06	WG923098
Benzene	0.000205	J	0.000120	0.000500	1	11/08/2016 14:06	WG923098
Toluene	0.000619	BJ	0.000150	0.00500	1	11/08/2016 14:06	WG923098
Ethylbenzene	U		0.000110	0.000500	1	11/08/2016 14:06	WG923098
Total Xylene	U		0.000460	0.00150	1	11/08/2016 14:06	WG923098
(S) a,a,a-Trifluorotoluene(FID)	*90.8*			*54.0-114*		*11/08/2016 14:06*	WG923098
(S) a,a,a-Trifluorotoluene(FID)	*97.9*			*59.0-128*		*11/08/2016 14:06*	WG923098

MB 0.00500U

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	%				
Total Solids	72.7		1	11/03/2016 08:17	WG922976

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	U		1.82	5.50	1	11/07/2016 17:32	WG923175
Residual Range Organics (RRO)	U		4.54	13.8	1	11/07/2016 17:32	WG923175
(S) o-Terphenyl	*61.1*			*50.0-150*		*11/07/2016 17:32*	WG923175

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Acenaphthene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Acenaphthylene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Benzo(a)anthracene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Benzo(a)pyrene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Benzo(b)fluoranthene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Benzo(g,h,i)perylene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Benzo(k)fluoranthene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Chrysene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Dibenz(a,h)anthracene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Fluoranthene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Fluorene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Indeno(1,2,3-cd)pyrene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Naphthalene	U		0.00275	0.0275	1	11/03/2016 12:43	WG922194
Phenanthrene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
Pyrene	U		0.000826	0.00826	1	11/03/2016 12:43	WG922194
1-Methylnaphthalene	U		0.00275	0.0275	1	11/03/2016 12:43	WG922194
2-Methylnaphthalene	U		0.00275	0.0275	1	11/03/2016 12:43	WG922194
2-Chloronaphthalene	U		0.00275	0.0275	1	11/03/2016 12:43	WG922194
(S) Nitrobenzene-d5	*75.9*			*22.1-146*		*11/03/2016 12:43*	WG922194
(S) 2-Fluorobiphenyl	*89.2*			*40.6-122*		*11/03/2016 12:43*	WG922194
(S) p-Terphenyl-d14	*76.2*			*32.2-131*		*11/03/2016 12:43*	WG922194

Total Solids by Method 2540 G-2011

Analyte	Result %	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	88.8		1	11/03/2016 08:17	WG922975

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	U		14.9	45.1	10	11/07/2016 21:20	WG923175
Residual Range Organics (RRO)	U		37.2	113	10	11/07/2016 21:20	WG923175
(S) o-Terphenyl	*124*			*50.0-150*		*11/07/2016 21:20*	WG923175

Sample Narrative:
NWTPHDX L869381-17 WG923175: Dilution due to matrix

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.000676	0.00676	1	11/03/2016 13:25	WG922194
Acenaphthene	U		0.000676	0.00676	1	11/03/2016 13:25	WG922194
Acenaphthylene	U		0.000676	0.00676	1	11/03/2016 13:25	WG922194
Benzo(a)anthracene	0.000687	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Benzo(a)pyrene	0.000855	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Benzo(b)fluoranthene	0.00114	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Benzo(g,h,i)perylene	0.00184	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Benzo(k)fluoranthene	U		0.000676	0.00676	1	11/03/2016 13:25	WG922194
Chrysene	0.00153	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Dibenz(a,h)anthracene	U		0.000676	0.00676	1	11/03/2016 13:25	WG922194
Fluoranthene	0.00111	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Fluorene	U		0.000676	0.00676	1	11/03/2016 13:25	WG922194
Indeno(1,2,3-cd)pyrene	0.000801	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Naphthalene	U		0.00225	0.0225	1	11/03/2016 13:25	WG922194
Phenanthrene	0.00198	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
Pyrene	0.00159	J	0.000676	0.00676	1	11/03/2016 13:25	WG922194
1-Methylnaphthalene	U		0.00225	0.0225	1	11/03/2016 13:25	WG922194
2-Methylnaphthalene	0.00249	J	0.00225	0.0225	1	11/03/2016 13:25	WG922194
2-Chloronaphthalene	U		0.00225	0.0225	1	11/03/2016 13:25	WG922194
(S) Nitrobenzene-d5	*89.2*			*22.1-146*		*11/03/2016 13:25*	WG922194
(S) 2-Fluorobiphenyl	*94.5*			*40.6-122*		*11/03/2016 13:25*	WG922194
(S) p-Terphenyl-d14	*95.3*			*32.2-131*		*11/03/2016 13:25*	WG922194

8-4-15'

SAMPLE RESULTS - 18

L869381

ONE LAB. NATIONWIDE.

Collected date/time: 10/27/16 09:10

Aqueous

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction			11/3/2016 9:03:14 PM	WG923641
Fluid	1		11/3/2016 9:03:14 PM	WG923641
Initial pH	7.03		11/3/2016 9:03:14 PM	WG923641
Final pH	4.90		11/3/2016 9:03:14 PM	WG923641

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	11/04/2016 09:53	WG923664

Metals (ICP) by Method 6010C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	11/04/2016 02:46	WG923644
Barium	0.127		0.0500	100	1	11/04/2016 02:46	WG923644
Cadmium	ND		0.0200	1	1	11/04/2016 02:46	WG923644
Chromium	ND		0.100	5	1	11/04/2016 02:46	WG923644
Lead	ND		0.0500	5	1	11/04/2016 02:46	WG923644
Selenium	ND		0.100	1	1	11/04/2016 02:46	WG923644
Silver	ND		0.0500	5	1	11/04/2016 02:46	WG923644

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		11/3/2016 9:03:14 PM	WG923641
Fluid	1		11/3/2016 9:03:14 PM	WG923641
Initial pH	7.12		11/3/2016 9:03:14 PM	WG923641
Final pH	4.91		11/3/2016 9:03:14 PM	WG923641

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	11/04/2016 09:55	WG923664

Metals (ICP) by Method 6010C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	11/04/2016 02:57	WG923644
Barium	0.0560		0.0500	100	1	11/04/2016 02:57	WG923644
Cadmium	ND		0.0200	1	1	11/04/2016 02:57	WG923644
Chromium	ND		0.100	5	1	11/04/2016 02:57	WG923644
Lead	ND		0.0500	5	1	11/04/2016 02:57	WG923644
Selenium	ND		0.100	1	1	11/04/2016 02:57	WG923644
Silver	ND		0.0500	5	1	11/04/2016 02:57	WG923644

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction			11/3/2016 12:50:25 PM	WG923481
Fluid	1		11/3/2016 12:50:25 PM	WG923481
Initial pH	6.58		11/3/2016 12:50:25 PM	WG923481
Final pH	4.85		11/3/2016 12:50:25 PM	WG923481

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Mercury	ND		0.0100	0.20	1	11/04/2016 12:04	WG923721

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Arsenic	ND		0.100	5	1	11/04/2016 15:05	WG923732
Barium	0.0539		0.0500	100	1	11/04/2016 15:05	WG923732
Cadmium	ND		0.0200	1	1	11/04/2016 15:05	WG923732
Chromium	ND		0.100	5	1	11/04/2016 15:05	WG923732
Lead	ND		0.0500	5	1	11/04/2016 15:05	WG923732
Selenium	ND		0.100	1	1	11/04/2016 15:05	WG923732
Silver	ND		0.0500	5	1	11/04/2016 15:05	WG923732

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		11/3/2016 9:03:14 PM	WG923641
Fluid	1		11/3/2016 9:03:14 PM	WG923641
Initial pH	8.08		11/3/2016 9:03:14 PM	WG923641
Final pH	4.93		11/3/2016 9:03:14 PM	WG923641

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	11/04/2016 09:58	WG923664

Metals (ICP) by Method 6010C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	11/04/2016 03:00	WG923644
Barium	0.0736		0.0500	100	1	11/04/2016 03:00	WG923644
Cadmium	ND		0.0200	1	1	11/04/2016 03:00	WG923644
Chromium	ND		0.100	5	1	11/04/2016 03:00	WG923644
Lead	ND		0.0500	5	1	11/04/2016 03:00	WG923644
Selenium	ND		0.100	1	1	11/04/2016 03:00	WG923644
Silver	ND		0.0500	5	1	11/04/2016 03:00	WG923644

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction			11/3/2016 12:50:25 PM	WG923481
Fluid	1		11/3/2016 12:50:25 PM	WG923481
Initial pH	7.27		11/3/2016 12:50:25 PM	WG923481
Final pH	4.89		11/3/2016 12:50:25 PM	WG923481

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	11/04/2016 12:19	WG923720

Metals (ICP) by Method 6010C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	11/04/2016 14:53	WG923732
Barium	0.177		0.0500	100	1	11/04/2016 14:53	WG923732
Cadmium	ND		0.0200	1	1	11/04/2016 14:53	WG923732
Chromium	ND		0.100	5	1	11/04/2016 14:53	WG923732
Lead	ND		0.0500	5	1	11/04/2016 14:53	WG923732
Selenium	ND		0.100	1	1	11/04/2016 14:53	WG923732
Silver	ND		0.0500	5	1	11/04/2016 14:53	WG923732

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		11/3/2016 9:03:14 PM	WG923641
Fluid	1		11/3/2016 9:03:14 PM	WG923641
Initial pH	9.18		11/3/2016 9:03:14 PM	WG923641
Final pH	4.96		11/3/2016 9:03:14 PM	WG923641

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	11/04/2016 10:01	WG923664

Metals (ICP) by Method 6010C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	11/04/2016 03:02	WG923644
Barium	0.0989		0.0500	100	1	11/04/2016 03:02	WG923644
Cadmium	ND		0.0200	1	1	11/04/2016 03:02	WG923644
Chromium	ND		0.100	5	1	11/04/2016 03:02	WG923644
Lead	ND		0.0500	5	1	11/04/2016 03:02	WG923644
Selenium	ND		0.100	1	1	11/04/2016 03:02	WG923644
Silver	ND		0.0500	5	1	11/04/2016 03:02	WG923644

Method Blank (MB)

(MB) R3175784-1 11/03/16 08:30

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Total Solids	0.000400			

L869381-11 Original Sample (OS) • Duplicate (DUP)

(OS) L869381-11 11/03/16 08:30 • (DUP) R3175784-3 11/03/16 08:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	74.3	74.3	1	0.0160		5

Laboratory Control Sample (LCS)

(LCS) R3175784-2 11/03/16 08:30

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

Cp
Tc
Ss
Cn
Sr
Qc
Gl
Al
Sc

Total Solids by Method 2540 G-2011

Method Blank (MB)

(MB) R3175783-1 11/03/16 08:17

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00110			

L869381-13 Original Sample (OS) • Duplicate (DUP)

(OS) L869381-13 11/03/16 08:17 • (DUP) R3175783-3 11/03/16 08:17

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	86.7	86.3	1	0.434		5

Laboratory Control Sample (LCS)

(LCS) R3175783-2 11/03/16 08:17

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3175568-1 11/03/16 10:46

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Ammonia Nitrogen	U		1.57	5.00

L869365-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869365-01 11/03/16 10:52 • (DUP) R3175568-4 11/03/16 10:53

Analyte	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Ammonia Nitrogen	4.25	ND	1	200	R1 *	20

* note from lab - RPD is not applicable

L869697-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869697-01 11/03/16 11:18 • (DUP) R3175568-7 11/03/16 11:19

Analyte	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Ammonia Nitrogen	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175568-2 11/03/16 10:48 • (LCSD) R3175568-3 11/03/16 10:49

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Ammonia Nitrogen	2760	2180	2270	79.0	82.0	58.0-114			4.00	20

L869381-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-09 11/03/16 11:04 • (MS) R3175568-5 11/03/16 11:05 • (MSD) R3175568-6 11/03/16 11:06

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Ammonia Nitrogen	726	9.72	377	380	51.0	51.0	1	80.0-120	J6	J6	1.00	20

* the sample concentration matrix interfered w/the ability to make any accurate determination.

Method Blank (MB)

(MB) R3175762-1 11/03/16 11:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	U		0.795	10.0
Fluoride	U		0.261	1.00
Nitrate	U		0.0116	1.00

L868989-21 Original Sample (OS) • Duplicate (DUP)

(OS) L868989-21 11/03/16 13:45 • (DUP) R3175762-4 11/03/16 14:08

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	180	191	1	6		15
Fluoride	3.71	3.58	1	4		15
Nitrate	14.6	16.2	1	10		15

L869381-06 Original Sample (OS) • Duplicate (DUP)

(OS) L869381-06 11/04/16 01:23 • (DUP) R3175762-7 11/04/16 01:46

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	0.544	0.429	1	24	J P1	15
Nitrate	U	0	1	0		15

* lab noted that RPD was not applicable

L869381-06 Original Sample (OS) • Duplicate (DUP)

(OS) L869381-06 11/04/16 02:09 • (DUP) R3175762-8 11/04/16 02:32

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	4280	4660	5	8		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175762-2 11/03/16 12:13 • (LCSD) R3175762-3 11/03/16 12:36

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	200	215	214	108	107	80-120			1	15
Fluoride	20.0	22.5	22.2	113	111	80-120			2	15
Nitrate	20.0	22.5	22.5	113	112	80-120			0	15

L869121-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869121-03 11/03/16 18:30 • (MS) R3175762-5 11/03/16 18:53 • (MSD) R3175762-6 11/03/16 19:16

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	500	39.3	523	524	97	97	1	80-120			0	15
Fluoride	50.0	3.58	38.9	39.9	71	73	1	80-120	J6	J6	3	15
Nitrate	50.0	ND	27.0	26.0	54	52	1	80-120	J6	J6	4	15

per lab, matrix interference prevented accurate spike value determination

Cp Tc Ss Cn Sr Qc Gl Al Sc

Method Blank (MB)

(MB) R3175833-1 11/04/16 04:26

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	U		0.795	10.0
Fluoride	U		0.261	1.00
Nitrate	U		0.0116	1.00

L869381-08 Original Sample (OS) • Duplicate (DUP)

(OS) L869381-08 11/04/16 06:44 • (DUP) R3175833-4 11/04/16 07:07

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	212	210	1	1		15
Fluoride	7.72	7.6	1	2		15
Nitrate	U	0	1	0		15

L869816-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869816-01 11/04/16 18:52 • (DUP) R3175833-7 11/04/16 19:15

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	42.4	43.4	1	2		15
Fluoride	11.7	11.7	1	0		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175833-2 11/04/16 04:49 • (LCSD) R3175833-3 11/04/16 05:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	200	214	213	107	107	80-120			0	15
Fluoride	20.0	22.0	22.0	110	110	80-120			0	15
Nitrate	20.0	22.1	22.2	111	111	80-120			0	15

L869587-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869587-04 11/04/16 15:26 • (MS) R3175833-5 11/04/16 15:48 • (MSD) R3175833-6 11/04/16 16:11

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	500	41.0	545	541	101	100	1	80-120			1	15
Fluoride	50.0	6.89	27.0	26.1	40	38	1	80-120	J6	J6	3	15

* per lab, matrix interference prevented accurate spike value determination

L869587-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869587-04 11/04/16 15:26 • (MS) R3175833-5 11/04/16 15:48 • (MSD) R3175833-6 11/04/16 16:11

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/kg	ug/kg	mg/kg	mg/kg	%	%		%			%	%
Nitrate	50.0	0.509	55.0	53.5	109	106	1	80-120			3	15

Method Blank (MB)

(MB) R3175877-1 11/04/16 09:02

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Mercury	U		0.00333	0.0100

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175877-2 11/04/16 09:05 • (LCSD) R3175877-3 11/04/16 09:07

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Mercury	0.0300	0.0305	0.0327	102	109	80-120			7	20

L869947-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869947-04 11/04/16 09:10 • (MS) R3175877-4 11/04/16 09:20 • (MSD) R3175877-5 11/04/16 09:22

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Mercury	0.0300	ND	0.0308	0.0300	103	100	1	75-125			3	20

L869023-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869023-02 11/04/16 09:25 • (MS) R3175877-6 11/04/16 09:27 • (MSD) R3175877-7 11/04/16 09:30

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Mercury	0.0300	ND	0.0294	0.0321	98	107	1	75-125			9	20

Method Blank (MB)

(MB) R3175922-1 11/04/16 11:57

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Mercury	U		0.00333	0.0100

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175922-2 11/04/16 11:59 • (LCSD) R3175922-3 11/04/16 12:02

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Mercury	0.0300	0.0309	0.0310	103	103	80-120			0	20

L869381-20 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-20 11/04/16 12:04 • (MS) R3175922-4 11/04/16 12:07 • (MSD) R3175922-5 11/04/16 12:09

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Mercury	0.0300	ND	0.0301	0.0298	100	99	1	75-125			1	20

L869871-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869871-02 11/04/16 12:12 • (MS) R3175922-6 11/04/16 12:14 • (MSD) R3175922-7 11/04/16 12:17

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Mercury	0.0300	ND	0.0299	0.0301	100	100	1	75-125			0	20

Method Blank (MB)

(MB) R3175402-1 11/02/16 15:48

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0028	0.0200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175402-2 11/02/16 15:51 • (LCSD) R3175402-3 11/02/16 15:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.300	0.274	0.283	91	94	80-120			3	20

L869381-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-02 11/02/16 15:56 • (MS) R3175402-4 11/02/16 15:59 • (MSD) R3175402-5 11/02/16 16:02

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.410	0.0288	0.474	0.484	109	111	1	75-125			2	20

Method Blank (MB)

(MB) R3175124-1 11/02/16 02:55

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Arsenic	U		0.65	2.00
Barium	U		0.17	0.500
Cadmium	U		0.07	0.500
Chromium	U		0.14	1.00
Lead	U		0.19	0.500
Selenium	U		0.74	2.00
Silver	U		0.28	1.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175124-2 11/02/16 02:57 • (LCSD) R3175124-3 11/02/16 03:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Arsenic	100	102	103	102	103	80-120			2	20
Barium	100	105	106	105	106	80-120			1	20
Cadmium	100	102	103	102	103	80-120			1	20
Chromium	100	101	102	101	102	80-120			1	20
Lead	100	102	103	102	103	80-120			1	20
Selenium	100	101	103	101	103	80-120			1	20
Silver	100	101	102	101	102	80-120			1	20

L869107-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869107-05 11/02/16 03:02 • (MS) R3175124-5 11/02/16 03:10 • (MSD) R3175124-7 11/02/16 03:13

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	117	8.20	115	118	91	94	1	75-125			3	20
Barium	117	92.3	238	242	125	128	1	75-125		J5	2	20
Cadmium	117	ND	113	117	97	100	1	75-125			3	20
Chromium	117	20.4	130	135	94	98	1	75-125			4	20
Lead	117	13.0	130	134	100	104	1	75-125			3	20
Selenium	117	ND	111	114	94	97	1	75-125			3	20
Silver	117	ND	113	116	97	100	1	75-125			3	20

* per lab, matrix interference prevented accurate spike value determination

Method Blank (MB)

(MB) R3175759-1 11/04/16 02:39

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	U		0.0333	0.100
Barium	U		0.0167	0.0500
Cadmium	U		0.00667	0.0200
Chromium	U		0.0333	0.100
Lead	U		0.0167	0.0500
Selenium	U		0.0333	0.100
Silver	U		0.0167	0.0500

Laboratory Control Sample (LCS) - Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175759-2 11/04/16 02:41 - (LCSD) R3175759-3 11/04/16 02:44

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	10.0	9.27	9.35	93	94	80-120			1	20
Barium	10.0	9.37	9.40	94	94	80-120			0	20
Cadmium	10.0	9.20	9.25	92	92	80-120			0	20
Chromium	10.0	9.21	9.15	92	91	80-120			1	20
Lead	10.0	9.23	9.23	92	92	80-120			0	20
Selenium	10.0	9.34	9.39	93	94	80-120			1	20
Silver	10.0	9.13	9.21	91	92	80-120			1	20

L869381-18 Original Sample (OS) - Matrix Spike (MS) - Matrix Spike Duplicate (MSD)

(OS) L869381-18 11/04/16 02:46 - (MS) R3175759-5 11/04/16 02:52 - (MSD) R3175759-6 11/04/16 02:54

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	10.0	ND	9.70	9.47	97	95	1	75-125			2	20
Barium	10.0	0.127	9.49	9.32	94	92	1	75-125			2	20
Cadmium	10.0	ND	9.46	9.28	95	93	1	75-125			2	20
Chromium	10.0	ND	9.20	9.02	92	90	1	75-125			2	20
Lead	10.0	ND	9.50	9.31	95	93	1	75-125			2	20
Selenium	10.0	ND	9.81	9.65	98	96	1	75-125			2	20
Silver	10.0	ND	9.27	9.14	93	91	1	75-125			1	20

Method Blank (MB)

(MB) R3175962-1 11/04/16 14:45

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Arsenic	U		0.0333	0.100
Barium	U		0.0167	0.0500
Cadmium	U		0.00667	0.0200
Chromium	U		0.0333	0.100
Lead	U		0.0167	0.0500
Selenium	U		0.0333	0.100
Silver	U		0.0167	0.0500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175962-2 11/04/16 14:48 • (LCSD) R3175962-3 11/04/16 14:50

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Arsenic	10.0	8.91	8.80	89	88	80-120			1	20
Barium	10.0	9.16	9.09	92	91	80-120			1	20
Cadmium	10.0	9.00	8.92	90	89	80-120			1	20
Chromium	10.0	8.86	8.82	89	88	80-120			0	20
Lead	10.0	8.91	8.81	89	88	80-120			1	20
Selenium	10.0	8.94	8.85	89	89	80-120			1	20
Silver	10.0	8.61	8.54	86	85	80-120			1	20

L869381-22 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-22 11/04/16 14:53 • (MS) R3175962-5 11/04/16 14:59 • (MSD) R3175962-6 11/04/16 15:02

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Arsenic	10.0	ND	9.29	9.32	93	93	1	75-125			0	20
Barium	10.0	0.177	9.26	9.26	91	91	1	75-125			0	20
Cadmium	10.0	ND	9.21	9.21	92	92	1	75-125			0	20
Chromium	10.0	ND	8.96	9.03	90	90	1	75-125			1	20
Lead	10.0	ND	9.01	9.02	90	90	1	75-125			0	20
Selenium	10.0	ND	9.44	9.47	94	95	1	75-125			0	20
Silver	10.0	ND	8.89	8.95	89	89	1	75-125			1	20

Method Blank (MB)

(MB) R3175414-1 11/02/16 18:38

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	4.96	J	2.3	50.0

potentially affected samples:
B-4-15 al = 42200 >10x blank NO ACTION
B-4-7 al = 9370 >10x blank NO ACTION
B-5-8 al = 5730 >10x blank NO ACTION
B-5-15' al = 8840 >10x blank NO ACTION

Laboratory Control Sample (LCS) - Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175414-2 11/02/16 18:41 • (LCSD) R3175414-3 11/02/16 18:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	1060	1100	106	110	80-120			4	20

L869381-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-03 11/02/16 18:47 • (MS) R3175414-5 11/02/16 18:57 • (MSD) R3175414-7 11/02/16 19:00

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	234	9370	11100	10600	149	106	5	75-125	V		5	20

Sample concentration too high to evaluate spike recoveries (dilution)

B-6-7.5' al = 16600 >10x blank NO ACTION
B-6-15' al = 19800 >10x blank NO ACTION

NO QUALIFIERS NEEDED

Volatile Organic Compounds (GC) by Method 8021B/NWTPHGX

potentially affected samples:
B-6-9.5 Toluene = 0.0007655 J → report as <RDL (0.00500U)
B-1-17' Toluene = 0.0005345 J → report as <RDL (0.00500U)
B-3-16' Toluene = 0.0006195 J → report as <RDL (0.00500U)

* QUALIFIERS ASSIGNED.

Method Blank (MB)

(MB) R3176319-5 11/03/16 20:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Gasoline Range Organics-NWTPH	U		0.0339	0.100
Toluene	0.000765	J	0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
(S) a,a,a-Trifluorotoluene(FID)	111			59.0-128
(S) a,a,a-Trifluorotoluene(PID)	110			54.0-144

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176319-1 11/03/16 18:26 • (LCSD) R3176319-2 11/03/16 18:47

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0539	0.0536	108	107	70.0-130			0.610	39
Toluene	0.0500	0.0551	0.0548	110	110	70.0-130			0.580	42
Ethylbenzene	0.0500	0.0534	0.0531	107	106	70.0-130			0.590	44
Total Xylene	0.150	0.168	0.167	112	111	70.0-130			0.570	44
(S) a,a,a-Trifluorotoluene(FID)				110	110	59.0-128				
(S) a,a,a-Trifluorotoluene(PID)				114	113	54.0-144				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176319-3 11/03/16 19:08 • (LCSD) R3176319-4 11/03/16 19:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5.50	5.90	5.89	107	107	67.0-135			0.130	20
(S) a,a,a-Trifluorotoluene(FID)				112	113	59.0-128				
(S) a,a,a-Trifluorotoluene(PID)				119	116	54.0-144				

L869639-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869639-01 11/08/16 14:26 • (MS) R3176600-1 11/08/16 17:03 • (MSD) R3176600-2 11/08/16 17:25

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.000550	0.0337	0.0228	66.3	44.5	1	32.0-137			38.5	39
Toluene	0.0500	ND	0.0261	0.0150	50.8	28.5	1	20.0-142	J3		54.2	42
Ethylbenzene	0.0500	ND	0.0190	0.00901	37.6	17.7	1	10.0-150	J3		71.1	44
Total Xylene	0.150	ND	0.0600	0.0287	39.7	18.8	1	12.0-149	J3		70.6	44

* matrix spike RPDs out of control, but LCS is OK — no action needed. Matrix is soil.

L869639-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869639-01 11/08/16 14:28 • (MS) R3176600-1 11/08/16 17:03 • (MSD) R3176600-2 11/08/16 17:25

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
(S) a,a,a-Trifluorotoluene(FID)					*92.5*	*89.2*		*59.0-128*				
(S) a,a,a-Trifluorotoluene(PID)					*89.7*	*84.7*		*54.0-144*				

L869639-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869639-01 11/08/16 14:28 • (MS) R3176600-3 11/08/16 17:47 • (MSD) R3176600-4 11/09/16 18:10

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5.50	ND	1.47	0.405	26.7	7.36	1	55.0-109	J6	J3 J6	113	20
(S) a,a,a-Trifluorotoluene(FID)					*88.4*	*87.6*		*59.0-128*				
(S) a,a,a-Trifluorotoluene(PID)					*86.9*	*82.6*		*54.0-144*				

*note from lab, matrix interference

Method Blank (MB)

(MB) R3176262-3 11/07/16 16:07

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*106*			*50.0-150*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176262-4 11/07/16 15:24 • (LCSD) R3176262-5 11/07/16 16:41

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Diesel Range Organics (DRO)	30.0	26.1	30.7	86.9	102	50.0-150			16.4	20
Residual Range Organics (RRO)	30.0	17.5	21.2	58.4	70.7	50.0-150			19.0	20
(S) o-Terphenyl				*110*	*122*	*50.0-150*				

L869381-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-12 11/07/16 14:54 • (MS) R3176262-1 11/07/16 15:11 • (MSD) R3176262-2 11/07/16 15:28

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Diesel Range Organics (DRO)	33.0	U	29.2	23.4	88.1	70.6	1	50.0-150		J2	21.9	20
Residual Range Organics (RRO)	33.0	U	20.0	15.6	60.4	47.1	1	50.0-150		J3 J6	24.8	20
(S) o-Terphenyl					*109*	*90.5*		*50.0-150*				

* matrix spike RPDs outside control, but LCS is good. No action due to matrix being soil and RPD is OK.

Method Blank (MB)

(MB) R3175501-3 11/03/16 07:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.000600	0.00600
Acenaphthene	U		0.000600	0.00600
Acenaphthylene	U		0.000600	0.00600
Benzo(a)anthracene	U		0.000600	0.00600
Benzo(a)pyrene	U		0.000600	0.00600
Benzo(b)fluoranthene	U		0.000600	0.00600
Benzo(g,h,i)perylene	U		0.000600	0.00600
Benzo(k)fluoranthene	U		0.000600	0.00600
Chrysene	U		0.000600	0.00600
Dibenz(a,h)anthracene	U		0.000600	0.00600
Fluoranthene	U		0.000600	0.00600
Fluorene	U		0.000600	0.00600
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600
Naphthalene	U		0.00200	0.0200
Phenanthrene	U		0.000600	0.00600
Pyrene	U		0.000600	0.00600
1-Methylnaphthalene	U		0.00200	0.0200
2-Methylnaphthalene	U		0.00200	0.0200
2-Chloronaphthalene	U		0.00200	0.0200
(S) p-Terphenyl-d14	*104*			*32.2-131*
(S) Nitrobenzene-d5	*89.7*			*22.1-146*
(S) 2-Fluorobiphenyl	*101*			*40.6-122*

Laboratory Control Sample (LCS) - Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175501-1 11/03/16 06:23 • (LCSD) R3175501-2 11/03/16 06:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	0.0640	0.0655	80.0	81.9	50.3-130			2.34	20
Acenaphthene	0.0800	0.0627	0.0637	78.4	79.7	52.4-120			1.66	20
Acenaphthylene	0.0800	0.0628	0.0643	78.5	80.3	49.6-120			2.25	20
Benzo(a)anthracene	0.0800	0.0633	0.0660	79.1	82.5	46.7-125			4.12	20
Benzo(a)pyrene	0.0800	0.0646	0.0666	80.8	83.2	42.3-119			3.01	20
Benzo(b)fluoranthene	0.0800	0.0568	0.0544	71.0	68.1	43.6-124			4.19	20
Benzo(g,h,i)perylene	0.0800	0.0633	0.0634	79.2	79.3	45.1-132			0.139	20
Benzo(k)fluoranthene	0.0800	0.0530	0.0561	66.3	70.1	46.1-131			5.67	20
Chrysene	0.0800	0.0648	0.0667	81.0	83.4	49.5-131			2.96	20
Dibenz(a,h)anthracene	0.0800	0.0720	0.0712	90.0	89.0	44.8-133			1.09	20
Fluoranthene	0.0800	0.0637	0.0644	79.6	80.5	49.3-128			1.16	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175501-1 11/03/16 06:23 • (LCSD) R3175501-2 11/03/16 06:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	0.0800	0.0637	0.0645	79.6	80.6	50.6-121			1.21	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0671	0.0667	83.9	83.3	46.1-135			0.710	20
Naphthalene	0.0800	0.0628	0.0638	78.5	79.7	49.6-115			1.48	20
Phenanthrene	0.0800	0.0624	0.0649	78.0	81.1	48.8-121			3.97	20
Pyrene	0.0800	0.0672	0.0684	84.0	85.5	44.7-130			1.78	20
1-Methylnaphthalene	0.0800	0.0648	0.0672	81.1	84.0	50.6-122			3.50	20
2-Methylnaphthalene	0.0800	0.0621	0.0638	77.7	79.8	50.4-120			2.67	20
2-Chloronaphthalene	0.0800	0.0657	0.0676	82.1	84.5	53.9-121			2.82	20
(S) p-Terphenyl-d14				*95.6*	*94.1*	*32.2-131*				
(S) Nitrobenzene-d5				*82.0*	*83.2*	*22.1-146*				
(S) 2-Fluorobiphenyl				*94.8*	*94.4*	*40.6-122*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. (this will only be present on a dry report basis for soils).
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only environmental laboratory group certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1,4]	2006
Louisiana	AI30792	Texas	T104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [1]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold — Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**

Chain of Custody Page 2 of 2

ESC LABORATORIES

Stantec- Bellevue, WA

11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Billing Information & Quote Number: Chris Gdak
Accounts Payable- Philadelphia
11130 NE 33rd Pl, Ste 200
Bellevue, WA 98004

Report to: Nate Hagemeier Cyrus Gorman
Email To: Chris.Gdak@stantec.com; Cyrus.Gorman@stantec.com

Project Description: Maralco, Phase II ESA
City/State Collected: East, WA

Phone: 425-289-7374
Fax: 425-869-1190
Client Project # 185750123a
Lab Project # STANTECBWA-KENT

Collected by (print):
Site/Facility ID #:
P.O. # 185750123

Collected by (signature):
Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed:
Email? ___No X_Yes
FAX? ___No ___Yes

Lab # 869381
Table #
Acctnum: STANTECBWA
Template: T117067
Prelogin: P573460
TSR: 339 - Brian Ford
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	# of Cntrs	Cl,F,NH3,NO3 4ozClr-NoPres	NWTPHDX 4ozClr-NoPres	NWTPHG/BTEX 40ml/NaHSO4/Syr/MeOH	PAHSIMD 4ozClr-NoPres	RCRA8 + Al metals 2ozClr-NoPres	TCLP RCRA8+Al 8ozClr-NoPres	VOCs Screen, TS 2ozClr-NoPres	TCLP Extraction	HOLD			Sample # (lab only)
B-1-17'	Grab	SS	17'	10/27/16	12:10	1	X	X		X	X			X				11
B-1-5'	"	SS	5'	"	12:00	1	X	X		X	X			X				12
B-1-20'	"	SS	20'	"	12:12	1									X			
B-2-4'	"	SS	4'	"	12:50	1	X	X		X	X			X				13
B-2-16.5'	"	SS	16.5	"	12:58	1	X	X		X	X			X				14
B-3-16'	"	SS	16'	"	11:40	3			X									15
B-3-16'	"	SS	16'	"	"	1	X	X	X	X				X				16
B-3-6'	"	SS	6'	"	11:25	1	X	X	X	X				X				17
B-3-20'	"	SS	20'	"	11:45										X		-	
		SS																

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks: Aluminum by Method 6020
Called to Lab manager On-Call 12:23; left voicemail message re: updated COC
Corrected 10/29/2016 12:20 pm emailed to ESC " 12:25 "

pH ___ Temp ___
Flow ___ Other ___

Hold #

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	10/28/2016	15:45	
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date	Time	Received for lab by: (Signature)
			Date: 10/29/16 Time: 0840

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ ___
Temp: 2.4 °C Bottles Received: 36

Condition: (lab use only)
COC Seal Intact: ___Y ___N ___NA
pH Checked: NCF: N

updated?

Stantec- Bellevue, WA

11130 N E 33rd Pl, Suite 200
Bellevue, WA 98004

Billing Information & Quote Number: Chris Golak
Accounts Payable- ~~Phil Haberman~~
11130 NE 33rd Pl, Ste 200
Bellevue, WA 98004

Report to: ~~Nate Magnuson~~ Cyrus Gorman
Email To: Chris.Golak@stantec.com; Cyrus.Gorman@stantec.com;

Project Description: Maralco, Phase II ESA
City/State Collected: Kent, WA

Phone: 425-289-7374
Fax: 425-869-1190

Client Project #: 185750123a
Lab Project #: STANTECBWA-KENT

Collected by (print): CAROL SHESTAG
Site/Facility ID #:
P.O. #: 185750123

Collected by (signature):
Immediately Packed on Ice: N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X_Yes
FAX? ___No ___Yes

Analysis / Containers / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No of Cntrs	Cl,F,NH3,NO3 4oz Clr-NoPres	NWT PHDX 4oz Clr-NoPres	NWTPHGXBTEX 40ml/NaHSO4/Syr/MeOH	PAHSIMD 4oz Clr-NoPres	RCRA8 + Al metals 2oz Clr-NoPres	TCLP RCRA8+Al 8oz Clr-NoPres	VOCs Screen, TS 2oz Clr-NoPres	TCLP Ex Mycton			Item #	Sample # (lab only)
B-4-9'	Grab	SS	9'	10/20/16	09:02	3			X									01
B-4-15'	"	SS	15'	"	09:10	2	X				X			X				02
B-4-7'	"	SS	7'	"	09:00	2	X				X			X				03
B-5-10'	"	SS	10'	"	10:32	3			X									04
B-5-8'	"	SS	8'	"	10:30	2	X				X			X				05
B-5-15'	"	SS	15'	"	10:40	2	X				X			X				06
B-6-9.5'	"	SS	9.5'	"	14:38	3			X									07
B-6-7.5'	"	SS	7.5'	"	14:35	2	X				X			X				08
B-6-15'	"	SS	15'	"	14:45	3	X				X			X				09
B-1-17'	"	SS	17'	"	12:10	3			X									10

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other ___

Remarks: Aluminum by Method 6020.

pH ___ Temp ___
Flow ___ Other ___

Chain of Custody Page 1 of 2

ESC LAB SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 86T381
B225

Acctnum: STANTECBWA
Template: T117067
Prelogin: P573460
TSR: 110 - Brian Ford
PB:
Shipped Via:

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	10/28/2016	15:45	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)
			Dal

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ ___
Temp: 2.4 °C Bottles Received: 36
Date: 10-29-16 Time: 0900

Hold #
Condition: 009 (lab use only)
COC Seal Intact: ___Y ___N ✓NA
pH Checked: NCF: X

Stantec- Bellevue, WA

11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Billing Information & Quote Number: Chris Golak
Accounts Payable- Phil Heberman
11130 NE 33rd Pl, Ste 200
Bellevue, WA 98004

Report to: ~~Phil Heberman~~ Cyrus Gorman

Email To: Chris.Golak@stantec.com; Cyrus.Gorman@stantec.com;

Project Description: Manalco, Phase II ESA

City/State Collected: Kent, WA

Phone: 425-289-7374
Fax: 425-869-1190

Client Project #: 185750123.2

Lab Project #: STANTECBWA-KENT

Collected by (print):

Site/Facility ID #:

P.O. #: 185750123

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X_Yes
FAX? ___No ___Yes

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

ESC LAB SCIENCES

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

LR 865391

Table #

Acctnum: STANTECBWA
Template: T117067
Prelogin: P573460
TSR: 110 - Brian Ford
PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of cntrs	Cl,F,NH3,NO3 4oz Clr-NoPres	NWTPHDX 4oz Clr-NoPres	NWTPHGXBTEX 40ml/NaHSO4/Syr/MeOH	PAHSIMD 4oz Clr-NoPres	RCRA8+Al metals 2oz Clr-NoPres	TCLP RCRA8+Al 8oz Clr-NoPres	VOCs Screen, TS 2oz Clr-NoPres	TCLP Extraction	Hold		Sample # (lab only)
B-1-17'	Grab	SS	17'	10/27/16	12:10	1	X				X			X			11
B-1-5'	"	SS	5'	"	12:00	1	X				X			X			12
B-1-20'	"	SS	20'	"	12:12	1									X		
B-2-4'	"	SS	4'	"	12:50	1	X				X			X			13
B-2-16.5'	"	SS	16.5	"	12:58	1	X				X			X			14
B-3-16'	"	SS	16'	"	11:40	3			X								15
B-3-16'	"	SS	16'	"	"	1	X		X					X			16
B-3-6'	"	SS	6'	"	11:25	1	X		X					X			17
B-3-20'	"	SS	20'	"	11:45										X		
		SS													-		

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other _____

Remarks: Aluminum by Method 6020.

pH _____ Temp _____

Flow _____ Other _____

Hold #

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	10/28/2016	15:45	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ ____

Temp: 2.4 °C Bottles Received: 36

Date: 10-29-16 Time: 0900

Condition: NO9 (lab use only)

COC Seal Intact: ___Y ___N ___NA

pH Checked: NCF: No

ESC
LAB SCIENCES
YOUR LAB OF CHOICE

Cooler Receipt Form

Client: STANTECBVA		SDG#	269381
Cooler Received/Opened On: 10/ 29 /16		Temperature Upon Receipt:	2.4 °c
Received By: Dakota Busby			
Signature:			

Receipt Check List	Yes	No	N/A
Were custody seals on outside of cooler and intact?			—
Were custody papers properly filled out?	—		
Did all bottles arrive in good condition?	—		
Were correct bottles used for the analyses requested?	—		
Was sufficient amount of sample sent in each bottle?	—		
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)			—
If applicable, was an observable VOA headspace present?			—
Non Conformance Generated. (If yes see attached NCF)	X		

Andy Vann

ESC Lab Sciences
Non-Conformance Form

Login #L869381	Client: STANTECBWA	Date:10/29	Evaluated by:Dakota

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time	x	Login Clarification Needed		If Broken Container:
	Improper temperature		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	Improper preservation		Please specify TCLP requested		Improper handling by carrier (FedEx / UPS / Couri
	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace		Trip Blank not received		If no Chain of Custody:
	Broken container		Client did not "X" analysis.		Received by:
	Broken container:		Chain of Custody is missing		Date/Time:
	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments:

1. Received B-4-16.5 instead of B-2-16.5. Same date and time. Logged per COC
2. Please clarify TCLP Extraction

Client Informed by:		Call		Email	x	Voice Mail		Date:10/31/16	Time:1300
TSR Initials:bjf	Client Contact: Cyrus Gorman								

Login Instructions:

1) Log per COC
2) M6010TCLP (RCRA8) and TCLP ALICP

Brian Ford

From: Brian Ford
Sent: Monday, October 31, 2016 6:49 PM
To: Brian Ford
Subject: FW: ESC Lab Sciences Maralco L869248

L869381. Cancelling TCLP ALICP.

Thanks,
Brian Ford
ESC Lab Sciences
Direct: (615)773-9772
Mobile: (931)510-2229
bford@esclabsciences.com

From: Gorman, Cyrus [mailto:Cyrus.Gorman@stantec.com]
Sent: Monday, October 31, 2016 5:29 PM
To: Brian Ford
Subject: RE: ESC Lab Sciences Maralco L869248

Sorry for the confusion. For the TCLP sample, we only want to run the RCRA 8 metals.

Thank you.

Cyrus Gorman, L.G.
Project Manager
Stantec
4100 194th Street SW Suite 400 Lynnwood WA 98036-4613
Cell Phone: 425-599-9302
Direct: 206-494-5029
cyrus.gorman@stantec.com

From: Brian Ford [mailto:BFord@esclabsciences.com]
Sent: Monday, October 31, 2016 3:28 PM
To: Gorman, Cyrus <Cyrus.Gorman@stantec.com>
Subject: RE: ESC Lab Sciences Maralco L869248

Cyrus,

Are we cancelling aluminum on just the Maralco groundwaters only? Or also cancel for the Maralco soils as well.

Thanks,
Brian Ford

ESC Lab Sciences
Office: (615)773-9772
Cell: (931)510-2229
bford@esclabsciences.com

From: Gorman, Cyrus [mailto:Cyrus.Gorman@stantec.com]
Sent: Monday, October 31, 2016 5:14 PM
To: Brian Ford
Subject: RE: ESC Lab Sciences Maralco L869248

Brian,

Please skip the aluminum analysis. Sorry for the late notice.

Thank you.

Cyrus Gorman, L.G.
Project Manager
Stantec
4100 194th Street SW Suite 400 Lynnwood WA 98036-4613
Cell Phone: 425-599-9302
Direct: 206-494-5029
cyrus.gorman@stantec.com

DATA VALIDATION WORKSHEET

GENERAL INFORMATION:

Lab Name:	ESC Lab Sciences
Lab SDG/Project/Work Order:	L869248
Project Name:	City of Kent Brownfield (Cooperative Agreement BF-00J65701) Maralco Property
Stantec Project Number:	185750123
Client:	City of Kent
Validator Name:	Kim Vik
Date of Validation:	November 18, 2016

SAMPLE INFORMATION:

Number of Samples:	9	
Matrix:	Water	
Number of Trip Blanks:	None	
Number of Equipment Blanks:	None	
Number of Field Duplicates *(include duplicate information)*	1 (sample SW-900 is a field duplicate of SW-11); note that the sample times for the original and the duplicate were not recorded as the same on the COC which resulted in the duplicate sample being analyzed past the holding time.	
Date of Sample Collection:	October 27 and 28, 2016	
Sample:	**Analyses:**	**Batch:**
B-6-GW	Mercury (Method 7470A)	WG922404
	ICP Metals (Method 6010C)	WG922127
	ICPMS Metals (Method 6020)	WG922947
	SVOCs (Method 8270D-SIM)	WG922800
	TPH-D/TPH-O (Method NWTPH-Dx)	WG922176
	Wet Chemistry (Method 300.0)	WG922052
	Wet Chemistry (Method 300.0)	WG922052
	Wet Chemistry (Method 300.0)	WG923169
	Wet Chemistry (Method 350.1)	WG922833
B-5-GW	Mercury (Method 7470A)	WG922404
	ICP Metals (Method 6010C)	WG922127
	ICPMS Metals (Method 6020)	WG922947
	SVOCs (Method 8270D-SIM)	WG922800
	TPH-D/TPH-O (Method NWTPH-Dx)	WG922176
	Wet Chemistry (Method 300.0)	WG922052
	Wet Chemistry (Method 300.0)	WG923169
	Wet Chemistry (Method 350.1)	WG922833

B-4-GW	Mercury (Method 7470A)	WG922404
	ICP Metals (Method 6010C)	WG922127
	ICPMS Metals (Method 6020)	WG922947
	SVOCs (Method 8270D-SIM)	WG922800
	TPH-D/TPH-O (Method NWTPH-Dx)	WG922176
	Wet Chemistry (Method 300.0)	WG922052
	Wet Chemistry (Method 300.0)	WG923169
	Wet Chemistry (Method 350.1)	WG922833
B-3-GW	Mercury (Method 7470A)	WG922404
	ICP Metals (Method 6010C)	WG922127
	ICPMS Metals (Method 6020)	WG922947
	SVOCs (Method 8270D-SIM)	WG922800
	TPH-D/TPH-O (Method NWTPH-Dx)	WG922176
	Wet Chemistry (Method 300.0)	WG922052
	Wet Chemistry (Method 300.0)	WG922052
	Wet Chemistry (Method 350.1)	WG922833
B-2-GW	Mercury (Method 7470A)	WG922404
	ICP Metals (Method 6010C)	WG922127
	ICPMS Metals (Method 6020)	WG922947
	SVOCs (Method 8270D-SIM)	WG922800
	TPH-D/TPH-O (Method NWTPH-Dx)	WG922176
	Wet Chemistry (Method 300.0)	WG922052
	Wet Chemistry (Method 300.0)	WG922052
	Wet Chemistry (Method 350.1)	WG922833
B-1-GW	Mercury (Method 7470A)	WG922404
	ICP Metals (Method 6010C)	WG922127
	ICPMS Metals (Method 6020)	WG922947
	SVOCs (Method 8270D-SIM)	WG922800
	TPH-D/TPH-O (Method NWTPH-Dx)	WG922176
	Wet Chemistry (Method 300.0)	WG922052
	Wet Chemistry (Method 300.0)	WG922052
	Wet Chemistry (Method 350.1)	WG922833
SW-10	Mercury (Method 7470A)	WG922404
	ICP Metals (Method 6010C)	WG922127
	ICPMS Metals (Method 6020)	WG922947
	Wet Chemistry (Method 300.0)	WG922071
	Wet Chemistry (Method 300.0)	WG922071
	Wet Chemistry (Method 300.0)	WG922071
	Wet Chemistry (Method 350.1)	WG922833
SW-11	Mercury (Method 7470A)	WG922404
	ICP Metals (Method 6010C)	WG922127
	ICPMS Metals (Method 6020)	WG922947
	Wet Chemistry (Method 300.0)	WG922071
	Wet Chemistry (Method 300.0)	WG922071
	Wet Chemistry (Method 350.1)	WG922833

SW-900 *(duplicate of SW-11)*	Mercury (Method 7470A) ICP Metals (Method 6010C) ICPMS Metals (Method 6020) Wet Chemistry (Method 300.0) Wet Chemistry (Method 300.0) Wet Chemistry (Method 350.1)	WG922404 WG922127 WG922947 WG922071 WG922071 WG922833

GENERAL DATA VALIDATION:

Chain of Custody:
COC is complete, with the Non-Conformance Form (NCF) from the lab. The NCF stated that there was a holding time exceedance in one of the samples. All requested analyses were performed per the COC.

Holding Times:
All analyses were run within the required holding times except for Nitrate for sample B-4-GW and SW-900. No qualifiers are needed.

Trip Blank Review:
No trip blanks were submitted with this SDG even though volatile organics were analyzed.

Surrogates:
All sample surrogates are within control. No qualifiers are needed.

QC Surrogates:
All QC surrogates were within control.

Lab Notes:
The lab noted that samples B-4-GW and SW-900 were analyzed past the holding time for Method 300.0 (Nitrate).

Elevated Reporting Limits:
Samples run on dilutions cause the reporting limits to be elevated. The following samples (and analyte) was noted as having been diluted:

Sample B-6-GW (Chloride at 5x dilution, Fluoride at 10x dilution, all PAHs at 2x dilution)
Sample B-5-GW (Chloride at 500x dilution, Ammonia Nitrogen at 10x dilution, all PAHs at 2x dilution)
Sample B-4-BW (Chloride at 5x dilution, Aluminum at 10x dilution, all PAHs at 2x dilution)
Sample B-3-GW (Chloride at 5x dilution, all PAHs at 2x dilution)
Sample B-2-GW (Chloride at 5x dilution, Aluminum at 10x dilution)
Sample B-1GW (Chloride at 5x dilution, Aluminum at 10x dilution)
Sample SW-10 (Chloride at 100x dilution, Nitrate at 5x dilution)
Sample SW-11 (Chloride at 5x dilution)
Sample SW-900 (Chloride at 5x dilution)

PER ANALYSES:

Wet Chemistry: Chloride, Fluoride, NItrate, *Method 300.0* (Batches: WG922052, WG922071, WG923169)

Method Blank:
Chloride was detected above the Method Detection Limit (MDL) in the laboratory method blank in all three batches at concentrations ranging from 88.8 ug/L to 187 ug/L. All of these detections were less than the Reporting Detection Limits (RDLs). All the samples were potentially affected; however, all of the sample results were greater than 10x the method blank concentration, so no action is needed. Nitrate was detected at

36.0 ug/L in the method blank in Batch WG922071 only. The potentially affected samples include SW-10, SW-11 and SW-900. The result for SW-10 was greater than 10x the method blank concentration, so no action is needed. The results for SW-11 and SW-900 will be qualified with a J. No other qualifiers are needed. The table in the "Determination" section below summarizes the qualified data.
Lab Duplicates: Two laboratory duplicates were run for Batches WG922952 and WG923169, and one was run for Batch WG922971. The RPDs between the original samples and the lab duplicate samples were within the control limit of 20% for all batches. No qualifiers are needed.
Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD): The LCS and LCSD percent recoveries were within the specified acceptance limits for all batches. The RPD between the LCS and LCSD was within the control limit of 20% for all batches. No qualifiers are needed.
Matrix Spike/Matrix Spike Duplicate (MS/MSD): The MS and MSD percent recoveries were within the specified acceptance limits for all batches. The RPD between the MS and MSD was within the control limit of 20% for all batches. No qualifiers are needed.
Wet Chemistry: Ammonia Nitrogen, *Method 350.1* (Batch: WG922833)
Method Blanks: Ammonia nitrogen was not detected above the MDL in the laboratory method blank. No qualifiers are needed.
Lab Duplicates: Two laboratory duplicates were run. The RPDs between the original samples and the lab duplicate samples were within the control limit of 20%. No qualifiers are needed.
LCS/LCSD: The LCS and LCSD percent recoveries were within the specified acceptance limits. The RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.
MS/MSD: Two MS samples were run and one MSD was run in this batch. The MS and MSD percent recoveries were within the specified acceptance limits. The RPD between the MS and MSD was within the control limit of 20%. No qualifiers are needed.
Mercury, *Method 7470A* (Batch: WG922404)
Method Blanks: Mercury was not detected above the MDL in the laboratory method blank. No qualifiers are needed.
LCS/LCSC: The LCS and LCSD percent recoveries were within the specified acceptance limits. The RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.
MS/MSD: The MS and MSD percent recoveries were within the specified acceptance limits. The RPD between the MS and MSD was within the control limit of 20%. No qualifiers are needed.

Metals (ICP), *Method 6010C* (Batch: WG922127)
Method Blanks: No analytes were detected above the MDLs in the laboratory method blank. No qualifiers are needed.
LCS/LCSD: The LCS and LCSD percent recoveries for all analytes were within the specified acceptance limits. The RPDs between the LCS and LCSD were within the control limit of 20%. No qualifiers are needed.
MS/MSD: The MS and MSD percent recoveries for all analytes were within the specified acceptance limits. The RPDs between the MS and MSD were within the control limit of 20%. No qualifiers are needed.
Metals (ICPMS): Aluminum only, *Method 6020* (Batch: WG922947)
Method Blank: Aluminum was detected at 4.45 ug/L which is between the MDL and the RDL. Results for potentially affected samples (all samples in this SDG) were all greater than 10X the method blank result; therefore, no action is needed. No qualifiers are needed.
LCS/LCSD: The LCS and LCSD percent recoveries were within the specified acceptance limits. The RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.
MS/MSD: The MS and MSD percent recoveries were within the specified acceptance limits. The RPD between the MS and MSD was within the control limit of 20%. No qualifiers are needed.
Semi-Volatile Organics: Diesel Range Organics (DRO) and Residual Range Organics (RRO), *Method NWTPH-Dx* (Batch: WG922176)
Method Blank: DRO and RRO were not detected above the MDL in the method blank. No qualifiers are needed.
LCS/LCSD: The LCS and LCSD percent recoveries for DRO and RRO were within the specified acceptance limits. The RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.
Semi-Volatile Organics: Polycyclic Aromatic Hydrocarbons (PAHs), *Method 8270-SIM* (Batch: WG922800)
Method Blank: No analytes were detected above the MDLs in the laboratory method blank. No qualifiers are needed.

LCS/LCSD:
The LCS and LCSD percent recoveries for all analytes were within the specified acceptance limits. The RPDs between the LCS and LCSD for all analytes were within the control limit of 20%. No qualifiers are needed.

FIELD DUPLICATE REVIEW:

One field duplicate was collected with this sample delivery group (SDG). Sample SW-900 is a field duplicate of sample SW-11. RPDs were calculated between the results of the original sample (SW-11) and the field duplicate sample (SW-900). Discrepancies were found for Aluminum, where the RPD between the original sample result and the field duplicate result was greater than 20%, the EPA-specified RPD for water samples and/or 35% specified in the QAPP. The RPD between the two samples was 49.4%. The results for Aluminum for both SW-11 and SW-900 will be qualified with J. The calculation worksheet is attached. The qualified data is presented in the table under "Determination" below.

DETERMINATION:

The data in this work order have been validated and determined to be acceptable for use with the following qualifications:

Sample ID	Analyte (Method)	Original Result (ug/L)	Qualified Result (ug/L)	Reason
SW-11	Aluminum (Method 6020)	618	**618 J**	Field duplicate discrepancy/RPD>20%.
SW-11	Nitrate (Method 300.0)	288	**288 J**	Method blank contamination
SW-900	Aluminum (Method 6020)	373	**373 J**	Field duplicate discrepancy/RPD>20%.
SW-900	Nitrate (Method 300.0)	288	**288 J**	Method blank contamination/ holding time exceedance
B-4-GW	Nitrate (Method 300.0)	363	**363 J**	Holding time exceedance

NOTES:

Laboratory assigned flags (J). Analytical results flagged by the laboratory as estimated values in the final laboratory report are assigned a qualifier of **J** to denote that the result is an estimated value based on the analyses. This qualifier is not one that is assigned based on data validation review or quality of data. In the case where the laboratory reports sample results between the Method Detection Limit (MDL) and Reporting Detection Limit (RDL), the resulting data was flagged with **J** to denote that the result is estimated; the result is considered non-detect at the MRL because it falls below the MRL.

Data validation assigned qualifiers (U, UJ, J, R). The following qualifiers may be assigned to data in this data set based on the results of the data validation procedure (documented on this form). Based on the review of laboratory quality control data provided by the laboratory, the sample results may be qualified with:

- U Indicates the analyte was analyzed for, but was not detected above the reported sample quantitation limit (method reporting limit or MRL). Results assigned this qualifier are considered undetected at the MRL.

- UJ Indicates the analyte was not detected above the quantitation limit or MRL; however, the MRL is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. Results assigned this qualifier are considered undetected at the estimated MRL.

- J Indicates the analyte was positively indentified; however, the associated numerical value is the approximate concentration of the analyte in the sample. Results assigned this qualifier as considered and detected at an estimated value.

- R Indicates the presence or absence of the analyte cannot be confirmed due to serious laboratory deficiencies in the ability to analyze the sample and meet quality control criteria. Results assigned this qualifier are rejected and considered unusable.

SEE ATTACHED DATA QUALIFIER FORM FOR
DATA VALIDATION AND LABORATORYASSIGNED QUALIFIERS
(IF APPLICABLE) .

REFERENCES:

CE. 2005. *Environmental Quality – Guidance for Evaluating Performance-Based Chemical Data (Engineering Manual), EM 200-1-10*. US Corps of Engineers. June 30, 2005.

EPA. 2002. *Guidance on Environmental Data Verification and Data Validation, EPA QA/G-8.* USEPA. November 2002.

EPA. 1999. *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, EPA 540/R-99/008.* USEPA. *October 1999*.

EPA. 2004. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA 540-R-04-004*. USEPA. October 2004.

EPA. 2006. *Tier I Data Validation Manual for the Ohio EPA, Division of Hazardous Waste Management*. Ohio EPA. February 2006.

TNI. 2009. *Volume 1, Management and Technical Requirements for Laboratories Performing Environmental Analysis, Module 4: Quality System for Chemical Testing, TNI Standard*. The NELAC Institute. September 2009.

Data Validation Attachment
Field Duplicate Sample Worksheet
(list all detected sample/field duplicate results)

Stantec Project No: 185750123

DV Date: 11/18/16

Work Order/SDG Number: ESC L869248

Data Validator: KCVIC

Page: 1

Matrix *(check one)*: ☐ Soil ☒ Water ☐ Sediment ☐ Other_____

Applicable RPD: 20% (35% QAPP)

			Sample ID	Duplicate Sample ID			If Concentrations A and B > 5X MRL		If Concentrations A and B < or = 5X MRL	
		Enter Sample ID Here→	SW-11	SW-900	Reporting Limits (MRL) (sample/duplicate)	5 X Reporting Limit (MRL)	RPD (%)	QUALIFIERS (Control Limit = 20% (water) or 35% (soil)*. If RPD > then Control Limit then add J flag or UJ flag.	Conc A – Conc B = Difference	QUALIFIERS (If difference > MRL then add J flag to conc A and B.
Analyses	Units	List Analytes	List Concentration A	List Concentration B						
Method 300.0	ug/L	Chloride	379000	367000	560/360		3.2			
300.0	ug/L	Fluoride	4170	4210	990/990		1.0			
300.0	ug/L	Nitrate	288	288 (J) (H1)	22.7/22.7		0			
Method 350.1	ug/L	Ammonia Nitrogen	62.0 (J)	60	38/38		3.3			
Method 6010C		Barium	15.5	14.4	1.70/1.70		7.4			
6010C		Chromium	1.41 (J)	<1.40 (ND)	1.40/1.40		0.7			
6010C		Lead	2.00 (J)	<1.90 (ND)	1.90/1.90		5.1			
Method 6020		Aluminum	618	373	200/200		49.4	J		

N/A = Does not apply
* Per USEPA Guidance, RPD for water samples is 20% and RPD for soil samples is 35%.
DV Field duplicate form.xlsx

Stantec

* Qualify Aluminum Results for both samples w/ J.

*QUALIFIERS ASSIGNED

ANALYTICAL REPORT

November 04, 2016

myESC
REAL TIME DATA ACCESS

Stantec- Bellevue, WA

Sample Delivery Group:	L869248
Samples Received:	10/29/2016
Project Number:	185750123A
Description:	Maralco, Phase II ESA

Report To: Cyrus Gorman
11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Entire Report Reviewed By: Brian Ford

Brian Ford
Technical Service Representative

(9) water

(1) field dup: SW-900 is a dup of SW-11 ⇒ sampling times are different. between original & field duplicate.

QC ~~Ø trip blanks~~ - ~~should be 1 per cooler~~ no volatiles

Non-conformance: parameters past holding time.
nitrate for B4-GW (48 hours).
fluoride 28days ✓
chloride 28days ✓

B-6-GW L869248-01 GW

Collected by: Carol Shestag | Collected date/time: 10/27/16 15:15 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:19	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:32	ST
Metals (ICPMS) by Method 6020	WG922947	1	11/02/16 11:09	11/03/16 16:56	LAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922800	2	11/01/16 20:30	11/02/16 05:21	FMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG922176	1	10/31/16 09:39	11/01/16 17:06	TRF
Wet Chemistry by Method 300.0	WG922052	1	10/29/16 12:28	10/29/16 12:28	SAM
Wet Chemistry by Method 300.0	WG922052	5	10/29/16 14:37	10/29/16 14:37	SAM
Wet Chemistry by Method 300.0	WG923169	10	11/03/16 18:41	11/03/16 18:41	CM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:01	11/02/16 14:01	DR

B-5-GW L869248-02 GW

Collected by: Carol Shestag | Collected date/time: 10/27/16 11:10 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:22	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:40	ST
Metals (ICPMS) by Method 6020	WG922947	1	11/02/16 11:09	11/03/16 16:59	LAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922800	2	11/01/16 20:30	11/02/16 05:46	FMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG922176	1	10/31/16 09:39	11/01/16 17:26	TRF
Wet Chemistry by Method 300.0	WG922052	1	10/29/16 13:02	10/29/16 13:02	SAM
Wet Chemistry by Method 300.0	WG923169	500	11/03/16 18:55	11/03/16 18:55	CM
Wet Chemistry by Method 350.1	WG922833	10	11/02/16 14:51	11/02/16 14:51	DR

B-4-GW L869248-03 GW

Collected by: Carol Shestag | Collected date/time: 10/27/16 09:30 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:24	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:43	ST
Metals (ICPMS) by Method 6020	WG922947	10	11/02/16 11:09	11/04/16 14:02	LAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922800	2	11/01/16 20:30	11/02/16 06:08	FMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG922176	1	10/31/16 09:39	11/01/16 17:45	TRF
Wet Chemistry by Method 300.0	WG922052	1	10/29/16 12:42	10/29/16 12:42	SAM
Wet Chemistry by Method 300.0	WG923169	5	11/03/16 19:10	11/03/16 19:10	CM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:04	11/02/16 14:04	DR

B-3-GW L869248-04 GW

Collected by: Carol Shestag | Collected date/time: 10/27/16 12:30 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:27	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:46	ST
Metals (ICPMS) by Method 6020	WG922947	1	11/02/16 11:09	11/03/16 17:12	LAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922800	2	11/01/16 20:30	11/02/16 06:31	FMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG922176	1	10/31/16 09:39	11/02/16 13:40	TRF
Wet Chemistry by Method 300.0	WG922052	1	10/29/16 13:16	10/29/16 13:16	SAM
Wet Chemistry by Method 300.0	WG922052	5	10/29/16 16:04	10/29/16 16:04	SAM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:06	11/02/16 14:06	DR

B-2-GW L869248-05 GW

Collected by: Carol Shestag | Collected date/time: 10/27/16 13:25 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:29	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:49	ST
Metals (ICPMS) by Method 6020	WG922947	10	11/02/16 11:09	11/04/16 14:05	LAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922800	1	11/01/16 20:30	11/02/16 06:54	FMB
Semi Volatile Organic Compounds (GC) by Method NWTPHDX	WG922176	1	10/31/16 09:39	11/02/16 13:56	TRF
Wet Chemistry by Method 300.0	WG922052	1	10/29/16 12:13	10/29/16 12:13	SAM
Wet Chemistry by Method 300.0	WG922052	5	10/29/16 14:52	10/29/16 14:52	SAM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:07	11/02/16 14:07	DR

B-1-GW L869248-06 GW

Collected by: Carol Shestag | Collected date/time: 10/27/16 13:00 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:32	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:52	ST
Metals (ICPMS) by Method 6020	WG922947	10	11/02/16 11:09	11/04/16 14:08	LAT
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG922800	1	11/01/16 20:30	11/02/16 07:18	FMB
Semi Volatile Organic Compounds (GC) by Method NWTPHDX	WG922176	1	10/31/16 09:39	11/02/16 14:13	TRF
Wet Chemistry by Method 300.0	WG922052	1	10/29/16 11:59	10/29/16 11:59	SAM
Wet Chemistry by Method 300.0	WG922052	5	10/29/16 16:18	10/29/16 16:18	SAM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:09	11/02/16 14:09	DR

SW-10 L869248-07 GW

Collected by: Carol Shestag | Collected date/time: 10/28/16 10:40 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:34	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:55	ST
Metals (ICPMS) by Method 6020	WG922947	1	11/02/16 11:09	11/03/16 17:21	LAT
Wet Chemistry by Method 300.0	WG922071	1	10/29/16 23:09	10/29/16 23:09	CM
Wet Chemistry by Method 300.0	WG922071	100	10/30/16 00:07	10/30/16 00:07	CM
Wet Chemistry by Method 300.0	WG922071	5	10/29/16 23:52	10/29/16 23:52	CM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:15	11/02/16 14:15	DR

SW-11 L869248-08 GW

Collected by: Carol Shestag | Collected date/time: 10/28/16 11:05 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:42	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 15:57	ST
Metals (ICPMS) by Method 6020	WG922947	1	11/02/16 11:09	11/03/16 17:24	LAT
Wet Chemistry by Method 300.0	WG922071	1	10/30/16 00:21	10/30/16 00:21	CM
Wet Chemistry by Method 300.0	WG922071	5	10/30/16 00:36	10/30/16 00:36	CM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:17	11/02/16 14:17	DR

SW-900 L869248-09 GW

Collected by: Carol Shestag | Collected date/time: 10/28/16 00:00 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG922404	1	11/02/16 11:14	11/02/16 16:45	NJB
Metals (ICP) by Method 6010C	WG922127	1	10/31/16 08:58	10/31/16 16:00	ST

SW-900 L869248-09 GW

Collected by: Carol Shesterg
Collected date/time: 10/28/16 00:00
Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 6020	WG922947	1	11/02/16 11:09	11/03/16 17:27	LAT
Wet Chemistry by Method 300.0	WG922071	1	10/30/16 00:50	10/30/16 00:50	CM
Wet Chemistry by Method 300.0	WG922071	5	10/30/16 01:33	10/30/16 01:33	CM
Wet Chemistry by Method 350.1	WG922833	1	11/02/16 14:18	11/02/16 14:18	DR

All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford

Brian Ford
Technical Service Representative

Sample Handling and Receiving

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

ESC Sample ID	Project Sample ID	Method
L869248-03	B-4 GW	300.0
L869248-09	SW-1 GW	300.0

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	ug/l		ug/l	ug/l			
Chloride	11000		260	5000	10	10/29/2016 14:37	WG927052
Fluoride	52900		99.0	1000	10	11/03/2016 18:44	WG923169
Nitrate	U		22.7	100	1	10/29/2016 12:28	WG922052

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	ug/l		ug/l	ug/l			
Ammonia Nitrogen	516		38.0	250	1	11/02/2016 14:01	WG922833

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	ug/l		ug/l	ug/l			
Mercury	0.338		0.0490	0.200	1	11/02/2016 16:19	WG922404

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	ug/l		ug/l	ug/l			
Arsenic	64.0		6.50	10.0	1	10/30/2016 15:32	WG922127
Barium	325		1.70	5.00	1	10/30/2016 15:32	WG922127
Cadmium	U		0.700	2.00	1	10/30/2016 15:32	WG922127
Chromium	44.3		1.40	10.0	1	10/30/2016 15:32	WG922127
Lead	40.3		1.90	5.00	1	10/30/2016 15:32	WG922127
Selenium	U		7.40	10.0	1	10/30/2016 15:32	WG922127
Silver	U		2.80	5.00	1	10/30/2016 15:32	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	ug/l		ug/l	ug/l			
Aluminum	43500		2.00	100	1	11/03/2016 16:56	WG922937

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	ug/l		ug/l	ug/l			
Diesel Range Organics (DRO)	U		82.5	250	1	11/01/2016 17:06	WG922176
Residual Range Organics (RRO)	U		165	500	1	11/01/2016 17:06	WG922176
(S) o-Terphenyl	*127*			*50.0-150*		*11/01/2016 17:06*	WG922176

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	ug/l		ug/l	ug/l			
Anthracene	U		0.0280	0.100	2	11/02/2016 05:21	WG922800
Acenaphthene	U		0.0200	0.100	2	11/02/2016 05:21	WG922800
Acenaphthylene	U		0.0240	0.100	2	11/02/2016 05:21	WG922800
Benzo(a)anthracene	U		0.00820	0.100	2	11/02/2016 05:21	WG922800
Benzo(a)pyrene	U		0.0232	0.100	2	11/02/2016 05:21	WG922800
Benzo(b)fluoranthene	U		0.00424	0.100	2	11/02/2016 05:21	WG922800
Benzo(g,h,i)perylene	U		0.00454	0.100	2	11/02/2016 05:21	WG922800
Benzo(k)fluoranthene	U		0.0272	0.100	2	11/02/2016 05:21	WG922800
Chrysene	U		0.0216	0.100	2	11/02/2016 05:21	WG922800
Dibenz(a,h)anthracene	U		0.00792	0.100	2	11/02/2016 05:21	WG922800
Fluoranthene	U		0.0314	0.100	2	11/02/2016 05:21	WG922800
Fluorene	U		0.0170	0.100	2	11/02/2016 05:21	WG922800
Indeno(1,2,3-cd)pyrene	U		0.0296	0.100	2	11/02/2016 05:21	WG922800

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Naphthalene	U		0.0396	0.500	2	11/02/2016 05:21	WG922800
Phenanthrene	U		0.0164	0.100	2	11/02/2016 05:21	WG922800
Pyrene	U		0.0234	0.100	2	11/02/2016 05:21	WG922800
1-Methylnaphthalene	U		0.0164	0.500	2	11/02/2016 05:21	WG922800
2-Methylnaphthalene	U		0.0180	0.500	2	11/02/2016 05:21	WG922800
2-Chloronaphthalene	U		0.0129	0.500	2	11/02/2016 05:21	WG922800
(S) Nitrobenzene-d5	*45.4*			*45.1-170*		*11/02/2016 05:21*	WG922800
(S) 2-Fluorobiphenyl	*24.1*	J3		*57.7-153*		*11/02/2016 05:21*	WG922800
(S) p-Terphenyl-d14	*16.5*	J3		*53.2-156*		*11/02/2016 05:21*	WG922800

Wet Chemistry by Method 300.0

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	8970000		26000	500000	500	11/03/2016 18:55	WG922951
Fluoride	7740		9.90	100	1	10/29/2016 11:02	WG922052
Nitrate	U		22.7	100	1	10/29/2016 11:02	WG922052

Wet Chemistry by Method 350.1

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	39800		380	2500	10	11/02/2016 14:51	WG922833

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	0.0502	J	0.0490	0.200	1	11/02/2016 16:22	WG922404

Metals (ICP) by Method 6010C

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Arsenic	43.9		6.50	10.0	1	10/31/2016 15:40	WG922127
Barium	3850		1.70	5.00	1	10/31/2016 15:40	WG922127
Cadmium	U		0.700	2.00	1	10/31/2016 15:40	WG922127
Chromium	18.7		1.40	10.0	1	10/31/2016 15:40	WG922127
Lead	9.40		1.90	5.00	1	10/31/2016 15:40	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 15:40	WG922127
Silver	U		2.80	5.00	1	10/31/2016 15:40	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Aluminum	7860		2.00	100	1	11/03/2016 16:59	WG922954

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	U		82.5	250	1	11/01/2016 17:26	WG922176
Residual Range Organics (RRO)	U		165	500	1	11/01/2016 17:26	WG922176
(S) o-Terphenyl	*93.8*			*50.0-150*		*11/01/2016 17:26*	WG922176

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Anthracene	U		0.0280	0.100	2	11/02/2016 05:44	WG922600
Acenaphthene	U		0.0200	0.100	2	11/02/2016 05:44	WG922600
Acenaphthylene	U		0.0240	0.100	2	11/02/2016 05:44	WG922600
Benzo(a)anthracene	U		0.00820	0.100	2	11/02/2016 05:44	WG922600
Benzo(a)pyrene	U		0.0232	0.100	2	11/02/2016 05:44	WG922600
Benzo(b)fluoranthene	U		0.00424	0.100	2	11/02/2016 05:44	WG922600
Benzo(g,h,i)perylene	U		0.00454	0.100	2	11/02/2016 05:44	WG922600
Benzo(k)fluoranthene	U		0.0272	0.100	2	11/02/2016 05:44	WG922600
Chrysene	U		0.0216	0.100	2	11/02/2016 05:44	WG922600
Dibenz[a,h]anthracene	U		0.00792	0.100	2	11/02/2016 05:44	WG922600
Fluoranthene	U		0.0314	0.100	2	11/02/2016 05:44	WG922600
Fluorene	U		0.0170	0.100	2	11/02/2016 05:44	WG922600
Indeno[1,2,3-cd]pyrene	U		0.0296	0.100	2	11/02/2016 05:44	WG922600

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Naphthalene	U		0.0396	0.500	2	11/02/2016 05:44	WG922800
Phenanthrene	U		0.0164	0.100	2	11/02/2016 05:44	WG922800
Pyrene	U		0.0234	0.100	2	11/02/2016 05:44	WG922800
1-Methylnaphthalene	U		0.0164	0.500	2	11/02/2016 05:44	WG922800
2-Methylnaphthalene	U		0.0180	0.500	2	11/02/2016 05:44	WG922800
2-Chloronaphthalene	U		0.0129	0.500	2	11/02/2016 05:44	WG922800
(S) Nitrobenzene-d5	*97.1*			*45.1-170*		*11/02/2016 05:44*	WG922800
(S) 2-Fluorobiphenyl	*71.9*			*57.7-153*		*11/02/2016 05:44*	WG922800
(S) p-Terphenyl-d14	*59.2*			*53.2-156*		*11/02/2016 05:44*	WG922800

Wet Chemistry by Method 300.0

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	69000		260	5000	5	10/30/2016 19:10	WG922709
Fluoride	5090		9.90	100	1	10/29/2016 12:42	WG922052
Nitrate	363	J	22.7	100	1	10/29/2016 12:42	WG922052

10/27/16 9:30

Wet Chemistry by Method 350.1

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	4150		38.0	250	1	11/02/2016 14:04	WG922833

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	0.0681	J	0.0480	0.200	1	11/02/2016 16:24	WG922404

Metals (ICP) by Method 6010C

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Arsenic	65.9		6.50	10.0	1	10/31/2016 15:43	WG922127
Barium	676		1.70	5.00	1	10/31/2016 15:43	WG922127
Cadmium	1.56	J	0.700	2.00	1	10/31/2016 15:43	WG922127
Chromium	108		1.40	10.0	1	10/31/2016 15:43	WG922127
Lead	26.5		1.90	5.00	1	10/31/2016 15:43	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 15:43	WG922127
Silver	U		2.80	5.00	1	10/31/2016 15:43	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Aluminum	363000		20.0	1000	10	11/04/2016 14:02	WG922647

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	U		82.5	250	1	11/01/2016 17:45	WG922176
Residual Range Organics (RRO)	U		165	500	1	11/01/2016 17:45	WG922176
(S) o-Terphenyl	*73*			*50.0-150*		*11/01/2016 17:45*	WG922176

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Anthracene	U		0.0280	0.100	2	11/02/2016 06:08	WG922800
Acenaphthene	U		0.0200	0.100	2	11/02/2016 06:08	WG922800
Acenaphthylene	U		0.0240	0.100	2	11/02/2016 06:08	WG922800
Benzo(a)anthracene	U		0.00820	0.100	2	11/02/2016 06:08	WG922800
Benzo(a)pyrene	U		0.0232	0.100	2	11/02/2016 06:08	WG922800
Benzo(b)fluoranthene	U		0.00424	0.100	2	11/02/2016 06:08	WG922800
Benzo(g,h,i)perylene	U		0.00454	0.100	2	11/02/2016 06:08	WG922800
Benzo(k)fluoranthene	U		0.0272	0.100	2	11/02/2016 06:08	WG922800
Chrysene	U		0.0216	0.100	2	11/02/2016 06:08	WG922800
Dibenz(a,h)anthracene	U		0.00792	0.100	2	11/02/2016 06:08	WG922800
Fluoranthene	U		0.0314	0.100	2	11/02/2016 06:08	WG922800
Fluorene	U		0.0170	0.100	2	11/02/2016 06:08	WG922800
Indeno(1,2,3-cd)pyrene	U		0.0296	0.100	2	11/02/2016 06:08	WG922800

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Naphthalene	U		0.0395	0.500	2	11/02/2016 06:08	WG922800
Phenanthrene	U		0.0164	0.100	2	11/02/2016 06:08	WG922800
Pyrene	U		0.0234	0.100	2	11/02/2016 06:08	WG922800
1-Methylnaphthalene	U		0.0164	0.500	2	11/02/2016 06:08	WG922800
2-Methylnaphthalene	U		0.0180	0.500	2	11/02/2016 06:08	WG922800
2-Chloronaphthalene	U		0.0129	0.500	2	11/02/2016 06:08	WG922800
(S) Nitrobenzene-d5	*71.6*			*45.1-170*		*11/02/2016 06:08*	WG922800
(S) 2-Fluorobiphenyl	*39.8*	J2		*57.7-153*		*11/02/2016 06:08*	WG922800
(S) p-Terphenyl-d14	*29.5*	J2		*53.2-156*		*11/02/2016 06:08*	WG922800

Wet Chemistry by Method 300.0

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	341000		260	5000	5	10/29/2016 16:04	WG922052
Fluoride	496		9.90	100	1	10/29/2016 11:16	WG922052
Nitrate	55.6	J	22.7	100	1	10/29/2016 11:16	WG922052

Wet Chemistry by Method 350.1

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	7030		38.0	250	1	11/02/2016 14:06	WG922833

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	U		0.0490	0.200	1	11/02/2016 16:27	WG922404

Metals (ICP) by Method 6010C

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Arsenic	33.8		6.50	10.0	1	10/31/2016 15:46	WG922127
Barium	164		1.70	5.00	1	10/31/2016 15:46	WG922127
Cadmium	U		0.700	2.00	1	10/31/2016 15:46	WG922127
Chromium	15.4		1.40	10.0	1	10/31/2016 15:46	WG922127
Lead	6.73		1.90	5.00	1	10/31/2016 15:46	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 15:46	WG922127
Silver	U		2.80	5.00	1	10/31/2016 15:46	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Aluminum	1000		2.00	100	1	11/03/2016 17:12	WG922081

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	235	J	82.5	250	1	11/02/2016 13:40	WG922176
Residual Range Organics (RRO)	U		165	500	1	11/02/2016 13:40	WG922176
(S) o-Terphenyl	*121*			*50.0-150*		*11/02/2016 13:40*	WG922176

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Anthracene	U		0.0280	0.100	2	11/02/2016 06:31	WG922800
Acenaphthene	0.459		0.0200	0.100	2	11/02/2016 06:31	WG922800
Acenaphthylene	0.0735	J	0.0240	0.100	2	11/02/2016 06:31	WG922800
Benzo(a)anthracene	U		0.00820	0.100	2	11/02/2016 06:31	WG922800
Benzo(a)pyrene	U		0.0232	0.100	2	11/02/2016 06:31	WG922800
Benzo(b)fluoranthene	U		0.00424	0.100	2	11/02/2016 06:31	WG922800
Benzo(g,h,i)perylene	U		0.00454	0.100	2	11/02/2016 06:31	WG922800
Benzo(k)fluoranthene	U		0.0272	0.100	2	11/02/2016 06:31	WG922800
Chrysene	U		0.0216	0.100	2	11/02/2016 06:31	WG922800
Dibenz(a,h)anthracene	U		0.00792	0.100	2	11/02/2016 06:31	WG922800
Fluoranthene	U		0.0314	0.100	2	11/02/2016 06:31	WG922800
Fluorene	0.483		0.0170	0.100	2	11/02/2016 06:31	WG922800
Indeno(1,2,3-cd)pyrene	U		0.0296	0.100	2	11/02/2016 06:31	WG922800

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Naphthalene	0.614		0.0396	0.500	2	11/02/2016 06:31	WG922600
Phenanthrene	0.0249	J	0.0164	0.100	2	11/02/2016 06:31	WG922600
Pyrene	U		0.0234	0.100	2	11/02/2016 06:31	WG922600
1-Methylnaphthalene	2.38		0.0164	0.500	2	11/02/2016 06:31	WG922600
2-Methylnaphthalene	0.226	J	0.0180	0.500	2	11/02/2016 06:31	WG922600
2-Chloronaphthalene	U		0.0129	0.500	2	11/02/2016 06:31	WG922600
(S) Nitrobenzene-d5	*108*			*45.1-170*		*11/02/2016 06:31*	WG922600
(S) 2-Fluorobiphenyl	*86.5*			*57.7-153*		*11/02/2016 06:31*	WG922600
(S) p-Terphenyl-d14	*86.7*			*53.2-156*		*11/02/2016 06:31*	WG922600

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	ug/l		ug/l	ug/l			
Chloride	177000		260	5000	5	10/29/2016 14:52	WG922052
Fluoride	850		9.90	100	1	10/29/2016 12:13	WG922052
Nitrate	177		22.7	100	1	10/29/2016 12:13	WG922052

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	ug/l		ug/l	ug/l			
Ammonia Nitrogen	4570		38.0	250	1	11/02/2016 14:07	WG922833

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	ug/l		ug/l	ug/l			
Mercury	0.234		0.0480	0.200	1	11/02/2016 16:29	WG922404

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	ug/l		ug/l	ug/l			
Arsenic	45.2		6.50	10.0	1	10/31/2016 15:49	WG922127
Barium	590		1.70	5.00	1	10/31/2016 15:49	WG922127
Cadmium	1.50	J	0.700	2.00	1	10/31/2016 15:49	WG922127
Chromium	124		1.40	10.0	1	10/31/2016 15:49	WG922127
Lead	49.3		1.90	5.00	1	10/31/2016 15:49	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 15:49	WG922127
Silver	U		2.80	5.00	1	10/31/2016 15:49	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	ug/l		ug/l	ug/l			
Aluminum	159000		20.0	1000	10	11/04/2016 14:05	WG922947

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	ug/l		ug/l	ug/l			
Diesel Range Organics (DRO)	U		82.5	250	1	11/02/2016 13:56	WG922175
Residual Range Organics (RRO)	U		165	500	1	11/02/2016 13:56	WG922175
(S) o-Terphenyl	*125*			*50.0-150*		*11/02/2016 13:56*	WG922175

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	ug/l		ug/l	ug/l			
Anthracene	U		0.0140	0.0500	1	11/02/2016 06:54	WG922800
Acenaphthene	U		0.0100	0.0500	1	11/02/2016 06:54	WG922800
Acenaphthylene	U		0.0120	0.0500	1	11/02/2016 06:54	WG922800
Benzo(a)anthracene	U		0.00410	0.0500	1	11/02/2016 06:54	WG922800
Benzo(a)pyrene	U		0.0116	0.0500	1	11/02/2016 06:54	WG922800
Benzo(b)fluoranthene	U		0.00212	0.0500	1	11/02/2016 06:54	WG922800
Benzo(g,h,i)perylene	U		0.00227	0.0500	1	11/02/2016 06:54	WG922800
Benzo(k)fluoranthene	U		0.0136	0.0500	1	11/02/2016 06:54	WG922800
Chrysene	U		0.0108	0.0500	1	11/02/2016 06:54	WG922800
Dibenz(a,h)anthracene	U		0.00396	0.0500	1	11/02/2016 06:54	WG922800
Fluoranthene	U		0.0157	0.0500	1	11/02/2016 06:54	WG922800
Fluorene	U		0.00850	0.0500	1	11/02/2016 06:54	WG922800
Indeno(1,2,3-cd)pyrene	U		0.0148	0.0500	1	11/02/2016 06:54	WG922800

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Naphthalene	0.0429	J	0.0398	0.250	1	11/02/2016 06:54	WG922800
Phenanthrene	U		0.00820	0.0500	1	11/02/2016 06:54	WG922800
Pyrene	U		0.0117	0.0500	1	11/02/2016 06:54	WG922800
1-Methylnaphthalene	0.0167	J	0.00821	0.250	1	11/02/2016 06:54	WG922800
2-Methylnaphthalene	0.0165	J	0.00902	0.250	1	11/02/2016 06:54	WG922800
2-Chloronaphthalene	U		0.00647	0.250	1	11/02/2016 06:54	WG922800
(S) Nitrobenzene-d5	*112*			*46.1-170*		*11/02/2016 06:54*	WG922800
(S) 2-Fluorobiphenyl	*84.3*			*57.1-153*		*11/02/2016 06:54*	WG922800
(S) p-Terphenyl-d14	*72.9*			*51.2-156*		*11/02/2016 06:54*	WG922800

Wet Chemistry by Method 300.0

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	265000		260	5000	5	10/29/2016 16:18	WG922052
Fluoride	428		9.90	100	1	10/29/2016 11:59	WG922052
Nitrate	488		22.7	100	1	10/29/2016 11:59	WG922052

Wet Chemistry by Method 350.1

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	4070		38.0	250	1	11/02/2016 14:09	WG922833

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	0.0726	J	0.0490	0.200	1	11/02/2016 16:32	WG922404

Metals (ICP) by Method 6010C

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Arsenic	68.6		6.50	10.0	1	10/31/2016 15:52	WG922127
Barium	608		1.70	5.00	1	10/31/2016 15:52	WG922127
Cadmium	1.13	J	0.700	2.00	1	10/31/2016 15:52	WG922127
Chromium	86.6		1.40	10.0	1	10/31/2016 15:52	WG922127
Lead	41.9		1.90	5.00	1	10/31/2016 15:52	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 15:52	WG922127
Silver	U		2.80	5.00	1	10/31/2016 15:52	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Aluminum	151000		20.0	1000	10	11/04/2016 14:08	WG922943

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	160	J	82.5	250	1	11/02/2016 14:13	WG922176
Residual Range Organics (RRO)	U		165	500	1	11/02/2016 14:13	WG922176
(S) o-Terphenyl	*119*			*50.0-150*		*11/02/2016 14:13*	WG922176

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Anthracene	U		0.0140	0.0500	1	11/02/2016 07:18	WG922800
Acenaphthene	0.112		0.0100	0.0500	1	11/02/2016 07:18	WG922800
Acenaphthylene	0.0136	J	0.0120	0.0500	1	11/02/2016 07:18	WG922800
Benzo(a)anthracene	U		0.00410	0.0500	1	11/02/2016 07:18	WG922800
Benzo(a)pyrene	0.0812		0.0116	0.0500	1	11/02/2016 07:18	WG922800
Benzo(b)fluoranthene	U		0.00212	0.0500	1	11/02/2016 07:18	WG922800
Benzo(g,h,i)perylene	U		0.00227	0.0500	1	11/02/2016 07:18	WG922800
Benzo(k)fluoranthene	U		0.0136	0.0500	1	11/02/2016 07:18	WG922800
Chrysene	U		0.0108	0.0500	1	11/02/2016 07:18	WG922800
Dibenz(a,h)anthracene	U		0.00396	0.0500	1	11/02/2016 07:18	WG922800
Fluoranthene	U		0.0157	0.0500	1	11/02/2016 07:18	WG922800
Fluorene	0.0431	J	0.00850	0.0500	1	11/02/2016 07:18	WG922800
Indeno(1,2,3-cd)pyrene	U		0.0148	0.0500	1	11/02/2016 07:18	WG922800

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Naphthalene	0.157	J	0.0498	0.250	1	11/02/2016 07:18	WG922800
Phenanthrene	0.0124	J	0.00820	0.0500	1	11/02/2016 07:18	WG922800
Pyrene	U		0.0117	0.0500	1	11/02/2016 07:18	WG922800
1-Methylnaphthalene	0.147	J	0.00821	0.250	1	11/02/2016 07:18	WG922800
2-Methylnaphthalene	0.0585	J	0.00902	0.250	1	11/02/2016 07:18	WG922800
2-Chloronaphthalene	U		0.00647	0.250	1	11/02/2016 07:18	WG922800
(S) Nitrobenzene-d5	*111*			*45.1-170*		*11/02/2016 07:18*	WG922800
(S) 2-Fluorobiphenyl	*86.2*			*57.7-153*		*11/02/2016 07:18*	WG922800
(S) p-Terphenyl-d14	*87.8*			*53.2-156*		*11/02/2016 07:18*	WG922800

Wet Chemistry by Method 300.0

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	370000		260	5000	5	10/30/2016 00:36	WG922071
Fluoride	417.0		9.90	100	1	10/30/2016 00:21	WG922071
Nitrate	288	J B	22.7	100	1	10/30/2016 00:21	WG922071

Wet Chemistry by Method 350.1

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	67.0	J	38.0	250	1	11/02/2016 14:47	WG922633

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	U		0.0490	0.200	1	11/02/2016 16:42	WG922404

Metals (ICP) by Method 6010C

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Arsenic	U		6.50	10.0	1	10/31/2016 15:57	WG922127
Barium	15.5		1.70	5.00	1	10/31/2016 15:57	WG922127
Cadmium	U		0.700	2.00	1	10/31/2016 15:57	WG922127
Chromium	1.41	J	1.40	10.0	1	10/31/2016 15:57	WG922127
Lead	2.00	J	1.90	5.00	1	10/31/2016 15:57	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 15:57	WG922127
Silver	U		2.80	5.00	1	10/31/2016 15:57	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Aluminum	516	J	2.71	100	1	11/03/2016 17:24	WG923347

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
[illegible]	1040000		5190	100000	100	10/30/2016 00:07	WG922107
Fluoride	6630		9.90	100	1	10/29/2016 23:09	WG922021
[illegible]	10200		114	500	5	10/29/2016 23:52	WG922021

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ammonia Nitrogen	2680		38.0	250	1	11/02/2016 14:15	WG922833

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	U		0.0490	0.200	1	11/02/2016 16:34	WG922404

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	U		6.50	10.0	1	10/31/2016 16:55	WG922127
Barium	481		1.70	5.00	1	10/31/2016 16:55	WG922127
Cadmium	2.13		0.700	2.00	1	10/31/2016 16:55	WG922127
Chromium	1.91	J	1.40	10.0	1	10/31/2016 16:55	WG922127
Lead	U		1.90	5.00	1	10/31/2016 16:55	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 16:55	WG922127
Silver	U		2.80	5.00	1	10/31/2016 16:55	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
[illegible]	730		2.00	100	1	11/03/2016 17:21	WG922447

Wet Chemistry by Method 300.0

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	387000		260	5000	5	10/30/2016 01:33	WG922071
Fluoride	4210		9.90	100	1	10/30/2016 00:50	WG922071
Nitrate	288	J	22.7	100	1	10/30/2016 00:50	WG922071

10/28/16 0:00

Wet Chemistry by Method 350.1

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	60.0	J	38.0	250	1	11/02/2016 14:18	WG922830

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	U		0.0490	0.200	1	11/02/2016 16:45	WG922404

Metals (ICP) by Method 6010C

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Arsenic	U		6.50	10.0	1	10/31/2016 16:00	WG922127
Barium	144		1.70	5.00	1	10/31/2016 16:00	WG922127
Cadmium	U		0.700	2.00	1	10/31/2016 16:00	WG922127
Chromium	U		1.40	10.0	1	10/31/2016 16:00	WG922127
Lead	U		1.90	5.00	1	10/31/2016 16:00	WG922127
Selenium	U		7.40	10.0	1	10/31/2016 16:00	WG922127
Silver	U		2.80	5.00	1	10/31/2016 16:00	WG922127

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Aluminum	373	J	2.00	100	1	11/03/2016 17:27	WG922947

potentially affected samples:
B-6-GW cl = 111000 n/a - >10x blank contamination
B-3-GW cl = 341000 n/a - >10x blank contamination.
B-2-EW cl = 177000 n/a - >10x blank contamination
B-1-GW cl = 265000 n/a - >10x blank contamination.
NO QUALIFIERS NEEDED

Method Blank (MB)

(MB) R3174914-1 10/29/16 08:51

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Chloride	182	J	519	1000
Fluoride	U		9.90	100
Nitrate	U		22.7	100

L868248-03 Original Sample (OS) • Duplicate (DUP)

(OS) L869248-03 10/29/16 12:42 • (DUP) R3174914-4 10/29/16 13:54

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Fluoride	5090	5220	1	3		20
Nitrate	363	370	1	2		20

L869236-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869236-01 10/29/16 15:06 • (DUP) R3174914-7 10/29/16 15:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	6390	6390	1	0		20
Fluoride	27.4	27.0	1	0	J	20
Nitrate	216	207	1	4		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3174914-2 10/29/16 09:05 • (LCSD) R3174914-3 10/29/16 09:20

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Chloride	40000	39200	39300	98	98	90-110			0	20
Fluoride	8000	8210	8230	103	103	90-110			0	20
Nitrate	8000	8500	8540	106	107	90-110			1	20

L869248-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869248-06 10/29/16 11:59 • (MS) R3174914-5 10/29/16 15:21 • (MSD) R3174914-6 10/29/16 15:35

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Fluoride	5000	423	5570	5640	103	104	1	80-120			1	20
Nitrate	5000	488	5660	5820	103	107	1	80-120			3	20

WG922071

Wet Chemistry by Method 300.0

QUALITY CONTROL SUMMARY

L869248-07,08,09

ONE LAB. NATIONWIDE.

*QUALIFIERS

potentially affected samples:

SW10 cl = 8940000, Nitrate = 10200 - n/a - >10x blank contam.

SW11 cl = 379000, nitrate = 388 qualify w/ J
6 n/a >10x blank

SW900 - cl = 367000 - n/a - >10x blank
- nitrate = 388 qualify w/J

Method Blank (MB)

(MB) R3174635-2 10/29/16 20:02

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chloride	167	J	51.9	1000
Fluoride	U		9.90	100
Nitrate	36.0	J	22.7	100

L869236-03 Original Sample (OS) • Duplicate (DUP)

(OS) L869236-03 10/29/16 21:28 • (DUP) R3174635-5 10/29/16 21:43

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	5470	5590	1	2		20
Fluoride	31.1	31.6	1	2	J	20
Nitrate	1220	1200	1	2		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3174635-3 10/29/16 20:16 • (LCSD) R3174635-4 10/29/16 20:31

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	40000	40000	39400	100	99	90-110			1	20
Fluoride	8000	8330	8300	104	104	90-110			0	20
Nitrate	8000	8740	8630	109	108	90-110			1	20

L869272-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L869272-01 10/29/16 23:24 • (MS) R3174635-6 10/29/16 23:38

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	17400	65700	97	1	80-120	
Fluoride	5000	720	5560	97	1	80-120	

potentially affected samples:
B-5-GW cl = 8970000 n/a >10x blank contamination
B-4-GW cl = 109000 n/a >10x blank contamination

NO QUALIFIERS

Method Blank (MB)

(MB) R3175800-1 11/03/16 10:43

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chloride	28.8	J	519	1000
Fluoride	U		9.90	100

L869377-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869377-01 11/03/16 13:53 • (DUP) R3175800-4 11/03/16 14:07

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	47300	47300	1	0		20
Fluoride	230	208	1	10		20

L869243-02 Original Sample (OS) • Duplicate (DUP)

(OS) L869243-02 11/03/16 18:12 • (DUP) R3175800-6 11/03/16 18:26

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	48700	47700	5	2		20
Fluoride	ND	430	5	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175800-2 11/03/16 10:58 • (LCSD) R3175800-3 11/03/16 11:12

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	40000	38300	38400	96	96	90-110			0	20
Fluoride	8000	7810	7800	98	97	90-110			0	20

L869295-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L869295-11 11/03/16 16:17 • (MS) R3175800-5 11/03/16 16:31

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Fluoride	5000	80.9	4900	96	1	80-120	

L869377-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869377-07 11/03/16 21:05 • (MS) R3175800-7 11/03/16 21:19 • (MSD) R3175800-8 11/03/16 21:34

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	44800	93000	93200	96	97	1	80-120			0	20
Fluoride	5000	220	5040	5050	96	97	1	80-120			0	20

Method Blank (MB)

(MB) R3175481-2 11/02/16 13:39

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	ug/l		ug/l	ug/l
Ammonia Nitrogen	U		38.0	250

L868976-01 Original Sample (OS) • Duplicate (DUP)

(OS) L868976-01 11/02/16 13:47 • (DUP) R3175481-5 11/02/16 13:48

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Ammonia Nitrogen	ND	0.000	1	0		20

L869245-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869245-01 11/02/16 14:47 • (DUP) R3175481-9 11/02/16 14:49

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Ammonia Nitrogen	43800	43700	10	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175481-3 11/02/16 13:40 • (LCSD) R3175481-4 11/02/16 13:42

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	%	%	%			%	%
Ammonia Nitrogen	7500	7040	7110	94	95	90-110			1	20

L869242-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L869242-01 11/02/16 13:50 • (MS) R3175481-6 11/02/16 13:52

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	ug/l	ug/l	ug/l	%		%	
Ammonia Nitrogen	10000	ND	9430	94	1	90-110	

L869250-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869250-01 11/02/16 14:20 • (MS) R3175481-7 11/02/16 14:22 • (MSD) R3175481-8 11/02/16 14:23

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Ammonia Nitrogen	10000	ND	9680	9640	97	96	1	90-110			0	20

Method Blank (MB)

(MB) R3175355-1 11/02/16 15:28

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Mercury	U		0.0490	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175355-2 11/02/16 15:31 • (LCSD) R3175355-6 11/02/16 17:11

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Mercury	3.00	2.78	2.75	93	92	80-120			1	20

L868992-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L868992-04 11/02/16 15:44 • (MS) R3175355-4 11/02/16 15:46 • (MSD) R3175355-5 11/02/16 15:49

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Mercury	3.00	ND	2.80	2.85	93	95	1	75-125			2	20

Method Blank (MB)

(MB) R3174805-7 10/31/16 15:08

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Arsenic	U		5.50	10.0
Barium	U		1.70	5.00
Cadmium	U		0.700	2.00
Chromium	U		3.40	10.0
Lead	U		1.90	5.00
Selenium	U		7.40	10.0
Silver	U		2.60	5.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3174805-8 10/31/16 15:11 • (LCSD) R3174805-9 10/31/16 15:13

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	1000	1010	991	101	99	80-120			2	20
Barium	1000	1030	1010	103	101	80-120			2	20
Cadmium	1000	1010	990	101	99	80-120			2	20
Chromium	1000	1010	982	101	98	80-120			3	20
Lead	1000	1010	990	101	99	80-120			2	20
Selenium	1000	1030	1010	103	101	80-120			2	20
Silver	1000	989	962	99	96	80-120			3	20

L869396-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869396-06 10/31/16 15:16 • (MS) R3174805-11 10/31/16 15:21 • (MSD) R3174805-12 10/31/16 15:24

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	1000	U	1000	1010	100	101	1	75-125			0	20
Barium	1000	12.1	1020	1030	101	102	1	75-125			0	20
Cadmium	1000	U	1010	1010	101	101	1	75-125			0	20
Chromium	1000	U	990	988	99	99	1	75-125			0	20
Lead	1000	2.37	998	998	100	100	1	75-125			0	20
Selenium	1000	U	1020	1030	102	103	1	75-125			1	20
Silver	1000	U	973	978	97	98	1	75-125			1	20

Metals (ICPMS) by Method 6020

Method Blank (MB)

(MB) R3175780-1 11/03/16 15:54

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Aluminum	8.45	(J)	2.00	100

potentially affected samples:
B-6-GW Al = 43500 n/a >10x blank contamination
B-5-GW Al = 7850 n/a >10x blank contamination
B-4-GW Al = 363000 n/a >10x blank contamination
B-3-GW Al = 11000 n/a >10x blank contamination
B-2-GW Al = 151000 n/a >10x blank contamination

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175780-2 11/03/16 15:57 • (LCSD) R3175780-3 11/03/16 16:00

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Aluminum	5000	5340	5320	107	106	80-120			0	20

L868992-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L868992-04 11/03/16 16:04 • (MS) R3175780-5 11/03/16 16:10 • (MSD) R3175780-6 11/03/16 16:13

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	5000	ND	5150	5290	102	105	1	75-125			3	20

B-1-GW Al = 151000 n/a >10x blank contamination
SW-10 Al = 730 >10x blank contamination
SW-11 Al = 618 >10x blank contamination
SW-900 Al = 373 >10x blank contamination

all results are >10x blank contamination
→ NO QUALIFIERS NEEDED

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Method Blank (MB)

(MB) R3175291-1 11/01/16 11:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Diesel Range Organics (DRO)	U		83.3	250
Residual Range Organics (RRO)	U		167	500
(S) o-Terphenyl	117			*64.0-146*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175291-2 11/01/16 11:25 • (LCSD) R3175291-3 11/01/16 11:44

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Diesel Range Organics (DRO)	750	938	962	125	128	50.0-150			2.58	20
Residual Range Organics (RRO)	750	804	795	107	106	50.0-150			1.12	20
(S) o-Terphenyl				*121*	*118*	*64.0-146*				

Method Blank (MB)

(MB) R3175309-3 11/02/16 04:35

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Anthracene	U		0.0140	0.0500
Acenaphthene	U		0.0100	0.0500
Acenaphthylene	U		0.0120	0.0500
Benzo(a)anthracene	U		0.00410	0.0500
Benzo(a)pyrene	U		0.0116	0.0500
Benzo(b)fluoranthene	U		0.00212	0.0500
Benzo(g,h,i)perylene	U		0.00227	0.0500
Benzo(k)fluoranthene	U		0.0136	0.0500
Chrysene	U		0.0108	0.0500
Dibenz(a,h)anthracene	U		0.00396	0.0500
Fluoranthene	U		0.0157	0.0500
Fluorene	U		0.00850	0.0500
Indeno(1,2,3-cd)pyrene	U		0.0148	0.0500
Naphthalene	U		0.0198	0.250
Phenanthrene	U		0.00820	0.0500
Pyrene	U		0.0117	0.0500
1-Methylnaphthalene	U		0.00821	0.250
2-Methylnaphthalene	U		0.00902	0.250
2-Chloronaphthalene	U		0.00647	0.250
(S) Nitrobenzene-d5	*112*			*45.1-170*
(S) 2-Fluorobiphenyl	*94.2*			*57.7-153*
(S) p-Terphenyl-d14	*95.2*			*53.2-156*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175309-1 11/02/16 03:48 • (LCSD) R3175309-2 11/02/16 04:11

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	2.00	2.09	2.07	105	103	68.9-153			1.24	20
Acenaphthene	2.00	2.12	2.05	106	102	67.7-141			3.26	20
Acenaphthylene	2.00	2.05	1.96	103	98.0	66.9-141			4.49	20
Benzo(a)anthracene	2.00	1.94	1.91	97.0	95.4	63.1-147			1.69	20
Benzo(a)pyrene	2.00	2.05	1.99	103	99.7	62.2-150			2.82	20
Benzo(b)fluoranthene	2.00	2.01	2.00	100	100	58.4-148			0.0500	20
Benzo(g,h,i)perylene	2.00	1.92	1.88	96.1	93.8	57.4-152			2.33	20
Benzo(k)fluoranthene	2.00	2.08	2.01	104	100	60.5-154			3.45	20
Chrysene	2.00	2.13	2.06	106	103	64.8-155			3.26	20
Dibenz(a,h)anthracene	2.00	1.91	1.85	95.3	92.7	53.5-153			2.70	20
Fluoranthene	2.00	1.97	1.93	98.5	96.4	68.6-153			2.20	20

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM L869248-01,02,03,04,05,06

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175309-1 11/02/16 03:48 • (LCSD) R3175309-2 11/02/16 04:11

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	2.00	1.84	1.77	92.1	88.7	67.3-141			3.81	20
Indeno(1,2,3-cd)pyrene	2.00	1.95	1.88	97.6	94.2	57.0-155			3.52	20
Naphthalene	2.00	2.10	2.04	105	102	66.7-135			2.53	20
Phenanthrene	2.00	2.19	2.12	109	106	64.3-143			3.03	20
Pyrene	2.00	2.31	2.21	115	110	60.2-154			4.46	20
1-Methylnaphthalene	2.00	2.00	1.94	100	97.2	68.3-144			3.10	20
2-Methylnaphthalene	2.00	1.84	1.78	92.2	88.9	67.6-143			3.65	20
2-Chloronaphthalene	2.00	1.95	1.88	97.3	93.9	69.7-144			3.48	20
(S) Nitrobenzene-d5				*113*	*118*	*45.1-170*				
(S) 2-Fluorobiphenyl				*94.0*	*94.5*	*57.7-153*				
(S) p-Terphenyl-d14				*94.6*	*94.7*	*53.2-156*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey-NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio-VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [14]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [1]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [1]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA - Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**

ACCOUNT	PROJECT	SDG	DATE/TIME	PAGE
Stantec- Bellevue, WA	185750123A	L869248	11/04/16 18:10	34 of 37

Stantec- Bellevue, WA 11130 NE 33rd Pl, Suite 200 Bellevue, WA 98004	Billing Information & Quote Number: Chris Gdak **Accounts Payable- Phil Haberman** 11130 NE 33rd Pl, Ste 200 Bellevue, WA 98004	Chain of Custody Page 1 of 1 ESC LAB SCIENCES 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859
Report to: ~~Blake Magnusson~~ Cyrus Gorman	Email To: Chris.Gdak@stantec.com; Cyrus.Gorman@stantec.com	L# 169243 G007
Project Description: Manzita, Phase II ESA	City/State Collected: Kent, WA	Account: STANTECBWA Template: T117073 Prelogin: P573472 TSR: 130 - Brian Fant PB:
Phone: 425-289-7374 Fax: 425-869-1190	Client Project # 185750123a	Lab Project #: STANTECBWA-KENT
Collected by (print): Carol Shestag	Site/Facility ID #	P.O. #: 185750123
Collected by (signature): Immediately Packed on Ice: N ___ Y X	Rush? (Lab MUST Be Notified) ___ Same Day ....200% ___ Next Day ....100% ___ Two Day ....50% ___ Three Day 35%	Date Results Needed Email? ___No X_Yes FAX? ___No ___Yes

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No of Cntrs	*Cl,F,NO3 by 300 125mlHDPE-NoPres	NH3 125mlHDPE-H2SO4(pH<2)	NWTPHDXLVI 40mlAmb-HCl	PAHSIMLVID 40mlAmb-NoPres-WT (2) (Luke Top)	Total RCRA8 + Al 250mlHDPE-HNO3 (red-Luke Top)						Remarks / Sample # (Lab only)
B-6-GW	Grab	GW	—	10/27/16	15:15	7	X	X	X	X	X					01	Please decant water (away from sediment) prior to analysis to minimize high turbidity / NTU. Thanks — Carol Shestag
B-5-GW	"	GW	—	"	11:10	7	X	X	X	X	X					02	
B-4-GW	"	GW	—	"	09:30	7	X	X	X	X	X					03	
B-3-GW	"	GW	—	"	12:20	7	X	X	X	X	X					04	
B-2-GW	"	GW	—	"	13:25	7	X	X	X	X	X					05	
B-1-GW	"	GW	—	"	13:00	7	X	X	X	X	X					06	
SW-10	"	~~SW~~ GW	—	10/28/16	10:40	3	X	X			X					07	
SW-11	"	~~SW~~ GW	—	"	11:05	3	X	X			X					08	
SW-900	"	~~SW~~ GW	—	"	00:00	3	X	X			X					09	
		GW															

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other _____

Remarks: *Nitrate has a 48 hour hold time.
Aluminum by method 6020.

pH _____ Temp _____
Flow _____ Other _____

Hold #

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	10/28/16	15:15	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____
Tracking #

Temp: 3.4 °C Bottles Received: 51
Date: 10/29/16 Time: 0905

Condition: (lab use only) OK JW
COC Seal Intact: ___Y ___N ✓NA
pH Checked: LL NCF:

ESC LAB SCIENCES
YOUR LAB OF CHOICE

Cooler Receipt Form

Client:	STANTECBW4	SDG#	469848
Cooler Received/Opened On: 10/29/16	Temperature Upon Receipt:		3.4 °C
Received By: Rickey Mosley			
Signature:			

Receipt Check List	Yes	No	N/A
Were custody seals on outside of cooler and intact?			✓
Were custody papers properly filled out?	✓		
Did all bottles arrive in good condition?	✓		
Were correct bottles used for the analyses requested?	✓		
Was sufficient amount of sample sent in each bottle?	✓		
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)	✓		
If applicable, was an observable VOA headspace present?			✓
Non Conformance Generated. (If yes see attached NCF)			

Andy Vann

ESC Lab Sciences
Non-Conformance Form

Login #L869248	Client: STANTECBWA	Date:10/29	Evaluated by:Matt S

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
x	Parameter(s) past holding time		Login Clarification Needed		**If Broken Container:**
	Improper temperature		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	Improper preservation		Please specify TCLP requested		Improper handling by carrier (FedEx / UPS / Couri
	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
	Broken container:		Chain of Custody is missing.		Date/Time:
	Sufficient sample remains.				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments: Nitrate OOH for B-4GW

Client informed by:		Call		Email	x	Voice Mail		Date:10/31/16	Time:1020
TSR Initials:bjf	Client Contact: Cyrus Gorman								

Login Instructions:

Proceed and qualify as needed

DATA VALIDATION WORKSHEET

GENERAL INFORMATION:

Lab Name:	ESC Lab Sciences
Lab SDG/Project/Work Order:	L869365
Project Name:	City of Kent Brownfield (Cooperative Agreement BF-00J65701) Maralco Property
Stantec Project Number:	185750123
Client:	City of Kent
Validator Name:	Kim Vik
Date of Validation:	November 18, 2016

SAMPLE INFORMATION:

Number of Samples:	3	
Matrix:	Soil/Sediment	
Number of Trip Blanks:	None	
Number of Equipment Blanks:	None	
Number of Field Duplicates *(include duplicate information)*	1 (sample SS-900 is a field duplicate of sample SS-2).	
Date of Sample Collection:	October 28, 2016	
Sample:	**Analyses:**	**Batch:**
SS-1	Mercury (Method 7470A)	WG922674
	ICP Metals (Method 6010C)	WG922544
	ICPMS Metals (Method 6020)	WG922239
	Total Solids (Method 2540 G-2011)	WG922653
	Wet Chemistry (Method 350.1)	WG922902
	Wet Chemistry (Method 9056A)	WG923165
	Wet Chemistry (Method 9056A)	WG923852
SS-2	Mercury (Method 7470A)	WG922674
	ICP Metals (Method 6010C)	WG922544
	ICPMS Metals (Method 6020)	WG922239
	Total Solids (Method 2540 G-2011)	WG922653
	Wet Chemistry (Method 350.1)	WG922902
	Wet Chemistry (Method 9056A)	WG923165
	Wet Chemistry (Method 9056A)	WG923165
SS-900 (*duplicate of SS-2*)	Mercury (Method 7470A)	WG922674
	ICP Metals (Method 6010C)	WG922544
	ICPMS Metals (Method 6020)	WG922239
	Total Solids (Method 2540 G-2011)	WG922653
	Wet Chemistry (Method 350.1)	WG922902
	Wet Chemistry (Method 9056A)	WG923165
	Wet Chemistry (Method 9056A)	WG923165

GENERAL DATA VALIDATION:

Chain of Custody:
All requested analyses were performed per the COC.

Holding Times:
All analyses were run within the required holding times. No qualifiers are needed.

Trip Blank Review:
No trip blanks were submitted with this SDG. No volatile analyses were included in this SDG.

Surrogates:
All sample surrogates are within control. No qualifiers are needed.

QC Surrogates:
All QC surrogates were within control.

Lab Notes:
None.

Elevated Reporting Limits:
Fluoride (Method 9056A) analysis was run at a 5x dilution for sample SS-1 and at a 20x dilution for samples SS-2 and SS-900. Chloride (Method 9056A) was also run at a 20x dilution for samples SS-2 and SS-900. Aluminum (Method 6020) was run at a 5x dilution for all three samples. As a result of the dilutions, the reporting limits for these samples and analytes were elevated.

PER ANALYSES:

Total Solids, *Method 2540 G-2011* (Batch: WG922653)

Method Blanks:
Total Solids method blank result was 0.00110%. No qualifiers are needed.

Lab Duplicates:
The relative percent difference (RPD) between the original sample and the lab duplicate sample was within the control limit of 5%. No qualifiers are needed.

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD):
The LCS percent recovery was within the acceptance limits. An LCSD sample was not run. No qualifiers are needed.

Wet Chemistry: Ammonia Nitrogen, *Method 350.1* (Batch: WG922902)

Method Blank:
Ammonia nitrogen was not detected above the Method Detection Limit (MDL) in the laboratory method blank. No qualifiers are needed.

Lab Duplicates:
Two laboratory duplicates were run. The RPDs between the original samples and the lab duplicate samples were within the control limit of 20%. No qualifiers are needed.

LCS/LCSD:
The LCS and LCSD percent recoveries were within the specified acceptance limits. The RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.

Matrix Spike/Matrix Spike Duplicate (MS/MSD): The MS and MSD percent recoveries were within the specified acceptance limits. The RPD between the MS and MSD was within the control limit of 20%. No qualifiers are needed.
Wet Chemistry: Chloride, Fluoride, Nitrate, *Method 9056A* (Batches: WG923165, WG923852)
Method Blanks: No analytes were detected above the MDL in the laboratory method blank in either batch. No qualifiers are needed.
Lab Duplicates: Three laboratory duplicates were run in Batch WG923165 and two were run in Batch WG928852. The RPDs between the original samples and the lab duplicate samples were within the control limit of 15% for both batches with the exception of the RPD for fluoride in one lab duplicate in Batch WG923165. The lab noted that the RPD was not applicable for that sample. No qualifiers are needed.
LCS/LCSD: The LCS and LCSD percent recoveries were within the specified acceptance limits for both batches. The RPD between the LCS and LCSD was within the control limit of 15% for both batches. No qualifiers are needed.
MS/MSD: An MS/MSD was only reported for Batch WG923852. The MS and MSD percent recoveries for fluoride were lower than the lower acceptance limit (LAL). The lab noted that due to the matrix interference, accurate spike values could not be determined. The RPD between the MS and MSD was within the control limit of 15%. Based on the review of the other data including the LCS/LCSD, no qualifiers are needed.
Mercury, *Method 7470A* (Batch: WG922674)
Method Blanks: Mercury was not detected above the MDL in the laboratory method blank. No qualifiers are needed.
LCS/LCSC: The LCS and LCSD percent recoveries were within the specified acceptance limits. The RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.
MS/MSD: The MS and MSD percent recoveries were slightly lower than the LAL. The RPD between the MS and MSD was within the control limit of 20%. The lab noted that due to the matrix interference, accurate spike values could not be determined. Based on the review of the other data including the LCS/LSCS, no qualifiers are needed.
Metals (ICP), *Method 6010C* (Batch: WG922544)
Method Blanks: No analytes were detected above the MDLs in the laboratory method blank. No qualifiers are needed.

LCS/LCSD: The LCS and LCSD percent recoveries for all analytes were within the specified acceptance limits. The RPDs between the LCS and LCSD were within the control limit of 20%. No qualifiers are needed.
MS/MSD: The MS and MSD percent recoveries for all analytes were within the specified acceptance limits, except for the MS and MSD percent recoveries for barium which was slightly higher than the upper acceptance limit (UAL). The RPDs between the MS and MSD were within the control limit of 20%. The lab noted a problem with matrix interference. Based on the review of the other data including the LCS/LSCS, no qualifiers are needed.
Metals (ICPMS): Aluminum only, *Method 6020* (Batch: WG922239)
Method Blank: Aluminum was detected at 4.96 mg/Kg which is between the MDL and the Reporting Detection Limit (RDL). Results for potentially affected samples were all greater than 10X the method blank result; therefore, no action is needed. No qualifiers are needed.
LCS/LCSD: The LCS and LCSD percent recoveries were within the specified acceptance limits. The RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.
MS/MSD: The MS percent recovery was higher than the UAL, but the MSD percent recovery was within the specified acceptance limits. The RPD between the MS and MSD was within the control limit of 20%. The lab noted that the sample concentration was too high to evaluate the spike recovery. It should be noted that the sample was run on a 5x dilution which could affect that recovery. No qualifiers are needed.

FIELD DUPLICATE REVIEW:

One field duplicate was collected with this sample delivery group (SDG). Sample SS-900 is a field duplicate of sample SS-2. RPDs were calculated between the results of the original sample (SS-2) and the field duplicate sample (SS-900). Discrepancies were found for the following analytes, where the RPD between the original sample result and the field duplicate result was greater than 35%, the EPA-specified RPD for soil samples and/or 50% specified in the QAPP: Nitrate (RPD=50.8%), Arsenic (RPD= 75.1%), Barium (RPD=66.4%), Cadmium (RPD=68%), Chromium (RPD=69.2%), Lead (RPD=71.5%), Silver (RPD=120%), Aluminum (RPD=114%), and Selenium (RPD=50.8%). The results for these analytes for both SS-2 and SS-900 will be qualified with J, or UJ if the original result was non-detect. The calculation worksheet is attached. The qualified data is presented in the table under "Determination" below.

DETERMINATION:
The data in this work order have been validated and determined to be acceptable for use with the following qualifications:

Sample ID	Analyte (Method)	Original Result (mg/Kg)	Qualified Result (mg/Kg)	Reason
SS-2	Nitrate (Method 9056A)	13.8	**13.8 J**	Field duplicate discrepancy/RPD>35%.
SS-2	Arsenic (Method 6010C)	4.30	**4.30 J**	Field duplicate discrepancy/RPD>35%.
SS-2	Barium (Method 6010C)	60.2	**60.2 J**	Field duplicate discrepancy/RPD>35%.
SS-2	Cadmium (Method 6010C)	2.74	**2.74 J**	Field duplicate discrepancy/RPD>35%.
SS-2	Chromium (Method 6010C)	5.44	**5.44 J**	Field duplicate discrepancy/RPD>35%.
SS-2	Lead (Method 6010C)	53.7	**53.7 J**	Field duplicate discrepancy/RPD>35%.
SS-2	Silver (Method 6010C)	0.776	**0.776 J**	Field duplicate discrepancy/RPD>35%.
SS-2	Aluminum (Method 6020)	22200	**22200 J**	Field duplicate discrepancy/RPD>35%.
SS-2	Selenium (Method 6010C)	1.84 U	**1.84 UJ**	Field duplicate discrepancy/RPD>35%.
SS-900	Nitrate (Method 9056A)	8.21	**8.21 J**	Field duplicate discrepancy/RPD>35%.
SS-900	Arsenic (Method 6010C)	9.47	**9.47 J**	Field duplicate discrepancy/RPD>35%.
SS-900	Barium (Method 6010C)	120	**120 J**	Field duplicate discrepancy/RPD>35%.
SS-900	Cadmium (Method 6010C)	5.56	**5.56 J**	Field duplicate discrepancy/RPD>35%.
SS-900	Chromium (Method 6010C)	112	**112 J**	Field duplicate discrepancy/RPD>35%.
SS-900	Lead (Method 6010C)	113	**113 J**	Field duplicate discrepancy/RPD>35%.
SS-900	Silver (Method 6010C)	3.14	**3.14 J**	Field duplicate discrepancy/RPD>35%.
SS-900	Aluminum (Method 6020)	81100	**81100 J**	Field duplicate discrepancy/RPD>35%.
SS-900	Selenium (Method 6010C)	3.09	**3.09 J**	Field duplicate discrepancy/RPD>35%.

NOTES:

Laboratory assigned flags (J). Analytical results flagged by the laboratory as estimated values in the final laboratory report are assigned a qualifier of **J** to denote that the result is an estimated value based on the analyses. This qualifier is not one that is assigned based on data validation review or quality of data. In the case where the laboratory reports sample results between the Method Detection Limit (MDL) and Reporting Detection Limit (RDL), the resulting data was flagged with **J** to denote that the result is estimated; the result is considered non-detect at the MRL because it falls below the MRL.

Data validation assigned qualifiers (U, UJ, J, R). The following qualifiers may be assigned to data in this data set based on the results of the data validation procedure (documented on this form). Based on the review of laboratory quality control data provided by the laboratory, the sample results may be qualified with:

- U Indicates the analyte was analyzed for, but was not detected above the reported sample quantitation limit (method reporting limit or MRL). Results assigned this qualifier are considered undetected at the MRL.

- UJ Indicates the analyte was not detected above the quantitation limit or MRL; however, the MRL is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. Results assigned this qualifier are considered undetected at the estimated MRL.

- J Indicates the analyte was positively indentified; however, the associated numerical value is the approximate concentration of the analyte in the sample. Results assigned this qualifier as considered and detected at an estimated value.

- R Indicates the presence or absence of the analyte cannot be confirmed due to serious laboratory deficiencies in the ability to analyze the sample and meet quality control criteria. Results assigned this qualifier are rejected and considered unusable.

SEE ATTACHED DATA QUALIFIER FORM FOR
DATA VALIDATION AND LABORATORYASSIGNED QUALIFIERS
(IF APPLICABLE) .

REFERENCES:

CE. 2005. *Environmental Quality – Guidance for Evaluating Performance-Based Chemical Data (Engineering Manual), EM 200-1-10*. US Corps of Engineers. June 30, 2005.

EPA. 2002. *Guidance on Environmental Data Verification and Data Validation, EPA QA/G-8.* USEPA. November 2002.

EPA. 1999. *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, EPA 540/R-99/008.* USEPA. *October 1999*.

EPA. 2004. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA 540-R-04-004*. USEPA. October 2004.

EPA. 2006. *Tier I Data Validation Manual for the Ohio EPA, Division of Hazardous Waste Management*. Ohio EPA. February 2006.

TNI. 2009. *Volume 1, Management and Technical Requirements for Laboratories Performing Environmental Analysis, Module 4: Quality System for Chemical Testing, TNI Standard*. The NELAC Institute. September 2009.

Data Validation Attachment
Field Duplicate Sample Worksheet
(list all detected sample/field duplicate results)

Stantec Project No: 185750123

DV Date: 11/16/16

Work Order/SDG Number: ESC L8693665

Data Validator: K. Vilc

Page: 1

Matrix (check one): ☒ Soil ☐ Water ☐ Sediment ☐ Other _____

Applicable RPD: 35% (50% QAPP)

			Sample ID	Duplicate Sample ID			If Concentrations A and B > 5X MRL		If Concentrations A and B < or = 5X MRL	
		Enter Sample ID Here→	SS-2	SS-900	Reporting Limits (MRL) (sample/duplicate)	5 X Reporting Limit (MRL)	RPD (%)	QUALIFIERS Control Limit = 20% (water) or 35% (soil)*. If RPD > then Control Limit then add J flag or UJ flag.	Conc A - Conc B = Difference	QUALIFIERS If difference > MRL then add J flag to conc A and B.
Analyses	Units	List Analytes	List Concentration A	List Concentration B						
Method 2540	%	total solids	40.1	32.0	n/a		22.5			
Method 350.1	mg/kg	Ammonia Nitrogen	6.65 J	<4.91 (ND)	3.91/4.91		30.1			
Method 9056A	"	Chloride	26800	29900	36.6/49.8		10.9			
"	"	Fluoride	383	579	13.0/16.3		40.7			
"	"	Nitrate	13.8	8.21	0.0259/0.0363		50.8	J		
Mercury 7471A	"	Mercury	0.116	0.158	0.0247/0.0276		30.6			
Metals M6010C	"	Arsenic	4.30	9.47	1.62/2.03		75.1	J		
"	"	Barium	60.2	120	0.423/0.532		66.4	J		
"	"	Cadmium	2.74	5.56	0.174/0.219		68.0	J		
"	"	Chromium	54.4	112	0.349/0.438		69.2	J		
"	"	Lead	53.7	113	0.473/0.595		71.5	J		
"	"	Silver	0.776	3.14	0.069/0.876		120	J		
M 6020	"	Aluminum	22200	81100	41.1/51.6		114	J		
M6010C	"	Selenium	<1.84 (ND)	3.09 J	1.84/2.32		50.8	J/UJ		

n/a = Does not apply
* Per USEPA Guidance, RPD for water samples is 20% and RPD for soil samples is 35%.
DV field duplicate form.xls

QUALIFY highlighted results for SS-2 AND SS-900 w/J.

Stantec

#OF VOLUMES ASSIGNED

ANALYTICAL REPORT

November 07, 2016

myESC

Stantec- Bellevue, WA

Sample Delivery Group:	L869365
Samples Received:	10/29/2016
Project Number:	185750123A
Description:	Maralco Phase II ESA

Report To:

Cyrus Gorman
11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Entire Report Reviewed By: Brian Ford

Brian Ford
Technical Service Representative

TABLE OF CONTENTS

ONE LAB. NATIONWIDE.

Cp Tc Ss Cn Sr Qc Gl Al Sc

Sediment
3 ~~Soil~~ samples

one Gold.
one duplicate:

SS-900 is a duplicate of SS-2 ✓

* elevated RLs / dilutions (SS-1)(SS-2)(SS-900)

SS-1 L869365-01 Solid

Collected by: CS / NM | Collected date/time: 10/28/16 11:30 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922674	1	11/01/16 16:50	11/02/16 11:53	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 03:49	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:23	VSS
Total Solids by Method 2540 G-2011	WG922653	1	11/02/16 07:58	11/02/16 08:22	MEL
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 10:52	JER
Wet Chemistry by Method 9056A	WG923165	1	11/03/16 11:08	11/03/16 23:05	SAM
Wet Chemistry by Method 9056A	WG923852	5	11/05/16 11:19	11/05/16 21:39	CM

SS-2 L869365-02 Solid

Collected by: CS / NM | Collected date/time: 10/28/16 10:35 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922674	1	11/01/16 16:50	11/02/16 11:56	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 03:51	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:26	VSS
Total Solids by Method 2540 G-2011	WG922653	1	11/02/16 07:58	11/02/16 08:22	MEL
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 10:54	JER
Wet Chemistry by Method 9056A	WG923165	1	11/03/16 11:08	11/03/16 23:28	SAM
Wet Chemistry by Method 9056A	WG923165	20	11/03/16 11:08	11/03/16 23:51	SAM

SS-900 L869365-03 Solid (dup of SS-2)

Collected by: CS / NM | Collected date/time: 10/28/16 00:00 | Received date/time: 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG922674	1	11/01/16 16:50	11/02/16 11:59	NJB
Metals (ICP) by Method 6010C	WG922544	1	11/01/16 16:49	11/02/16 03:59	LTB
Metals (ICPMS) by Method 6020	WG922239	5	11/01/16 10:38	11/02/16 19:30	VSS
Total Solids by Method 2540 G-2011	WG922653	1	11/02/16 07:58	11/02/16 08:22	MEL
Wet Chemistry by Method 350.1	WG922902	1	11/03/16 02:34	11/03/16 10:55	JER
Wet Chemistry by Method 9056A	WG923165	1	11/03/16 11:08	11/03/16 20:47	SAM
Wet Chemistry by Method 9056A	WG923165	20	11/03/16 11:08	11/03/16 21:10	SAM

dilution for 9056A

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford

Brian Ford
Technical Service Representative

Total Solids by Method 2540 G-2011

	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	63.5		1	11/02/2016 08:22	WG922653

Wet Chemistry by Method 350.1

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Ammonia Nitrogen	4.26	J P1	2.47	7.87	1	11/03/2016 10:52	WG922902

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	82.3		1.25	15.7	1	11/03/2016 23:05	WG923165
Fluoride	226		2.05	7.87	5	11/05/2016 21:39	WG923852
Nitrate	3.62		0.0183	1.57	1	11/03/2016 23:05	WG923165

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0564		0.00441	0.0315	1	11/02/2016 11:53	WG922674

Metals (ICP) by Method 6010C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	6.78		1.02	3.15	1	11/02/2016 03:49	WG922544
Barium	58.5		0.268	0.787	1	11/02/2016 03:49	WG922544
Cadmium	0.619	J	0.160	0.787	1	11/02/2016 03:49	WG922544
Chromium	36.3		0.220	1.57	1	11/02/2016 03:49	WG922544
Lead	42.0		0.299	0.787	1	11/02/2016 03:49	WG922544
Selenium	1.87	J	1.16	3.15	1	11/02/2016 03:49	WG922544
Silver	U		0.441	1.57	1	11/02/2016 03:49	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	55500		26.0	78.7	5	11/02/2016 19:23	WG922239

Total Solids by Method 2540 G-2011

	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	40.1		1	11/02/2016 08:22	WG922653

Wet Chemistry by Method 350.1

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Ammonia Nitrogen	6.65	J	3.91	12.5	1	11/03/2016 10:54	WG922802

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chloride	26800		39.6	498	20	11/03/2016 23:51	WG923165
Fluoride	383		13.0	49.8	20	11/03/2016 23:51	WG923165
Nitrate	13.8	J	0.0289	2.49	1	11/03/2016 23:28	WG923165

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.116		0.00697	0.0498	1	11/02/2016 11:56	WG922674

Metals (ICP) by Method 6010C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	4.30	J	1.62	4.98	1	11/02/2016 03:51	WG922544
Barium	60.2		0.423	1.25	1	11/02/2016 03:51	WG922544
Cadmium	2.74		0.174	1.25	1	11/02/2016 03:51	WG922544
Chromium	54.4		0.349	2.49	1	11/02/2016 03:51	WG922544
Lead	53.7		0.473	1.25	1	11/02/2016 03:51	WG922544
Selenium	U		1.84	4.98	1	11/02/2016 03:51	WG922544
Silver	0.776	J	0.697	2.49	1	11/02/2016 03:51	WG922544

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	22700	J	41.1	125	5	11/02/2016 19:26	WG922239

elevated RDLs

Total Solids by Method 2540 G-2011

	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	32.0		1	11/02/2016 08:22	WG922653

Wet Chemistry by Method 350.1

	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Ammonia Nitrogen	U		4.91	15.6	1	11/03/2016 10:55	WG922902

Wet Chemistry by Method 9056A

	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Chloride	29900		49.8	626	20	11/03/2016 21:10	WG923165
Fluoride	579		16.3	62.6	20	11/03/2016 21:10	WG923165
Nitrate	8.21		0.0363	3.13	1	11/03/2016 20:47	WG923165

Mercury by Method 7471A

	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.158		0.00876	0.0626	1	11/02/2016 11:59	WG922674

Metals (ICP) by Method 6010C

	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	9.47		2.03	6.26	1	11/02/2016 03:59	WG922544
Barium	120		0.532	1.56	1	11/02/2016 03:59	WG922544
Cadmium	5.56		0.219	1.56	1	11/02/2016 03:59	WG922544
Chromium	112		0.438	3.13	1	11/02/2016 03:59	WG922544
Lead	113		0.595	1.56	1	11/02/2016 03:59	WG922544
Selenium	3.09	J	2.32	6.26	1	11/02/2016 03:59	WG922544
Silver	3.14		0.876	3.13	1	11/02/2016 03:59	WG922544

Metals (ICPMS) by Method 6020

	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	61100		51.6	156	5	11/02/2016 19:30	WG922319

Method Blank (MB)

(MB) R3175456-1 11/02/16 08:22

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Total Solids	0.0010			

L869363-07 Original Sample (OS) - Duplicate (DUP)

(OS) L869363-07 11/02/16 08:22 • (DUP) R3175456-3 11/02/16 08:22

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	81.9	82.1	1	0.254		5

Laboratory Control Sample (LCS)

(LCS) R3175456-2 11/02/16 08:22

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB) Ammonia Nitrogen

(MB) R3175568-1 11/03/16 10:46

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Ammonia Nitrogen	U		1.57	5.00

L869365-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869365-01 11/03/16 10:52 • (DUP) R3175568-4 11/03/16 10:53

Analyte	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Ammonia Nitrogen	4.26	ND	1	200	R1	20

note from lab. RPD NOT APPLICABE

L869697-01 Original Sample (OS) • Duplicate (DUP)

(OS) L869697-01 11/03/16 11:18 • (DUP) R3175568-7 11/03/16 11:19

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Ammonia Nitrogen	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175568-2 11/03/16 10:48 • (LCSD) R3175568-3 11/03/16 10:49

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%		%			%	%
Ammonia Nitrogen	2760	2180	2270	79.0	82.0	58.0-114			4.00	20

L869381-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-09 11/03/16 11:04 • (MS) R3175568-5 11/03/16 11:05 • (MSD) R3175568-6 11/03/16 11:06

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Ammonia Nitrogen	500	6.70	260	262	51.0	51.0	1	80.0-120	J6	J6	1.90	20

low %R

Nt from lab: matrix interference

GP Tc Ss Cn Sr Qc Gl Al Sc

Cp Tc Ss Cn Sr QC GI Al Sc

Method Blank (MB) Chloride, Fluoride, Nitrate

(MB) R3175762-1 11/03/16 11:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	U		0.795	10.0
Fluoride	U		0.261	1.00
Nitrate	U		0.0116	1.00

L868989-21 Original Sample (OS) • Duplicate (DUP)

(OS) L868989-21 11/03/16 13:45 • (DUP) R3175762-4 11/03/16 14:08

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	180	191	1	6		15
Fluoride	3.71	3.58	1	4		15
Nitrate	14.6	16.2	1	10		15

L869381-06 Original Sample (OS) • Duplicate (DUP)

(OS) L869381-06 11/04/16 01:23 • (DUP) R3175762-7 11/04/16 01:46

Analyte	Original Result (dry) mg/kg	DUP Result (dry)	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	0.544	0.429	1	24	J P1	15
Nitrate	U	0	1	0		15

NOTE from lab: RPD not applicable estimated value

L869381-06 Original Sample (OS) • Duplicate (DUP)

(OS) L869381-06 11/04/16 02:09 • (DUP) R3175762-8 11/04/16 02:32

Analyte	Original Result (dry) mg/kg	DUP Result (dry)	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	4280	4660	5	8		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175762-2 11/03/16 12:13 • (LCSD) R3175762-3 11/03/16 12:36

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	200	215	214	108	107	80-120			1	15
Fluoride	20.0	22.5	22.2	113	111	80-120			2	15
Nitrate	20.0	22.5	22.5	113	112	80-120			0	15

Fluoride

Method Blank (MB)

(MB) R3176145-1 11/05/16 11:40

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Fluoride	U		0.261	1.00

L869858-04 Original Sample (OS) • Duplicate (DUP)

(OS) L869858-04 11/05/16 15:55 • (DUP) R3176145-4 11/05/16 16:18

Analyte	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Fluoride	U	0	1	0		15

L869858-18 Original Sample (OS) • Duplicate (DUP)

(OS) L869858-18 11/06/16 00:20 • (DUP) R3176145-7 11/06/16 00:43

Analyte	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Fluoride	2.21	2.39	1	8		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176145-2 11/05/16 12:03 • (LCSD) R3176145-3 11/05/16 12:26

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Fluoride	20.0	19.9	21.6	100	108	80-120			8	15

L869858-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869858-09 11/05/16 18:36 • (MS) R3176145-5 11/05/16 18:59 • (MSD) R3176145-6 11/05/16 19:21

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Fluoride	67.2	3.80	24.7	23.1	31	29	1	80-120	J6	J6	7	15

low %R

NOTE from lab: matrix interference

Method Blank (MB)

(MB) R3175352-1 11/02/16 10:51

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Mercury	0		0.0028	0.0200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175352-2 11/02/16 10:54 • (LCSD) R3175352-3 11/02/16 10:57

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Mercury	0.300	0.279	0.281	93	94	80-120			1	20

L869282-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869282-01 11/02/16 11:00 • (MS) R3175352-4 11/02/16 11:03 • (MSD) R3175352-5 11/02/16 11:15

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Mercury	0.457	0.00550	0.339	0.339	73	73	1	75-125	J6	J6	0	20

NOTE from Lab: matrix interference

Cp
Tc
Ss
Cn
Sr
Qc
Gl
Al
Sc

Method Blank (MB)

(MB) R3175124-1 11/02/16 02:55

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Arsenic	U		0.65	2.00
Barium	U		0.17	0.500
Cadmium	U		0.07	0.500
Chromium	U		0.14	1.00
Lead	U		0.19	0.500
Selenium	U		0.74	2.00
Silver	U		0.28	1.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175124-2 11/02/16 02:57 • (LCSD) R3175124-3 11/02/16 03:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Arsenic	100	102	103	102	103	80-120			2	20
Barium	100	105	106	105	106	80-120			1	20
Cadmium	100	102	103	102	103	80-120			1	20
Chromium	100	101	102	101	102	80-120			1	20
Lead	100	102	103	102	103	80-120			1	20
Selenium	100	101	103	101	103	80-120			1	20
Silver	100	101	102	101	102	80-120			1	20

L869107-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869107-05 11/02/16 03:02 • (MS) R3175124-6 11/02/16 03:10 • (MSD) R3175124-7 11/02/16 03:13

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	117	8.20	115	116	91	94	1	75-125			3	20
Barium	117	92.3	238	242	125	128	1	75-125		J5	2	20
Cadmium	117	ND	113	117	97	100	1	75-125			3	20
Chromium	117	20.4	130	135	94	98	1	75-125			4	20
Lead	117	13.0	130	134	100	104	1	75-125			3	20
Selenium	117	ND	111	114	94	97	1	75-125			3	20
Silver	117	ND	113	116	97	100	1	75-125			3	20

NOTE FROM LAB:
Matrix interference

Method Blank (MB)

potentially affected samples:
SS-1 Al = 55,500 mg/kg
SS2 Al = 29,200 mg/kg
SS-900 Al = 81,100 mg/kg
all results are well over 10x blank concentration

(MB) R3175414-1 11/02/16 18:38

OK

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	4.96	J	2.3	50.0

estimated value

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

* NO DUPLICATES.

(LCS) R3175414-2 11/02/16 18:41 • (LCSD) R3175414-3 11/02/16 18:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	1060	1100	106	110	80-120			4	20

L869381-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869381-03 11/02/16 18:47 • (MS) R3175414-6 11/02/16 18:57 • (MSD) R3175414-7 11/02/16 19:00

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	200	8000	9480	9050	149	105	5	75-125	V		5	20

NOTE from lab:
sample to high to determine accurate spike recoveries → DILUTION

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries

Stantec - Bellevue, WA

11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Billing Information & Quote Number: Chris Gdak
Accounts Payable- ~~Phil Haberman~~
11130 NE 33rd Pl, Ste 200
Bellevue, WA 98004

Report to: ~~Nate Magnesson~~ Cyrus Gorman

Email To: Chris.Gdak@stantec.com; Cyrus.Gorman@stantec.com;

Project Description: Maralco, Phase II ESA

City/State Collected: Kent, WA

Phone: 425-289-7374
Fax: 425-869-1190

Client Project #: 185750123a

Lab Project #: STANTECBWA-KENT

Collected by (print): CARL SHESTAG / NATE MAGNESSON

Site/Facility ID #:

P.O. #: 185750123

Collected by (signature):

Immediately Packed on Ice: N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___ No X Yes
FAX ___ No ___ Yes

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl, F, NH3, NO3 4oz Clr-NoPres	NWTPHDX 4oz Clr-NoPres	NWTPHGXBTEX 40ml/NaHSO4/Syr/MeOH	PAHSIMD 4oz Clr-NoPres	RCRA8 + Al metals 2oz Clr-NoPres	TCLP RCRA8+Al 8oz Clr-NoPres	VOCs Screen, TS 2oz Clr-NoPres				Lab Use Only	Sample # (lab only)
SS-1	Grab	~~SOIL~~ SS	6"	10/25/16	11:30	3	X				X							01
SS-2	"	~~SOIL~~ SS	6"	"	10:35	3	X				X							02
SS-900	"	~~SOIL~~ SS	6"	"	00:00	3	X				X							03
		SS																
		SS																
		SS																
		SS																
		SS																
		SS																
		SS																

* Matrix: SS Soil GW Groundwater WW WasteWater DW - Drinking Water OT - Other Sediment

Remarks: Aluminum by Method 6020.

pH ___ Temp ___
Flow ___ Other ___

Chain of Custody ___ of ___

ESC LAB SCIENCES

Acctnum: STANTECBWA
Template: T117067
Prelogin: P573460
TSR: 110 - Brian Ford
PB:
Shipped Via:

Remarks / Containment | Sample # (lab only)

Hold #

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	10/28/2016	15:45	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples received via: ☐ UPS ☑ FedEx ☐ Courier ☐ ___

Temp: 2-4 °C Bottles Received: 9

Date: 10-29-16 Time: 0900

Condition: NO39 (lab use only)

COC Seal Intact: ___ Y ___ N ___ NA

pH Checked: ___ NCF: ___

B224

ESC

YOUR LAB OF CHOICE

Cooler Receipt Form

Client: STANTECRWA	SDG#	869365
Cooler Received/Opened On: 10/ 29 /16	Temperature Upon Receipt:	2.4 °c
Received By: Dakota Busby		
Signature: Dak		

Receipt Check List	Yes	No	N/A
Were custody seals on outside of cooler and intact?			✓
Were custody papers properly filled out?	✓		
Did all bottles arrive in good condition?	✓		
Were correct bottles used for the analyses requested?	✓		
Was sufficient amount of sample sent in each bottle?	✓		
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)			✓
If applicable, was an observable VOA headspace present?			✓
Non Conformance Generated. (If yes see attached NCF)			

DATA VALIDATION WORKSHEET

GENERAL INFORMATION:

Lab Name:	ESC Lab Sciences
Lab SDG/Project/Work Order:	L880054
Project Name:	City of Kent Brownfield (Cooperative Agreement BF-00J65701) Maralco Property
Stantec Project Number:	185750123
Client:	City of Kent
Validator Name:	Kim Vik
Date of Validation:	November 18, 2016

SAMPLE INFORMATION:

Number of Samples:	1	
Matrix:	Water	
Number of Trip Blanks:	None	
Number of Equipment Blanks:	None	
Number of Field Duplicates *(include duplicate information)*	None	
Date of Sample Collection:	November 2, 2016	
Sample: MW-2	**Analyses:** Mercury (Method 7470A) ICP Metals (Method 6010C) ICPMS Metals (Method 6020) SVOCs (Method 8270D-SIM) TPH-D/TPH-O (Method NWTPH-Dx) Wet Chemistry (Method 300.0) Wet Chemistry (Method 350.1)	**Batch:** WG923453 WG923492 WG923495 WG924187 WG923524 WG923421 WG923929

GENERAL DATA VALIDATION:

Chain of Custody:
All requested analyses were performed per the COC.

Holding Times:
All analyses were run within the required holding. No qualifiers are needed.

Trip Blank Review:
No trip blanks were submitted with this.

Surrogates:
All sample surrogates are within control. No qualifiers are needed.

QC Surrogates:
All QC surrogates were within control.

Lab Notes:
None.

Elevated Reporting Limits:
There were no reported dilutions or elevated reporting limits.

PER ANALYSES:

Wet Chemistry: Chloride, Fluoride, NItrate, *Method 300.0* (Batches: WG923421)

Method Blank:
No analytes were detected in the laboratory method blank. No qualifiers are needed.

Lab Duplicates:
Two laboratory duplicates were run. The RPDs between the original samples and the lab duplicate samples were within the control limit of 20%. No qualifiers are needed.

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD):
The LCS and LCSD percent recoveries were within the specified acceptance limits. The RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.

Matrix Spike/Matrix Spike Duplicate (MS/MSD):
Two MS and one MSD were run for this batch. The MS and MSD percent recoveries were within the specified acceptance limits. The RPD between the MS and MSD was within the control limit of 20%. No qualifiers are needed.

Wet Chemistry: Ammonia Nitrogen, *Method 350.1* (Batch: WG923929)

Method Blanks:
Ammonia nitrogen was not detected above the MDL in the laboratory method blank. No qualifiers are needed.

Lab Duplicates:
Two laboratory duplicates were run. The RPDs between the original samples and the lab duplicate samples were within the control limit of 20%. No qualifiers are needed.

LCS/LCSD: The LCS and LCSD percent recoveries were within the specified acceptance limit. The RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.
MS/MSD: Two MS samples and one MSD was run in this batch. The MS and MSD percent recoveries were within the specified acceptance limits. No qualifiers are needed.
Mercury, *Method 7470A* (Batch: WG923453)
Method Blanks: Mercury was not detected above the MDL in the laboratory method blank. No qualifiers are needed.
LCS/LCSC: The LCS and LCSD percent recoveries were within the specified acceptance limits. The RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.
MS/MSD: The MS and MSD percent recoveries were within the specified acceptance limits. The RPD between the MS and MSD was within the control limit of 20%. No qualifiers are needed.
Metals (ICP), *Method 6010C* (Batch: WG923492)
Method Blanks: No analytes were detected above the MDLs in the laboratory method blank. No qualifiers are needed.
LCS/LCSD: The LCS and LCSD percent recoveries for all analytes were within the specified acceptance limits. The RPDs between the LCS and LCSD were within the control limit of 20%. No qualifiers are needed.
MS/MSD: The MS and MSD percent recoveries for all analytes were within the specified acceptance limits. The RPDs between the MS and MSD were within the control limit of 20%. No qualifiers are needed.
Metals (ICPMS): Aluminum only, *Method 6020* (Batch: WG923495)
Method Blank: Aluminum was detected at 14.0 ug/L which is between the MDL and the RDL. The results for potentially affected sample (MW-2) was greater than 10X the method blank result; therefore, no action is needed. No qualifiers are needed.
LCS/LCSD: The LCS and LCSD percent recoveries were within the specified acceptance limits. The RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.

MS/MSD: The MS and MSD percent recoveries were within the specified acceptance limits. The RPD between the MS and MSD was within the control limit of 20%. No qualifiers are needed.
Semi-Volatile Organics: Diesel Range Organics (DRO) and Residual Range Organics (RRO), *Method NWTPH-Dx* (Batch: WG923524)
Method Blank: DRO and RRO were not detected above the MDL in the method blank. No qualifiers are needed.
LCS/LCSD: The LCS and LCSD percent recoveries for DRO and RRO were within the specified acceptance limits. The RPD between the LCS and LCSD was within the control limit of 20%. No qualifiers are needed.
Semi-Volatile Organics: Polycyclic Aromatic Hydrocarbons (PAHs), *Method 8270-SIM* (Batch: WG924187)
Method Blank: Acenapthylene (0.0129 ug/L), Benzo(a)anthracene (0.00683 ug/L) and Naphthalene (0,0504 ug/L) were detected in the laboratory method blank. The results for MW-2 are not affected by the Acenaphthylene and Benzo(a)anthracene blank contamination because the sample results were both greater than 10x the method blank detection; therefore, no action is needed. However, the Naphthalene result for the sample will be qualified as not detected at the Reporting Detection Limit (RDL) or 0.250 U. The table in the "Determination" section below summarizes the qualified data.
LCS/LCSD: The LCS and LCSD percent recoveries for all analytes were within the specified acceptance limits. The RPDs between the LCS and LCSD for all analytes were within the control limit of 20%. No qualifiers are needed.

FIELD DUPLICATE REVIEW:

No field duplicates were collected or submitted for this SDG.

DETERMINATION:

The data in this work order have been validated and determined to be acceptable for use with the following qualifications:

Sample ID	Analyte (Method)	Original Result (ug/L)	Qualified Result (ug/L)	Reason
MW-2	Naphthalene (Method 8270D-SIM)	0.131	**0.250 U**	Method Blank Contamination

NOTES:

Laboratory assigned flags (J). Analytical results flagged by the laboratory as estimated values in the final laboratory report are assigned a qualifier of **J** to denote that the result is an estimated value based on the analyses. This qualifier is not one that is assigned based on data validation review or quality of data. In the case where the laboratory reports sample results between the Method Detection Limit (MDL) and Reporting Detection Limit (RDL), the resulting data was flagged with **J** to denote that the result is estimated; the result is considered non-detect at the MRL because it falls below the MRL.

Data validation assigned qualifiers (U, UJ, J, R). The following qualifiers may be assigned to data in this data set based on the results of the data validation procedure (documented on this form). Based on the review of laboratory quality control data provided by the laboratory, the sample results may be qualified with:

- U Indicates the analyte was analyzed for, but was not detected above the reported sample quantitation limit (method reporting limit or MRL). Results assigned this qualifier are considered undetected at the MRL.

- UJ Indicates the analyte was not detected above the quantitation limit or MRL; however, the MRL is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. Results assigned this qualifier are considered undetected at the estimated MRL.

- J Indicates the analyte was positively indentified; however, the associated numerical value is the approximate concentration of the analyte in the sample. Results assigned this qualifier as considered and detected at an estimated value.

- R Indicates the presence or absence of the analyte cannot be confirmed due to serious laboratory deficiencies in the ability to analyze the sample and meet quality control criteria. Results assigned this qualifier are rejected and considered unusable.

SEE ATTACHED DATA QUALIFIER FORM FOR DATA VALIDATION AND LABORATORYASSIGNED QUALIFIERS (IF APPLICABLE) .

REFERENCES:

CE. 2005. *Environmental Quality – Guidance for Evaluating Performance-Based Chemical Data (Engineering Manual), EM 200-1-10*. US Corps of Engineers. June 30, 2005.

EPA. 2002. *Guidance on Environmental Data Verification and Data Validation, EPA QA/G-8.* USEPA. November 2002.

EPA. 1999. *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, EPA 540/R-99/008.* USEPA. *October 1999*.

EPA. 2004. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA 540-R-04-004*. USEPA. October 2004.

EPA. 2006. *Tier I Data Validation Manual for the Ohio EPA, Division of Hazardous Waste Management*. Ohio EPA. February 2006.

TNI. 2009. *Volume 1, Management and Technical Requirements for Laboratories Performing Environmental Analysis, Module 4: Quality System for Chemical Testing, TNI Standard*. The NELAC Institute. September 2009.

*QUOTES ASSIGNED

ESC LAB SCIENCES
YOUR LAB OF CHOICE

ANALYTICAL REPORT

November 09, 2016

myESC
REAL TIME DATA ACCESS

11/13/16

Stantec- Bellevue, WA

Sample Delivery Group:	L870054
Samples Received:	11/03/2016
Project Number:	185750123A
Description:	Maralco

Report To: Cyrus Gorman
11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Entire Report Reviewed By: Brian Ford

Brian Ford
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

ONE LAB. NATIONWIDE

① water sample
Ø duplicates
Ø triplanks (NO VOLATILES)

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

MW-2 L870054-01 GW

Collected by: Nathan Magnusson
Collected date/time: 11/02/16 14:05
Received date/time: 11/03/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG923453	1	11/03/16 14:45	11/04/16 08:21	TRB
Metals (ICP) by Method 6010C	WG923492	1	11/03/16 14:09	11/03/16 21:03	SF
Metals (ICPMS) by Method 6020	WG923495	1	11/04/16 09:54	11/04/16 11:49	LAT
Semi Volatile Organic Compounds (GCMS) by Method 8270D-SIM	WG924187	1	11/06/16 20:35	11/07/16 13:31	PMB
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX	WG923524	1	11/06/16 20:37	11/07/16 23:13	TRF
Wet Chemistry by Method 300.0	WG923421	1	11/03/16 11:57	11/03/16 11:57	SAM
Wet Chemistry by Method 350.1	WG923929	1	11/08/16 11:28	11/08/16 11:28	DR

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford

Brian Ford
Technical Service Representative

Wet Chemistry by Method 300.0

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	3890		51.9	4000	1	11/03/2016 11:57	WG923421
Fluoride	80.7	J	9.90	100	1	11/03/2016 11:57	WG923421
Nitrate	U		22.7	100	1	11/03/2016 11:57	WG923421

Wet Chemistry by Method 350.1

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	U		38.0	250	1	11/08/2016 11:28	WG923929

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	U		0.0490	0.200	1	11/04/2016 08:21	WG923453

Metals (ICP) by Method 6010C

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Arsenic	U		6.50	10.0	1	11/03/2016 21:03	WG923492
Barium	5.65		1.70	5.00	1	11/03/2016 21:03	WG923492
Cadmium	U		0.700	2.00	1	11/03/2016 21:03	WG923492
Chromium	U		1.40	10.0	1	11/03/2016 21:03	WG923492
Lead	2.59	J	1.90	5.00	1	11/03/2016 21:03	WG923492
Selenium	U		7.40	10.0	1	11/03/2016 21:03	WG923492
Silver	U		2.80	5.00	1	11/03/2016 21:03	WG923492

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Aluminum	174		2.00	100	1	11/04/2016 11:49	WG923495

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	U		82.5	250	1	11/07/2016 23:13	WG923524
Residual Range Organics (RRO)	U		165	500	1	11/07/2016 23:13	WG923524
(S) o-Terphenyl	*112*			*50.0-150*		*11/07/2016 23:13*	WG923524

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Anthracene	U		0.0140	0.0500	1	11/07/2016 13:31	WG924187
Acenaphthene	U		0.0100	0.0500	1	11/07/2016 13:31	WG924187
Acenaphthylene	U		0.0120	0.0500	1	11/07/2016 13:31	WG924187
Benzo(a)anthracene	U		0.00410	0.0500	1	11/07/2016 13:31	WG924187
Benzo(a)pyrene	U		0.0116	0.0500	1	11/07/2016 13:31	WG924187
Benzo(b)fluoranthene	U		0.00212	0.0500	1	11/07/2016 13:31	WG924187
Benzo(g,h,i)perylene	U		0.00227	0.0500	1	11/07/2016 13:31	WG924187
Benzo(k)fluoranthene	U		0.0136	0.0500	1	11/07/2016 13:31	WG924187
Chrysene	U		0.0108	0.0500	1	11/07/2016 13:31	WG924187
Dibenz(a,h)anthracene	U		0.00396	0.0500	1	11/07/2016 13:31	WG924187
Fluoranthene	U		0.0157	0.0500	1	11/07/2016 13:31	WG924187
Fluorene	0.00874	J	0.00850	0.0500	1	11/07/2016 13:31	WG924187
Indeno(1,2,3-cd)pyrene	U		0.0148	0.0500	1	11/07/2016 13:31	WG924187

MW-2
Collected date/time: 11/02/16 14:05

SAMPLE RESULTS - 01

L870054

ONE LAB. NATIONWIDE

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Naphthalene	0.131	B J	0.0198	0.250	1	11/07/2016 13:31	WG924187
Phenanthrene	0.00915	J	0.00820	0.0500	1	11/07/2016 13:31	WG924187
Pyrene	U		0.0117	0.0500	1	11/07/2016 13:31	WG924187
1-Methylnaphthalene	0.0360	J	0.00821	0.250	1	11/07/2016 13:31	WG924187
2-Methylnaphthalene	0.0646	J	0.00902	0.250	1	11/07/2016 13:31	WG924187
2-Chloronaphthalene	U		0.00647	0.250	1	11/07/2016 13:31	WG924187
(S) Nitrobenzene-d5	*102*			*46.1-170*		*11/07/2016 13:31*	WG924187
(S) 2-Fluorobiphenyl	*115*			*57.7-153*		*11/07/2016 13:31*	WG924187
(S) p-Terphenyl-d14	*96.8*			*53.2-156*		*11/07/2016 13:31*	WG924187

MB

→ 0.250 U

Method Blank (MB)

(MB) R3175748-1 11/03/16 07:01

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Chloride	U		51.9	1000
Fluoride	U		9.90	100
Nitrate	U		22.7	100

L870061-12 Original Sample (OS) • Duplicate (DUP)

(OS) L870061-12 11/03/16 13:44 • (DUP) R3175748-4 11/03/16 14:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	14500	14600	1	0		20
Fluoride	ND	15.8	1	0		20
Nitrate	ND	0.000	1	0		20

L870118-01 Original Sample (OS) • Duplicate (DUP)

(OS) L870118-01 11/03/16 16:34 • (DUP) R3175748-6 11/03/16 17:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	ND	253	1	0		20
Fluoride	ND	0.000	1	0		20
Nitrate	ND	0.000	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175748-2 11/03/16 07:16 • (LCSD) R3175748-3 11/03/16 07:32

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Chloride	40000	38900	38900	97	97	90-110			0	20
Fluoride	8000	7920	7890	99	99	90-110			0	20
Nitrate	8000	8020	8010	100	100	90-110			0	20

L870061-13 Original Sample (OS) • Matrix Spike (MS)

(OS) L870061-13 11/03/16 14:15 • (MS) R3175748-5 11/03/16 14:31

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	ug/l	ug/l	ug/l	%		%	
Chloride	50000	12400	62400	100	1	80-120	
Fluoride	5000	ND	4770	95	1	80-120	

L870061-13 Original Sample (OS) • Matrix Spike (MS)

(OS) L870061-13 11/03/16 14:15 • (MS) R3175748-5 11/03/16 14:31

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	ug/l	ug/l	ug/l	%		%	
Nitrate	5000	ND	4860	97	1	80-120	

L870118-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L870118-02 11/03/16 17:15 • (MS) R3175748-7 11/03/16 17:30 • (MSD) R3175748-8 11/03/16 17:45

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	50000	ND	51000	51000	102	102	1	80-120			0	20
Fluoride	5000	ND	5200	5300	104	106	1	80-120			2	20
Nitrate	5000	ND	5160	4920	103	98	1	80-120			5	20

Method Blank (MB)

(MB) R3176579-1 11/08/16 10:50

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	ug/l		ug/l	ug/l
Ammonia Nitrogen	U		38.0	250

L869715-02 Original Sample (OS) • Duplicate (DUP)

(OS) L869715-02 11/08/16 10:58 • (DUP) R3176579-4 11/08/16 10:59

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Ammonia Nitrogen	2830	2820	1	0		20

L870014-01 Original Sample (OS) • Duplicate (DUP)

(OS) L870014-01 11/08/16 11:20 • (DUP) R3176579-6 11/08/16 11:26

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	ug/l	ug/l		%		%
Ammonia Nitrogen	3620	3550	1	2		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176579-2 11/08/16 10:51 • (LCSD) R3176579-3 11/08/16 10:53

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	%	%	%			%	%
Ammonia Nitrogen	7500	7390	7340	98	98	90-110			1	20

L869766-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L869766-01 11/08/16 11:01 • (MS) R3176579-5 11/08/16 11:03

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	ug/l	ug/l	ug/l	%		%	
Ammonia Nitrogen	10000	ND	10800	101	1	90-110	

L870054-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L870054-01 11/08/16 11:28 • (MS) R3176579-7 11/08/16 11:29 • (MSD) R3176579-8 11/08/16 11:31

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Ammonia Nitrogen	10000	U	9940	10000	99	100	1	90-110			1	20

Method Blank (MB)

(MB) R3175809-1 11/04/16 07:53

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	ug/l		ug/l	ug/l
Mercury	U		0.0490	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175809-2 11/04/16 07:55 • (LCSD) R3175809-3 11/04/16 07:58

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	%	%	%			%	%
Mercury	3.00	3.01	2.94	100	98	80-120			2	20

L869858-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869858-16 11/04/16 08:01 • (MS) R3175809-4 11/04/16 08:03 • (MSD) R3175809-5 11/04/16 08:06

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Mercury	3.00	U	3.12	3.05	104	102	1	75-125			2	20

Method Blank (MB)

(MB) R3175734-1 11/03/16 20:26

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Arsenic	U		6.50	10.0
Barium	U		1.70	5.00
Cadmium	U		0.700	2.00
Chromium	U		1.40	10.0
Lead	U		1.50	5.00
Selenium	U		7.40	10.0
Silver	U		2.80	5.00

Laboratory Control Sample (LCS) + Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175734-2 11/03/16 20:29 • (LCSD) R3175734-3 11/03/16 20:31

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	1000	1010	998	101	100	80-120			1	20
Barium	1000	1020	1010	102	101	80-120			1	20
Cadmium	1000	1010	1000	101	100	80-120			1	20
Chromium	1000	991	984	99	98	80-120			1	20
Lead	1000	1000	995	100	100	80-120			1	20
Selenium	1000	1010	999	101	100	80-120			1	20
Silver	1000	1010	998	101	100	80-120			1	20

L869633-03 Original Sample (OS) + Matrix Spike (MS) + Matrix Spike Duplicate (MSD)

(OS) L869633-03 11/03/16 20:34 • (MS) R3175734-5 11/03/16 20:39 • (MSD) R3175734-6 11/03/16 20:41

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	1000	U	1010	1010	101	101	1	75-125			0	20
Barium	1000	7.55	1020	1020	101	102	1	75-125			0	20
Cadmium	1000	U	1000	1010	100	101	1	75-125			0	20
Chromium	1000	U	986	983	99	98	1	75-125			0	20
Lead	1000	3.12	1000	1000	100	100	1	75-125			0	20
Selenium	1000	U	1010	1010	101	101	1	75-125			0	20
Silver	1000	U	998	1000	100	100	1	75-125			0	20

potentially affected sample.
MW-2 AT: 174 >10x blank Result
no action needed.

Method Blank (MB)

(MB) R3175926-1 11/04/16 11:39

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Aluminum	14.0	J		100

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3175926-2 11/04/16 11:42 • (LCSD) R3175926-3 11/04/16 11:46

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Aluminum	5000	4810	4860	96	97	80-120			1	20

L870054-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L870054-01 11/04/16 11:49 • (MS) R3175926-5 11/04/16 11:55 • (MSD) R3175926-6 11/04/16 11:58

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Aluminum	5000	174	4750	4850	92	95	1	75-125			2	20

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX

Method Blank (MB)

(MB) R3176520-1 11/07/16 22:23

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		83.3	250
Residual Range Organics (RRO)	U		167	500
(S) o-Terphenyl	*122*			*64.0-146*

Laboratory Control Sample (LCS) - Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176520-2 11/07/16 22:40 - (LCSD) R3176520-3 11/07/16 22:57

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	750	889	908	119	121	50.0-150			2.07	20
Residual Range Organics (RRO)	750	785	790	105	105	50.0-150			0.610	20
(S) o-Terphenyl				*118*	*118*	*64.0-146*				

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

potentially affected samples:

MW-2 Acenaphthylene = <MDL (ND) NO ACTION

MW-2 benzo(a)anthracene = <MDL (ND) NO ACTION

MW-2 Naphthalene = 0.131 J (between MDL & RL)

↳ Report Result as <RL (0.250 U)

Method Blank (MB)

(MB) R3176167-3 11/07/16 05:54

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Anthracene	U		0.0140	0.0500
Acenaphthene	U		0.0100	0.0500
Acenaphthylene	0.0123	J	0.0120	0.0500
Benzo(a)anthracene	0.00683	J	0.00410	0.0500
Benzo(a)pyrene	U		0.0116	0.0500
Benzo(b)fluoranthene	U		0.00212	0.0500
Benzo(g,h,i)perylene	U		0.00227	0.0500
Benzo(k)fluoranthene	U		0.0136	0.0500
Chrysene	U		0.0108	0.0500
Dibenz(a,h)anthracene	U		0.00396	0.0500
Fluoranthene	U		0.0157	0.0500
Fluorene	U		0.00850	0.0500
Indeno(1,2,3-cd)pyrene	U		0.0148	0.0500
Naphthalene	0.0504	J	0.0198	0.250
Phenanthrene	U		0.00820	0.0500
Pyrene	U		0.0117	0.0500
1-Methylnaphthalene	U		0.00821	0.250
2-Methylnaphthalene	U		0.00902	0.250
2-Chloronaphthalene	U		0.00647	0.250
(S) Nitrobenzene-d5	*116*			*33.8-179*
(S) 2-Fluorobiphenyl	*117*			*55.5-150*
(S) p-Terphenyl-d14	*107*			*46.2-163*

Laboratory Control Sample (LCS) + Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176167-1 11/07/16 05:10 • (LCSD) R3176167-2 11/07/16 05:32

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	2.00	2.34	2.31	117	115	68.9-153			1.22	20
Acenaphthene	2.00	2.22	2.22	111	111	67.7-141			0.270	20
Acenaphthylene	2.00	2.19	2.15	109	108	66.5-141			1.62	20
Benzo(a)anthracene	2.00	2.28	2.29	114	114	63.1-147			0.150	20
Benzo(a)pyrene	2.00	2.61	2.61	131	130	62.2-150			0.150	20
Benzo(b)fluoranthene	2.00	2.26	2.30	113	115	58.4-148			1.62	20
Benzo(g,h,i)perylene	2.00	2.60	2.56	130	128	57.4-152			1.87	20
Benzo(k)fluoranthene	2.00	2.55	2.50	128	125	60.5-154			2.34	20
Chrysene	2.00	2.38	2.38	119	119	64.8-155			0.310	20
Dibenz(a,h)anthracene	2.00	2.54	2.51	127	126	53.5-153			1.36	20
Fluoranthene	2.00	2.41	2.38	121	119	68.6-153			1.26	20

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

L870054-01

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3176167-1 11/07/16 05.10 • (LCSD) R3176167-2 11/07/16 05.32

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	2.00	2.12	2.11	106	105	67.3-141			0.570	20
Indeno(1,2,3-cd)pyrene	2.00	2.59	2.54	129	127	57.0-155			1.94	20
Naphthalene	2.00	2.06	2.08	103	104	66.7-135			0.860	20
Phenanthrene	2.00	2.15	2.15	108	107	64.3-143			0.360	20
Pyrene	2.00	2.36	2.30	118	115	60.2-154			2.60	20
1-Methylnaphthalene	2.00	2.23	2.27	112	114	68.3-144			1.75	20
2-Methylnaphthalene	2.00	2.25	2.26	113	113	67.6-143			0.410	20
2-Chloronaphthalene	2.00	2.16	2.16	108	108	69.7-144			0.230	20
(S) Nitrobenzene-d5				*120*	*119*	*33.8-179*				
(S) 2-Fluorobiphenyl				*118*	*118*	*55.5-150*				
(S) p-Terphenyl-d14				*107*	*105*	*46.2-163*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey-NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia	923	Ohio-VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [4]	2006
Louisiana	AI30792	Texas	T104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157685858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA-Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold — Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**

Stantec- Bellevue, WA

11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

Billing Information & Quote Number:
Accounts Payable- Phil Haberman
11130 NE 33rd Pl, Ste 200
Bellevue, WA 98004

Report to: Nate Magnusson Cyrus Gorman

Email To: Chris.Gdak@stantec.com; Cyrus.Gorman@stantec.com;

Project Description: Marlco

City/State Collected: Kent, WA

Phone: 425-289-7374
Fax: 425-869-1190

Client Project #: 185750123.A

Lab Project #: STANTECBWA-KENT

Collected by (print): Nate Magnusson

Site/Facility ID #:

P.O. #: 185750123

Collected by (signature): Immediately Packed on Ice N___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___200%
___ Next Day ___100%
___ Two Day ___50%
___ Three Day ___25%

Date Results Needed:

Email? ___No X_Yes
FAX? ___No ___Yes

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Cl,F,NO3-by 300 125mlHDPE-NoPres	NH3 125mlHDPE-H2SO4	NWTPHDXLVI 40mlAmb-HCl-BT	PAHSIMLVID 40mlAmb-NoPres-WT	Total RCRA8 + Al 250mlHDPE-HNO3						Pres./Container	Sample # (lab only)
MW-2	G	GW	—	11/2/16	1405	7	X	X	X	X	X							-01
		GW																
		GW																
		GW																
		GW																
		GW																
		GW																
		GW																
		GW																
		GW																

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks: *Nitrate has a 48 hour hold time.
Aluminum by method 6020.

pH _____ Temp _____ Lot# 1082711095768

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	11/3/16	1550	FedEx
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☒ FedEx ☐ Courier ☐ ____

Temp: 2.3 °C Bottles Received: 7

Date: 11-3-16 Time: 0900

Chain of Custody Page ___ of ___

ESC LAB SCIENCES

Hold #

Condition: DRY (lab use only)

COC Seal Intact: ___Y ___N ___NA

pH Checked: NCF:

Lab # L896054

A128

Acctnum: STANTECBWA
Template: T117073
Prelogin: P573472
TSR: 110 - Brian Ford
PB:
Shipped Via:

ESC LAB SCIENCES

YOUR LAB OF CHOICE

Cooler Receipt Form

Client: STANTEC BUSA	SDG#	L870054
Cooler Received/Opened On: 11/3/16	Temperature Upon Receipt:	2.8 °c
Received By: Nikki Farmer		
Signature:		

Receipt Check List	Yes	No	N/A
Were custody seals on outside of cooler and intact?			✓
Were custody papers properly filled out?	✓		
Did all bottles arrive in good condition?	✓		
Were correct bottles used for the analyses requested?	✓		
Was sufficient amount of sample sent in each bottle?	✓		
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)	✓		
If applicable, was an observable VOA headspace present?		✓	
Non Conformance Generated (If yes see attached NCF)			