

**Draft-Final
Remedial Investigation**

Northport Waterfront
Northport, Washington

for
Washington State Department of Ecology

October 2, 2019



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October 2, 2019

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1.0 INTRODUCTION

This report presents results of the remedial investigation field effort at the Northport Waterfront site (herein designated as the site) located in Stevens County along the south bank of the Columbia River near Northport, Washington (see Vicinity Map, Figure 1). This area of the river has been impacted by historical ore smelting wastes, primarily originating from former adjacent upland operations as well as upstream locations within the Upper Columbia River basin.

The site consists of riverbank and nearshore sediment along the Columbia River approximately 7 miles south of the United States-Canadian border. The site borders, in part, the Northport town park used for fishing, RV camping, boating and passive recreation activities. A small jetty divides the site approximately in half, forming a protected boat launch area in the upstream portion of the site. A broad, foot-accessible beach forms seasonally in the area downstream of the jetty during periods of low water levels, typically in the late summer, early fall, winter and early spring. Rising from the beach, steep vegetated slopes join the adjacent uplands consisting of upland town park facilities, a Burlington Northern and Santa Fe Railway Company (BNSF) right-of-way and a former smelter facility that had been previously remediated in 2004. Key features are depicted in Site Plan and Sample Locations, Figure 2.

This remedial investigation was conducted by GeoEngineers for the State of Washington Department of Ecology (Ecology) under Ecology Master Contract No. C1900044, work assignment number GEI007. The purpose of this investigation was to characterize metals contamination in sediment and adjacent shoreline soils at the Northport waterfront area. Data generated from this investigation will support planning potential remedial actions within the defined project area (Figure 2) to address ecological and human health risks associated with historical smelting activities.

1.1. Site Description

The site is located within the Northport town limits within the Upper Columbia River basin above the Grand Coulee dam and upstream of Lake Roosevelt and the National Recreation Area. The area of investigation is adjacent to the town park and the former Le Roi copper and lead smelter on the south bank and nearshore areas of the river between Smelter Rock and the Highway 25 bridge. Slag, in the form of sand-sized particles and aggregates (“clinker”) has been deposited along the waterfront over time. This area is also downstream of another large smelter across the United States-Canadian border in Trail, British Columbia.

The town park consists of an upper and lower area. The upper park is about 20 to 30 feet above the river and includes parking, picnic tables and shelters and several trailer hook-ups. The lower park includes an access road, boat launch, dock, shoreline and seasonal beach. The upper and lower portions of the park are separated by a steep vegetated bank; another vegetated bank separates the lower park from the river and seasonal beach. Portions of the waterfront, including the jetty, are permanently exposed and accessible. Water levels at the Northport waterfront are influenced by Columbia River flow conditions and indirectly by Lake Roosevelt, which is controlled by the Grand Coulee Dam. The shoreline bank and beach are exposed when river flows are low to moderate and as the water level in Lake Roosevelt is lowered to prepare for spring runoff, water flows or other pool management purposes.

1.2. Site History

The former Le Roi Smelter operated from about 1896 to 1921. The smelter initially refined copper, lead and silver ores from northeast Washington mines and copper and gold tellurium ores from British Columbia. The smelter reportedly processed ores until 1909 when operations temporarily ceased. Smelter waste operations included releasing slurried and clinker slags to the Columbia River at the site. After a period of inactivity, the smelter reopened briefly in 1914 to process primarily lead ore, operating intermittently until 1921 when operations finally ceased. Most smelter buildings (furnace, roaster, crusher, and ore buildings) were demolished prior to 1953, although some foundations and one stack remained until the early 2000s.

The upland smelter area and some town residences underwent an emergency response action overseen by the U.S. Environmental Protection Agency (EPA) in 2004. Response actions included demolition of remaining structures, excavation of shallow contaminated soil, on-site consolidation and subsequent capping of soil with a barrier layer and 1 foot of gravel. BNSF performed additional excavation of contaminated soil adjacent to and southeast of their right-of-way within the town park area that was incorporated into the EPA on-site disposal area. However, no cleanup actions to date have addressed the nearshore sediments and the bank impacted by smelter wastes and debris, including slags that historically were deposited along the shoreline or within the river. Slag materials (as both clinker and fine granulated particles) are widespread on the beach that is exposed during low water stages of the river. The observable nature of the exposed slag varies due to the dynamics of river flows in the area and over time.

1.3. Previous Investigations

Our review of available records indicated there previously have been limited investigations of sediment quality at the Site; most investigations focused on areas near the boat launch, dock and bay shoreline or at the top of the bank in the park area.

- In 2001, Ecology & Environment (E&E) collected nine sediment samples from slag areas along the Columbia River and analyzed them for target analyte list (TAL) metals. Total arsenic, cadmium, chromium, copper, lead, mercury and zinc were detected at “elevated/significant” concentrations (E&E 2002).
- Integral Consulting Inc. collected additional samples for EPA in 2009 and 2010 from the Northport beach and analyzed the samples for TAL metals. Elevated metals concentrations were detected (Integral Consulting, Inc. 2014).

Other samples have also been collected at or near the Northport waterfront as part of broader aquatic investigations of the Upper Columbia River. Ecology summarized the available data for selected metals from previous investigations, which are summarized in the project Work Plan (GeoEngineers 2019).

2.0 SCOPE OF WORK

To conduct the remedial investigation, the following tasks as documented in the Ecology-approved 2019 work plan (GeoEngineers 2019) were implemented:

- Conducted a site reconnaissance and marked the project area in advance of sampling and contacted the Washington Utility Notification Center to perform the required utility locate.

- Observed and documented sample collection from 26 test pits excavated to 4 feet below ground surface (bgs), 3 hand sample locations (hand excavated to 2 feet bgs) and 109 surface (0 to 0.5 feet bgs) grab locations. Sampling locations and depths were adjusted, as needed, based on the field conditions (accessibility, soil/sediment conditions and water level) encountered. During excavation activities, we prepared geologic logs of the subsurface materials observed.
- Collected soil samples at 6-inch-depth intervals where test pits and hand samples were excavated; surface samples were treated as a single interval. Samples from each interval were homogenized and portions of each sample were placed into laboratory-prepared sample containers, which were logged and placed in a chilled cooler for subsequent transport to the analytical laboratory. Another portion of each sample was screened on site for metals content using a hand-held x-ray fluorescence (XRF) instrument.
- Backfilled each test pit and shallow excavation immediately after sample collection using excavated materials and compacted the soil to match the surrounding grade.
- Conducted XRF screening on 329 surface soil/sediment samples throughout the project area, including on each shallow excavation, test pit and surface grab sample, using EPA Method 6200 procedures. This included drying each wet sample, screening the sample for metals using the XRF¹ and recording the data.
- Submitted 61 soil samples to Eurofins TestAmerica located in Spokane Valley, Washington using chain-of-custody protocols for chemical analysis of TAL metals (a list of the 23 metals is included on Laboratory Analytical Results, Table 2) on a standard turnaround time. Samples were selected for analysis in consultation with Ecology based on XRF results and field observations indicating the presence of slag. All other samples were archived.
- Analyzed an additional 10 archived samples in July 2019 for either TAL metals or only for arsenic, copper, lead and zinc to further inform the delineation of slag and XRF correlations.
- Disposed investigation-derived waste materials (gloves, bags, etc.)

3.0 FIELD INVESTIGATION

The field investigation was conducted from March 25 to March 28, 2019. The utility-locate service did not identify the presence of utilities in the planned sample areas.

Test pits TP-1 through TP-26 were excavated using a mini-excavator operated by Spokane Environmental Solutions (SES). Test pit locations are depicted on Figure 2. Each test pit was excavated to a depth of about 4 feet bgs. Samples were collected at 6-inch intervals from the sidewalls of the test pits using clean, new nitrile gloves; soil types including the clear visual presence or absence of slag were logged during the excavation.

In addition to the test pits, three hand samples (HS-1 through HS-3) were excavated using hand tools in locations that were inaccessible to the excavator along the upstream shoreline, northeast of the boat

¹ Samples were read after 45 to 60 seconds from the second beam to maximize the sensitivity of the reading.

launch. Hand samples were excavated until refusal at depths between 1½ to 2½ feet bgs. Samples were collected at 6-inch intervals from the hand samples. Hand sample locations are depicted on Figure 2.

To further evaluate the lateral extent of metals contamination and slag present at the site, 109 surface samples (XRF-1 through XRF-109) were collected from about 0 to 6 inches bgs. The surface samples were collected for XRF screening and potential lab analysis. Surface sample locations are depicted on Figure 2.

Each test pit was backfilled with the excavated material before moving on to the next exploration. During the sampling event, a cultural resource expert from Eastern Washington University was present to observe the test pit excavations for evidence of Native American artifacts or other evidence of historical use of the site. The cultural resource expert did not identify any artifacts or other evidence.

3.1. Site Conditions

The site was divided into five geographic subareas (Figure 2) to aid discussion and analysis of the distribution of metals (*beach, jetty, bay, bayshore and hillside*). Figures depicting analytical results and field observations were developed for the following areas:

1. *Beach* – consisting of the exposed sand and cobble beach and nearshore area located between the Highway 25 bridge, the hillside, the main channel flow of the Columbia River and the jetty. The beach is under water the majority of the year. The majority of the samples fall generally within the investigation area where the historical slag was discharged and mingled with sediment transported from upstream and deposited on the beach (TP-1 through TP-18, XRF-1 through XRF-24, XRF-28 through XRF-54, XRF-62, XRF-67 through XRF-70, XRF-85 through XRF-90 and XRF-102 through XRF-109).
2. *Jetty, Bay and Bayshore* – includes the manmade jetty constructed near the boat launch to provide calm water for the launching and retrieval of boats. Sample locations on the jetty include surface samples XRF-55 through XRF-61 and XRF-63. The bay is characterized by finer-grained sediments that have been deposited in the protected area between the jetty and the boat ramp. Portions of the bay shorelines form sandy beach or gravelly, cobbly areas, which were exposed and accessible for sampling. Four test pits (TP-19 and TP-22 through TP-24) and three surface samples (XRF-64 through XRF-66) were located in this area. The bayshore is the area located northeast of the boat dock that includes exposed sediment near the shore and at the base of the riverbank. Two test pits (TP-25 and TP-26), the three hand samples (HS-1 through HS-3) and five surface samples (XRF-96 through XRF-101) were located in this area.
3. *Hillside* – is the upland area south of the beach that slopes down to the river and is heavily vegetated. This area is exposed year-round. Clearings within this area show evidence of use as recreational areas. Sample locations in this area include TP-20 and TP-21, XRF-25 through XRF-27, XRF-71 through XRF 84, and XRF-91 through XRF-95.

Five bulk soil samples [TP-12 (0-1 and 1-4 feet bgs), TP16 (0 to 2 feet [ft] bgs), TP-22 (0 to 3 ft bgs), and TP-9 (3 to 4 ft bgs)] were collected from the different types of soil encountered in the field to characterize grain sizes. Samples were analyzed at the GeoEngineers Spokane office using ASTM Method C 136. Sediment and soil types from the locations sampled were generally fine to coarse sands with some small gravel or silt. Finer-grained material was primarily found in the protected embayment near the boat launch and immediately downstream of the jetty associated with a lower elevation depression in the beach area. Coarser materials were more dominant elsewhere at the site. Visual observations of the bed surfaces

indicate large riprap, cobble/gravel armoring and smelter waste (clinker, etc.) made up a portion of the sediment present. Hillside soils included finer materials in general with evidence of slags in some areas.

Grain size results from selected locations are provided in Appendix A.

3.2. Field Screening Results

Field screening consisted of visual observation of the soil conditions and XRF screening of each sample collected from the test pits, hand samples and surface sample locations. XRF results are presented in Table 1.

3.2.1. Visual Observations

Slag was observed in 101 of the 138 locations sampled along the waterfront. Slag was usually visible as a distinct layer within the sediment or soil column and it appeared as either black granulated material (similar to a coarse sand) or as clinkers. Most of the observed slag was either granular or mixed granular and clinker; few locations (primarily on the hillside or along the bayshore) were described as clinker only. For the most part, slag was primarily observed in the top foot of the sediment or soil column. Slag occurred deeper in the sediment in the depositional area downstream of the jetty (T-16 from 1.5 to 4 feet bgs) and in the boat launch area (TP-22 from 3 to 4 feet bgs). Visual Slag Deposition, Figures 3a through 3c, depict where slag and what type (granular, clinker or mixed) was observed. Exploration logs for each test pit and hand sample are included in Appendix B.

3.2.2. XRF Screening

The XRF screening was conducted using an Olympus Innov-x Delta XRF. XRF screening followed EPA Method 6200 procedures as described in Appendix C. These procedures included reducing the moisture content by placing wet samples (TP-6(0-0.5), TP-10(0.0.5 and 1-1.5) TP-21(0-0.5 and 1-1.5), TP-24(2.5-3, 3-3.5 and 3.5-4) and TP-26(3-3.5 and 3.5-4) in a drying oven until free moisture was no longer observed. Samples were also hand screened to homogenize the grain size of the samples to provide consistent XRF results. Detection limits for XRF analyzers are found in Table I below.

TABLE I. DETECTION LIMITS FOR XRF ANALYZER

Metals	XRF Detection Limit¹ (ppm)
Antimony	50 - 100
Arsenic	10 - 100
Barium	50 - 100
Cadmium	50 - 150
Calcium	250 - 2,500
Chromium	10 - 100
Cobalt	10 - 100
Copper	10 - 100
Iron	10 - 100
Lead	10 - 100

Metals	XRF Detection Limit¹ (ppm)
Manganese	10 - 100
Mercury	10 - 100
Nickel	10 - 100
Potassium	250 - 2,500
Selenium	10 - 100
Silver	50 - 150
Zinc	10 - 100

Notes:

¹Detection limits found in Innovex Systems "Handheld, High-performance X-ray Fluorescence Analyzers."

ppm = parts per million

The XRF provided screening results for the following 16 metals: antimony, arsenic, barium, calcium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, potassium, selenium, silver and zinc. The XRF results are summarized in XRF Screening Results, Tables 1a through 1c, and by the following:

- Antimony, arsenic, calcium, chromium, cobalt, mercury, potassium, nickel, selenium and silver were not detected in the majority of the soil samples screened. For reporting purposes, the detections of these compounds (except arsenic) are considered secondary to remedial alternatives planning.
- Barium screening results ranged from not detected (multiple samples) to 3,129 ppm in sample TP-17(0-0.5).
- Copper screening results ranged from not detected (multiple samples) to 4,057 ppm in sample TP 21 (0.5-1).
- Iron was detected in every sample screened at concentrations between 2,205 ppm in sample XRF-35 and 788,000 ppm in sample TP-22(3-3.5).
- Lead screening results ranged from not detected (multiple samples) to 60,200 ppm in sample TP 9(2 2.5).
- Manganese screening results ranged from non-detect (multiple samples) to 41,800 ppm in sample TP 9(2-2.5).
- Zinc screening results ranged from non-detect (multiple samples) to 58,700 ppm in sample TP 22(3 3.5).

4.0 CHEMICAL ANALYTICAL RESULTS

Fifty-nine samples (along with two duplicates) collected from the test pits, hand and surface sample locations were initially submitted for chemical analysis of the TAL metals at Eurofins TestAmerica located in Spokane Valley, Washington. Ten archived samples were later analyzed to augment the data set following a preliminary review of the results. TAL metals include the metals listed above screened by the XRF as well as aluminum, beryllium, cadmium, magnesium, sodium, thallium, and vanadium. The samples were analyzed using EPA Method 6010C and EPA Method 7471B (only mercury).

The samples selected for analysis were chosen to represent a broad range of concentrations estimated from the XRF screening, with the goal to evaluate correlations between the XRF data and the laboratory results for possible use in estimating the extent of contamination at the site. The samples selected for laboratory analysis and the results are presented in Table 2.

Results were compared to regulatory and risk-based screening levels, where available, to establish the nature and extent of contamination and evaluate the performance of the XRF analysis. Data quality was confirmed by validation procedures developed by EPA (2009, 2017).

4.1. Screening Levels

Screening levels for the metals analyzed and frequently detected at the site are derived from the Model Toxics Control Act (MTCA) Method A cleanup levels, MTCA Method B cleanup levels where no Method A value has been promulgated and the Upper Columbia River Basin risk-based screening levels developed by Ecology (Ecology 2019). As noted by Ecology, the bioassay-based value for zinc is highly uncertain and unreliable; therefore, the state freshwater Sediment Management Standard Sediment Cleanup Objective for zinc (3,200 milligrams per kilogram [mg/kg]) was used for comparative purposes only.

There were a number of metals that were not carried forward in the data evaluation process. Beryllium, selenium and thallium were not detected in any sample and therefore not carried forward. No screening level was available for cobalt. Aluminum, antimony, silver and vanadium currently are not identified as primary river sediment contaminants of concern. Metals that serve as essential nutrients (calcium, magnesium and potassium) also are not further evaluated as part of this report.

The preliminary cleanup levels are presented for screening purposes in Table II below:

TABLE II. PRELIMINARY CLEANUP AND SCREENING LEVELS EVALUATED FOR USE IN THE REMEDIAL INVESTIGATION¹

Metals	MTCA Method A	MTCA Method B (Non-Cancer)	Upper Columbia River Basin Risk-based Screening Level
Arsenic	20		12.9
Barium		16,000	
Cadmium	2		
Chromium			131
Copper		3,200	143
Iron		56,000	
Lead	250		338
Manganese		11,200	
Mercury			1.46
Nickel			39
Zinc		24,000	3,200²

Notes:

¹ All units in mg/kg.

² Screening value is the sediment management standards (SMS) freshwater sediment cleanup objective.

Bold values selected for use in the remedial investigation report.

4.2. Data Validation

GeoEngineers completed the data validation of the laboratory analytical data consistent with the EPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (EPA 2017) (National Functional Guidelines) to determine if the laboratory analytical results meet the project objectives and are usable for their intended purpose. Data usability was assessed by determining if:

- The samples were analyzed using well-defined and acceptable methods that provide reporting limits below applicable regulatory criteria;
- The precision and accuracy of the data are well-defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

In accordance with the Quality Assurance Project Plan (QAPP), included as part of the Northport Waterfront Remedial Investigation Work Plan (GeoEngineers 2019), the data validation included review of the following elements:

- Data package completeness
- Chain-of-custody documentation
- Holding times and sample preservation
- Method blank concentrations
- Matrix spikes/matrix spike duplicates
- Laboratory control samples/laboratory control sample duplicates
- Laboratory/field duplicates

Laboratory data were found to be acceptable for their intended use. Where results were uncertain due to reduced performance of one or more of the factors listed above, data were qualified to indicate the level of uncertainty. The validation report is provided in Appendix D.

4.3. Evaluation of XRF Data Use in Nature and Extent

XRF screening has been shown to be a reasonable tool for determining the magnitude of metals in soil at a site. However, the reliability of the results can vary by individual metal and site conditions. XRF data have been reported by others as reliable for copper, lead, nickel and zinc; whereas arsenic, cadmium, chromium and mercury typically perform poorly (Wu et al. 2012). In addition, while minimized by handling and preparation protocols, the instrumentation is sensitive to environmental factors such as soil moisture. Each site-specific data set must be evaluated for performance and reliability. Of interest is how well the XRF data predict where an exceedance of a screening level may occur. Performance can be evaluated using a statistical approach, such as correlation and regression tests and calculating the relative percent difference between XRF and laboratory results. Accuracy rates for identifying screening level exceedances can also be evaluated.

Statistical correlations were tested for those metals that were frequently detected (arsenic, barium, chromium, copper, iron, lead, manganese and zinc) to evaluate how well the XRF estimated the magnitude

of a metal in a given sample and how well it predicted an exceedance of the screening level. A correlation analysis of the XRF and laboratory results showed a relationship for several metals. Correlation coefficients for paired XRF and lab data are as follows:

TABLE III. CORRELATION MATRIX

Metals		Laboratory Results							
		As	Ba	Cr	Cu	Fe	Pb	Mn	Zn
XRF Results	As	-0.15							
	Ba		0.36						
	Cr			0.10					
	Cu				0.66				
	Fe					0.76			
	Pb						0.57		
	Mn							0.95	
	Zn								0.89

Notes:

Green shading indicates correlation coefficients >0.55 (indicating reasonable correlation).

Orange shading indicates correlation coefficients <0.55 (poor correlation).

Correlations greater than 0.55 (shaded in green) were judged sufficient to allow use of the XRF data to estimate the extent of contamination for a given metal. Where correlations were low (<0.55), the laboratory data were used (specifically for arsenic).

The relative percent difference (RPD) between XRF and laboratory results for those metals with reasonable correlations was also calculated. The RPDs ranged about ±200 percent (negative RPDs indicated the XRF results tended to underestimate actual concentrations whereas positive RPDs indicate that the XRF results tended to overestimate actual concentrations). Individual RPDs averages (and ranges) across all concentrations were:

- Copper – average 39 percent (-138 percent to 200 percent)
- Iron – average -18 percent (-115 percent to 196 percent)
- Lead – average 26 percent (-157 percent to 170 percent)
- Manganese – average -18 percent (-155 percent to 97 percent)
- Zinc – average 47 percent (-97 percent to 200 percent)

Further evaluation was conducted to compare rates that XRF data correctly designated a sample as exceeding a screening level (or not) (Appendix E, Table E-1). In statistics, these rates are referred to as false positives (XRF result incorrectly indicates a sample exceeds when the paired laboratory result was less than the screening level) or false negatives (XRF result incorrectly indicates a sample does not exceed when the laboratory result was greater than the screening level). For those metals where the XRF data were judged adequately correlated with the laboratory data, the rates of false-positives ranged from 0 to 15 percent; false-negative rates ranged from 0 to 18 percent. For both types of errors, these rates are considered acceptable for site investigation and informing decisions about site cleanup.

TABLE IV. ERROR RATES ASSOCIATED WITH IDENTIFICATION OF SCREENING LEVEL EXCEEDANCES

Metals	False Positive Rate (percent)	False Negative Rate (percent)
Copper	8	14
Iron	15	11
Lead	4	14
Manganese	5	0
Zinc	0	18

Based on these correlations, the XRF screening results are appropriate to use to evaluate the extent of copper, iron, lead, manganese and zinc. For other metals, empirical laboratory data should be used. Details of the evaluation and comparison of XRF and laboratory analytical data are provided in Table E-1 of Appendix E.

4.4. Nature and Extent of Contamination

The discussion of the nature and extent of contamination along the Northport waterfront focuses on smelter-related metals that have previously been detected at concentrations greater than preliminary cleanup or screening thresholds in the waterfront sediment and in upland areas. Arsenic, cadmium, chromium, copper, lead, mercury and zinc have been identified as the most likely threats to human and environmental health based on previous studies. Also evaluated are selected metals frequently detected or frequently above screening levels.

A summary of the frequency of detection and the frequency samples exceeded their respective screening level based on laboratory analytical data is provided in Table V below:

TABLE V. FREQUENCY OF DETECTION AND FREQUENCY OF PRELIMINARY CLEANUP OR SCREENING LEVEL EXCEEDANCE OF METALS IN SEDIMENT AND BANK SOIL BASED ON LABORATORY ANALYTICAL DATA

Metals	Preliminary Cleanup or Screening Level (mg/kg)	Number of Samples Analyzed	Number of Samples Detected	Frequency of Detection (percent)	Number of Samples Exceeding Screening Level	Frequency of Exceedance (percent)	Maximum Exceedance Ratio
Arsenic	12.9	69	57	84	23	33	5.2
Barium	16,000	63	63	100	0	0	0.1
Cadmium	2	63	16	25	14	22	6
Chromium	131	69	60	87	2	3	1.1
Copper	143	69	69	100	57	83	21
Iron	56,000	63	63	100	34	54	4.5
Lead	250	69	69	100	44	64	60
Manganese	11,200	63	63	100	5	8	1.7
Mercury	1.46	63	23	37	1	2	2.3
Nickel	39	63	48	76	0	0	0.7
Zinc	3,200	69	69	100	41	59	14

A summary of the frequency of detection and the frequency samples exceeded their respective screening level based on XRF data is provided in Table VI below:

TABLE VI. FREQUENCY OF DETECTION AND FREQUENCY OF PRELIMINARY CLEANUP OR SCREENING LEVEL EXCEEDANCE OF METALS IN SEDIMENT AND BANK SOIL BASED ON XRF DATA

Metals	Preliminary Cleanup or Screening Level	Units	Number of Samples Analyzed	Number of Samples Detected	Frequency of Detection (percent)	Number of Samples Exceeding Screening Level	Frequency of Exceedance (percent)	Maximum Exceedance Ratio
Copper	143	ppm	329	269	82	220	67	28
Lead	250	ppm	329	326	99	140	42	241
Zinc	3,200	ppm	329	307	93	109	33	18

The evaluation of the extent of smelter waste focused on arsenic, copper, lead and zinc. Other metals occurred at a lower magnitude (i.e., barium, chromium, manganese, mercury, nickel) and/or are less of a concern from a risk perspective (e.g., barium, iron and manganese).

XRF data are provided in Tables 1a through 1c and laboratory results are presented in Table 2. The distribution of arsenic, copper, lead and zinc by investigation area and sample depth are provided in Figures 4a through 4c, Figures 5a through 5c, Figures 6a through 6c and Figures 7a through 7c, respectively. Arsenic data in Figures 4a through 4c are represented by laboratory data only because of the lack of correlation between the lab and XRF results; copper, lead and zinc are represented by XRF data. Average concentrations for arsenic, copper, lead and zinc by subarea and sampling depth, as well as site wide are compiled in Table 3.

4.4.1. Arsenic

Arsenic was detected in 83 percent of the samples analyzed in the lab (n=69) and exceeded its screening level (12.9 mg/kg) in 32 percent of the cases. Concentrations greater than the screening level were variable with depth. In general, highest concentrations were found within the top two feet below the surface. The *bay*, *jetty* and *beach* subareas exhibited the highest overall average concentrations. Qualitatively, concentrations greater than the screening level appeared to be closely associated with locations where slag was visually observed. The single-sample maximum concentration was 67 mg/kg (exceedance ratio [ER] of 5.2) and occurred at XRF-24 (a surface sample) on the western end of the *beach* subarea. Concentrations greater than the screening level occurred in approximately half of the surface samples (0 to 1 ft samples) on the *beach*. Along the *jetty*, *bay* and *bayshore*, few surface samples exceeded the arsenic screening level. The one station in the *hillside* area was a surface sample (0 to 1 ft) analyzed in the lab for arsenic and was less than the screening level.

The site-wide average arsenic concentration was slightly greater than the screening level (14.5 mg/kg vs 12.9 mg/kg); area averages exceeded the screening level for all areas except the *hillside* and the *bayshore*, north of the boat launch.

4.4.2. Copper

Copper was detected by XRF in 82 percent the samples field-screened (n=329) and exceeded its preliminary cleanup level (143 mg/kg) in 67 percent of the samples; these frequencies are similar to but slightly lower than laboratory analytical results (100 percent detected and 83 percent of samples exceeded the preliminary cleanup level). Copper preliminary cleanup threshold exceedances occurred at locations both with and without visible slag; however, higher concentrations were commonly associated with visually identified slag. Fourteen locations did not exceed the copper screening level in any sample horizon, the majority of these within the *hillside* and *bayshore* subareas. Highest concentrations were generally found within the first foot below the surface. Notable vertical gradients less than 1 foot were not evident. Copper preliminary cleanup level exceedances were present at the maximum sampling interval (4 feet bgs) in nine of the 18 test pits excavated in the *beach* area, one of the two test pits excavated on the *hillside* and two of the six test pits excavated in the *bay* and near the *jetty*. Concentrations greater than the preliminary cleanup level occurred in most surface samples (0 to 1 ft samples) on the *beach*, along the *jetty* and in the *bay*; fewer surface samples exceeded the copper screening level along the *bayshore* or on the *hillside*. The maximum XRF concentration from any individual sample was estimated to be 4,057 ppm (ER = 28) and occurred at TP-21 in the *hillside* area at a depth of 0.5 to 1 foot bgs.

The site-wide average copper concentration combining all XRF data was greater than the preliminary cleanup level; subarea averages exceeded the preliminary cleanup level for all areas except the *bayshore* area.

4.4.3. Lead

Lead was detected by XRF in 99 percent the samples field-screened (n=329) and exceeded its preliminary cleanup level (250 mg/kg) in 42 percent of the samples (this was very similar to the laboratory analytical results where lead was detected in all samples and exceeded the preliminary cleanup level in 44 percent of the samples analyzed). Lead exceedances occurred at locations both with and without visible slag. In the *beach* subarea lead exceedances were commonly associated with observed presence of slags. Slag association was less prevalent in the other subareas. Lead exceedances were recorded at the maximum sampling interval (4 feet bgs) in three of the 18 test pits excavated on the *beach*, one of the two test pits excavated on the *hillside* and one of the six test pits excavated in the *bay* and near the *jetty*. Concentrations greater than the preliminary cleanup level occurred in most surface samples (0 to 1 ft bgs) on the *beach*; less consistently, surface samples exceeded the lead screening level elsewhere at the site. The maximum XRF concentration from any individual sample was estimated to be 60,200 ppm (ER = 241) and occurred at TP-9 in the *beach* subarea (near the base of the hillside) at a depth of 2 to 2.5 feet bgs.

The site-wide average lead concentration combining all XRF data was greater than the preliminary cleanup level; subarea averages exceeded the screening level for all areas except the *jetty*.

4.4.4. Zinc

Zinc was detected by XRF in 93 percent the samples field-screened (n=329) and exceeded its screening level (3,200 mg/kg) in 33 percent of the samples (this was similar to the laboratory results where zinc was detected in 100 percent of the samples analyzed and exceeded its preliminary cleanup level in 41 percent of the samples). Zinc exceedances occurred throughout the site and were vertically dispersed in the cores. The *beach* and *hillside* subareas exhibited the highest concentrations within the 0 to 1 ft interval. Percent-level concentrations were common, particularly in the *beach* subarea. Zinc was detected at locations both

with and without visible slag. Higher concentrations were commonly, but not consistently, associated with visible slags. The maximum XRF concentration from any individual sample was estimated to be 58,700 ppm (ER= 128) and occurred at TP-22 in the *bay* subarea at a depth of 3 to 3.5 feet bgs.

The site-wide average combining all XRF data exceeded the screening level for zinc. Investigation subarea averages also exceeded the zinc screening level except for the *bayshore* and *hillside* areas.

5.0 CONCEPTUAL SITE MODEL

GeoEngineers prepared a conceptual site model (CSM) to describe surface and subsurface site conditions, define the nature and extent of known contamination, and identify potential exposure pathways from site sources of contaminants to potential receptors. The CSM was developed using historical data, data generated during this investigation and our observations from site visits. The CSM is graphically depicted in Conceptual Site Exposure Model, Figure 8, and further described below.

5.1. Historical Sources and Remaining Wastes

As introduced previously, site contamination primarily resulted from smelter operations in the upland, and secondarily upstream river-transported Trail smelter slag and effluent. Historical photographs and plans indicate that LeRoi/Northport smelter flumes formerly extended from the operations down the hillside to the Columbia River, depositing waste slag in or along the Columbia River nearshore and the shoreline. These granular and aggregated (clinker) slag deposits are now mostly located in the seasonal *beach*, *hillside* and the *jetty*.

Although the smelter area and other sources in the upland have been remediated, the riverbanks and waterfront sediment impacted by historical activities remain contaminated.

5.2. Contaminants of Concern

Smelter discharge wastes contained a number of metals, which comprise the contaminants of concern for the site. Previous investigations established that arsenic, chromium, copper, lead and zinc were elevated above risk-based screening levels in the sediment. Current investigation results indicated that copper, lead and zinc are the most representative and commonly widespread contaminants with the most significant risks at the site. These contaminants exceeded their respective preliminary cleanup or screening levels: maximum exceedance ratios 18 (zinc), 28 (copper) and 241 (lead) times based on XRF results. Arsenic exceedances had a limited distribution with the highest concentration about 5 times the screening level.

5.3. Receptors and Exposure Pathways

Potential receptors include nearby residents, park visitors, park maintenance workers, fish, wildlife and aquatic organisms (primarily those that live in the sediment). Release mechanisms, exposure points and exposure routes for contamination contained at the site may include:

1. Direct human contact with exposed or near-surface contaminated soil and sediments (dermal contact and inhalation/ingestion of dust and contaminants) by visitors and park workers.
2. Aquatic life exposure to sediments or associated porewater.

3. Incidental ingestion of soil or sediment by higher trophic order ecological receptors during foraging for food, grooming and resting
4. Bioaccumulation from consumption of contaminated food (e.g., humans eating fish) or prey (e.g., birds or fish foraging on juvenile fish and aquatic invertebrates).

5.4. Sediment Stability

The Northport waterfront is located approximately 5 river miles upstream of the Lake Roosevelt pool boundary. Water levels at the waterfront are influenced in a complex manner by Columbia River flow conditions and indirectly by Lake Roosevelt water surface elevations controlled by Grand Coulee Dam. Under summer reservoir pool conditions and lower river flows, the site takes on a low velocity lake-like appearance with most of the site under water. Sediment (and slag particles) are actively disturbed and redistributed during periods of high river flows. Introduction of upstream sediment transport also influences site sediments.

The seasonal *beach* and *jetty* subareas are exposed to the highest velocities, as established by a United States Geological Survey (USGS) Doppler survey performed for Ecology (Anderson and Elwell 2018, results provided in Appendix F). Portions of the *beach* subarea are armored by a cobble/gravel matrix. Other zones are finer grained and exhibit characteristics of erosional or depositional processes. The constructed *jetty* is significantly composed of bed sediments borrowed from the *beach* subarea and is composed of mixed grain-sizes. It undergoes systematic progressive erosion and has required replenishment. The distribution and profiles of contaminants in portions of the *beach* subarea and the *jetty* are a direct consequence of the excavation and placement histories. The past borrowing also has strongly influenced the bathymetry profile and topography (e.g., hummocky surface and pooling areas) immediately downstream of the *jetty*.

The *bay* and *bayside* subareas exhibit lower hydraulic forces due to natural river eddy and jetty effects. The *bay* shoreline bordering the jetty and adjacent the dock is a zone of net deposition of river sands and silts and potentially some from the eroding jetty. The *bayside* shoreline extending upstream of the boat launch is a stable, generally coarse-grained subarea and is distinct from the other subareas and upstream of the most evident LeRoi smelter waste impacts.

The *hillside* subarea exhibits scattered contaminants and construction debris dispersed along its steep bank from legacy smelter demolition and upland surface regrading. Near the base of the hillsides and near the shoreline, the area contains fluvially deposited materials from either recent or historical high-water flooding events. The rise and fall of the river level or currents during high water erodes the steep bank soil and shoreline in some unarmored areas.

While the rates of accretion and erosion across the site have not been quantified, several years of observation by Ecology, review of aerial images and photographs indicate the site is generally stable with gradual localized erosion and deposition (per com, J. Roland). Bed-load waveforms of slag-bearing sands and fine gravel-dominated sediments have been observed to migrate through the beach subarea over the years (per com, J. Roland); however, within the past 3 to 5 years this appears less common.

6.0 SUMMARY, CONCLUSIONS AND NEXT STEPS

The Northport waterfront site is contaminated with smelter and smelter-slag wastes from historical operations of both the former Le Roi copper and lead smelter and upstream sediments. Although the adjacent upland smelter facility has been demolished and the soil remediated, riverbank soil and nearshore sediment are still affected by these legacy smelter wastes that were discharged during historical operations or remobilized. Contaminant concentrations are high enough to represent a threat to human health and the environment and are widespread. Although a number of metals are present and may exceed preliminary cleanup levels and screening levels, copper, lead and zinc are most widespread and are at elevated concentrations throughout the site such that their distribution and magnitude can be the focus of the feasibility study to determine a remedy for the site.

6.1. Areas Requiring Remediation

Based on the distribution and magnitude of copper, lead and zinc, the entire site should be evaluated in the feasibility study (FS) for cleanup options. The subareas described in this report provide functionally discrete zones for separate alternative analyses. Copper defined both the maximum areal extent and maximum depth of contamination across all investigation areas. The *beach* subarea exhibits the greatest impacts with the maximum area and depth of contamination extending to 4 feet bgs. For the *jetty* subarea, it is anticipated that much of the contamination extends below the sampled surface because some of the material used to construct the jetty was locally sourced. Ecology anticipates that remediation alternatives for the *jetty* subarea will be based on the premise that a jetty structure will be required to provide continued protection of a boat launch area. The *hillside* subarea exhibits mature vegetation in several areas. Ecology has stated that wholesale disturbance of such an established habitat is not a preferred initial approach. As such, Ecology anticipates the evaluation of cleanup alternatives for the hillside will be limited to targeting hotspots or high-use areas most accessible to recreationalists and enhancements of existing habitat.

6.2. Next Steps

Based on the contaminant concentrations and distribution, we recommend exploring focused remedial alternatives to reduce the risk described in the CSM to potential receptors. Two priorities have been identified by Ecology: reductions to recreational lead exposure across the foot-accessible areas of the site and reductions to ecological aquatic sediment exposures (in particular, benthic invertebrates and foraging fish). The two primary remedial technologies for alternative assessments anticipated include: (1) excavation and offsite disposal or (2) consolidation and capping in-place technologies. Various configurations, combinations and disposal options of the two alternatives will be considered during the process.

Current river hydraulics and bathymetry are well defined for the site. Excavation alternatives potentially pursued that may result in substantial alterations of the riverbed configuration will be considered in areas where more aggressive removal and resulting modified river flow characteristics will be expected to improve remedy durability, permanence, reduce potential recontamination rates, or improve recreational and habitat functions. Actual significant alterations of site hydraulics and geomorphology may require enhanced assessment, which could include site-specific hydraulic modeling to be incorporated into the remediation design process. Capping the contaminated sediment in-place is a common and effective remediation alternative, particularly in areas where designs can accommodate river dynamics, maintain habitat function and not re-expose contaminated material or mobilize the capped material.

7.0 REFERENCES

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- GeoEngineers. 2019. Northport Waterfront Remedial Investigation Work Plan, Northport, WA. Prepared for the Washington State Department of Ecology. March 7, 2019.
- Washington State Department of Ecology (Ecology). 2019. Dowling, B. and J. Roland. Memorandum to P. Huckleberry re: Establishment of Site-specific SMS Metals Cleanup Objectives for Contaminated Sediments – Northport Waterfront and State Cleanup Site. April 25, 2019.
- Wu, C-M, H-T Tsai, K-H Yang, and J-C Wen. 2019. How reliable is x-ray fluorescence (XRF) measurement for different metals in soil contamination. *Environmental Forensics* 13(2):110-121.

Table 1a
Test Pit XRF Results
Northport Waterfront Remedial Investigation
3/25/19 through 3/27/19
Northport, Washington

Test Pit	Sample Depth (feet bgs)	Sb	As	Ba	Ca	Cr	Co	Cu	Fe	Pb	Mn	Hg	K	Ni	Se	Ag	Zn
TP-1	0-0.5	174	ND	2,366	ND	471	ND	1,287	233,600	569	4,642	60	ND	ND	ND	ND	10,400
	0.5-1	ND	ND	487	ND	194	ND	370	35,400	284	1,412	ND	ND	ND	ND	ND	2,245
	1-1.5	ND	ND	552	ND	ND	ND	213	19,400	29	487	ND	ND	ND	ND	ND	269
	1.5-2	ND	ND	711	ND	ND	ND	234	36,100	154	771	ND	ND	ND	ND	ND	1,011
	2-2.5	ND	ND	616	ND	171	ND	272	34,300	87	761	ND	ND	ND	ND	ND	808
	2.5-3	ND	ND	808	ND	ND	ND	263	29,600	54	610	ND	ND	ND	ND	ND	434
	3-3.5	ND	ND	539	ND	ND	ND	192	28,600	129	694	ND	ND	ND	ND	ND	507
	3.5-4	ND	ND	408	ND	ND	ND	121	24,000	73	415	ND	ND	ND	ND	ND	254
TP-2	0-0.5	ND	ND	469	ND	ND	ND	74	13,200	29	251	ND	ND	ND	ND	ND	63
	0.5-1	ND	ND	ND	ND	ND	ND	134	16,900	24	248	ND	ND	ND	ND	ND	118
	1-1.5	ND	ND	ND	ND	ND	ND	64	18,100	ND	376	ND	ND	ND	ND	ND	40
	1.5-2	ND	ND	526	ND	ND	ND	57	11,300	14	242	ND	ND	ND	ND	ND	21
	2-2.5	ND	ND	ND	ND	ND	ND	117	29,000	25	610	ND	ND	ND	ND	ND	402
	2.5-3	ND	ND	418	ND	ND	ND	75	17,700	25	471	ND	ND	ND	ND	ND	75
	3-3.5	ND	ND	878	ND	ND	ND	199	46,100	364	980	ND	ND	ND	ND	ND	1,427
	3.5-4	ND	ND	353	ND	ND	ND	ND	11,700	35	629	ND	ND	ND	ND	ND	83
TP-3	0-0.5	ND	ND	710	ND	ND	ND	259	60,500	470	1,168	ND	ND	ND	ND	ND	3,149
	0.5-1	112	358	ND	ND	ND	ND	1,591	357,800	6,478	12,400	ND	ND	ND	ND	ND	26,200
	1-1.5	ND	ND	ND	ND	ND	ND	ND	24,000	22	460	ND	ND	ND	ND	ND	249
	1.5-2	ND	ND	852	ND	190	ND	ND	46,700	38	563	ND	ND	ND	ND	ND	411
	2-2.5	ND	ND	686	ND	161	ND	ND	18,700	18	351	ND	ND	ND	ND	ND	191
	2.5-3	ND	ND	479	ND	ND	ND	ND	23,900	11	428	ND	ND	ND	ND	ND	237
	3-3.5	ND	ND	ND	ND	ND	ND	ND	19,600	28	355	ND	ND	ND	ND	ND	239
	3.5-4	ND	ND	465	ND	ND	ND	105	29,600	231	540	ND	ND	ND	ND	ND	1,268
TP-4	0-0.5	125	ND	ND	ND	372	ND	866	152,900	214	2,526	ND	ND	ND	ND	ND	5,540
	0.5-1	ND	ND	566	ND	ND	ND	307	11,400	11	289	ND	ND	ND	ND	ND	ND
	1-1.5	ND	ND	ND	ND	187	ND	265	11,100	11	199	ND	ND	ND	ND	ND	39
	1.5-2	ND	ND	614	ND	ND	ND	238	20,000	17	415	ND	ND	ND	ND	ND	148
	2-2.5	ND	ND	512	ND	ND	ND	342	23,800	30	399	ND	ND	ND	ND	ND	284
	2.5-3	ND	ND	ND	ND	ND	ND	403	17,000	25	342	ND	ND	ND	ND	ND	204
	3-3.5	ND	ND	ND	ND	136	ND	180	16,900	20	376	ND	ND	ND	ND	ND	160
	3.5-4	ND	ND	ND	ND	ND	ND	151	15,400	28	374	ND	ND	ND	ND	ND	113
TP-5	0-0.5	91	ND	ND	ND	2292	ND	1,575	374,100	7,251	11,600	ND	ND	ND	ND	ND	34,900
	0.5-1	ND	11	954	ND	306	ND	1,404	90,700	30	987	ND	ND	67	ND	ND	909
	1-1.5	ND	ND	547	ND	ND	ND	86	34,200	21	519	ND	ND	ND	ND	ND	74
	1.5-2	ND	ND	ND	ND	159	ND	255	46,500	124	748	ND	ND	ND	ND	ND	541
	2-2.5	ND	ND	564	ND	163	ND	ND	24,900	52	521	ND	ND	ND	ND	ND	317
	2.5-3	ND	ND	538	ND	ND	ND	ND	21,600	82	625	ND	ND	ND	ND	ND	160
	3-3.5	49	ND	811	ND	ND	ND	235	46,200	76	860	ND	ND	ND	ND	ND	853
	3.5-4	ND	ND	654	ND	ND	ND	63	22,100	33	900	ND	ND	ND	ND	ND	210
TP-6	0-0.5	ND	ND	711	ND	350	ND	653	54,600	601	771	ND	ND	114	ND	ND	1,642
	0.5-1	ND	21	916	ND	312	ND	772	80,200	53	875	ND	ND	ND	ND	ND	387
	1-1.5	ND	12	577	ND	195	ND	244	53,400	20	806	ND	ND	ND	ND	ND	57
	1.5-2	ND	16	547	ND	226	ND	494	57,300	24	543	ND	ND	ND	ND	ND	80
	2-2.5	ND	20	2,439	ND	380	ND	119	184,600	23	2,308	ND	ND	85	ND	ND	127
	2.5-3	ND	ND	689	ND	218	ND	152	42,800	134	620	ND	ND	ND	ND	ND	461
	3-3.5	ND	ND	ND	ND	ND	ND	ND	30,400	78	392	ND	ND	ND	ND	ND	199
	3.5-4	ND	ND	689	ND	146	ND	515	67,500	129	754	ND	ND	ND	ND	ND	278
TP-7	0-0.5	133	ND	2,160	ND	255	ND	1,133	207,600	787	3,909	44	ND	ND	ND	ND	7,533
	0.5-1	ND	ND	924	ND	ND	ND	327	41,400	141	668	ND	ND	ND	ND	ND	1,702
	1-1.5	ND	ND	ND	ND	ND	ND	266	16,600	33	428	ND	ND	ND	ND	ND	168
	1.5-2	95	ND	ND	ND	ND	ND	360	66,300	182	1,017	ND	ND	ND	ND	ND	2,342
	2-2.5	ND	ND	781	ND	ND	ND	227	33,000	36	607	ND	ND	ND	ND	ND	1,137
	2.5-3	ND	ND	697	ND	ND	ND	200	26,900	52	650	ND	ND	31	ND	ND	635
	3-3.5	ND	ND	778	ND	ND	ND	148	16,500	28	364	ND	ND	ND	ND	ND	245
	3.5-4	ND	9	976	ND	ND	ND	132	19,900	26	334	ND	ND	ND	ND	ND	302
TP-8	0-0.5	ND	ND	1,333	ND	ND	ND	2,872	41,200	995	775	ND	ND	ND	ND	ND	ND
	0.5-1	ND	40	1,671	ND	ND	ND	1,227	100,500	733	1,457	ND	ND	ND	ND	ND	418
	1-1.5	ND	34	1,248	ND	164	ND	927	56,200	694	817	ND	ND	ND	ND	ND	597
	1.5-2	ND	34	ND	ND	169	ND	673	47,800	491	1,008	ND	ND	30	ND	ND	751
	2-2.5	ND	ND	1,268	ND	ND	ND	132	36,600	180	1,077	ND	ND	ND	ND	ND	283
	2.5-3	ND	ND	946	ND	169	ND	556	36,600	377	736	ND	ND	ND	ND	ND	402
	3-3.5	ND	20	ND	ND	ND	ND	517	33,400	306	516	ND	ND	ND	ND	ND	408
	3.5-4	ND	ND	832	ND	ND	ND	128	20,700	238	402	ND	ND	ND	ND	ND	261
TP-9	0-0.5	ND	ND	1,695	ND	ND	ND	840	426,800	9,319	35,300	ND	ND	ND	ND	ND	41,700
	0.5-1	100	254	ND	ND	ND	ND	341	308,100	6,601	25,600	ND	ND	ND	ND	ND	30,800
	1-1.5	ND	ND	ND	ND	ND	ND	482	320,900	6,937	25,200	ND	ND	ND	ND	ND	30,500
	1.5-2	115	ND	ND	ND	ND	ND	729	465,500	9,763	39,900	ND	ND	215	ND	ND	45,500
	2-2.5	ND	353	ND	ND	ND	ND	660	495,100	60,200	41,800	ND	ND	ND	ND	ND	42,900
	2.5-3	ND	ND	ND	ND	ND	ND	402	83,400	1,923	5,622	ND	ND	ND	ND	ND	7,350
	3-3.5	ND	21	953	ND	124	ND	1,465	75,900	30	570	ND	ND	ND	ND	ND	248
	3.5-4	ND	ND	730	ND	ND	ND	581	9,733	19	185	ND	ND	ND	ND	ND	70

Test Pit	Sample Depth (feet bgs)	Sb	As	Ba	Ca	Cr	Co	Cu	Fe	Pb	Mn	Hg	K	Ni	Se	Ag	Zn
TP-10	0-0.5	ND	ND	ND	ND	ND	ND	311	47,700	499	815	ND	ND	ND	ND	ND	1,950
	0.5-1	ND	154	ND	ND	ND	ND	1,374	158,000	4,773	7,547	ND	ND	ND	ND	ND	15,600
	1-1.5	ND	16	535	ND	ND	ND	ND	26,800	19	411	ND	ND	ND	ND	ND	73
	1.5-2	ND	ND	436	ND	ND	ND	ND	9,509	15	222	ND	ND	ND	ND	ND	ND
	2-2.5	ND	ND	314	ND	ND	ND	ND	9,766	16	208	ND	ND	ND	ND	ND	ND
	2.5-3	ND	ND	447	ND	ND	ND	ND	10,200	ND	222	ND	ND	ND	ND	ND	ND
	3-3.5	ND	ND	362	ND	ND	ND	ND	9,699	15	168	ND	ND	ND	ND	ND	ND
3.5-4	ND	ND	453	ND	ND	ND	ND	8,164	19	169	ND	ND	ND	ND	ND	ND	
TP-11	0-0.5	57	ND	ND	ND	ND	ND	522	101,000	155	1,873	ND	ND	ND	ND	ND	4,576
	0.5-1	ND	81	1,174	ND	ND	ND	1,222	88,800	910	1,383	ND	ND	ND	ND	ND	2,238
	1-1.5	97	ND	ND	ND	ND	ND	953	87,500	569	1,739	ND	ND	ND	ND	ND	4,097
	1.5-2	ND	ND	515	ND	ND	ND	519	16,900	419	442	ND	ND	ND	ND	ND	245
	2-2.5	ND	ND	363	ND	ND	ND	447	20,300	433	366	ND	ND	ND	ND	ND	563
	2.5-3	ND	72	797	ND	ND	ND	1,071	69,100	885	1,309	ND	ND	ND	ND	ND	2,969
	3-3.5	ND	ND	636	ND	ND	ND	577	39,000	706	788	ND	ND	ND	ND	ND	1,188
3.5-4	ND	ND	ND	ND	ND	ND	282	20,600	334	332	ND	ND	ND	ND	ND	386	
TP-12	0-0.5	167	ND	ND	100,000	ND	ND	516	100,000	10,800	20,300	ND	9,371	ND	ND	ND	54,500
	0.5-1	ND	382	148	51,100	52	ND	1,075	59,500	3,445	2,627	15	6,627	ND	ND	ND	2,769
	1-1.5	ND	ND	379	11,600	77	ND	253	34,500	440	633	ND	10,600	28	ND	ND	1,281
	1.5-2	ND	44	478	10,400	89	ND	324	39,500	813	515	11	20,500	32	ND	ND	1,100
	2-2.5	ND	17	616	ND	ND	ND	165	40,400	317	724	11	ND	25	ND	ND	622
	2.5-3	ND	ND	1,350	ND	127	ND	210	62,300	1,600	3,346	ND	ND	ND	ND	ND	5,406
	3-3.5	ND	ND	ND	ND	ND	ND	ND	20,500	29	467	ND	ND	ND	ND	ND	175
3.5-4	ND	ND	680	ND	ND	ND	209	60,600	1,112	2,130	ND	ND	ND	ND	ND	3,308	
TP-13	0-0.5	ND	205	ND	ND	ND	ND	1,287	394,000	5,227	9,529	ND	ND	ND	ND	ND	26,200
	0.5-1	ND	ND	514	ND	160	ND	831	39,800	185	940	ND	ND	ND	ND	ND	392
	1-1.5	65	ND	ND	ND	ND	ND	462	18,100	65	362	ND	ND	ND	ND	ND	237
	1.5-2	ND	ND	ND	ND	ND	ND	127	16,100	11	298	ND	ND	ND	ND	ND	35
	2-2.5	ND	ND	ND	ND	ND	ND	165	18,500	18	487	ND	ND	ND	ND	ND	37
	2.5-3	ND	ND	2,018	ND	ND	ND	1,235	276,100	2,049	7,178	ND	ND	169	ND	ND	15,700
	3-3.5	ND	ND	632	ND	139	ND	270	19,700	314	436	ND	ND	ND	ND	ND	310
3.5-4	ND	ND	1,163	ND	ND	ND	295	15,700	158	315	ND	ND	ND	ND	ND	164	
TP-14	0-0.5	67	79	1,225	ND	237	ND	1,015	188,700	1,048	3,414	ND	ND	ND	ND	ND	6,723
	0.5-1	ND	ND	1,121	ND	481	ND	1,369	158,800	1,983	3,077	ND	ND	10	ND	ND	3,476
	1-1.5	ND	ND	751	ND	ND	ND	436	39,000	323	396	ND	ND	ND	ND	ND	347
	1.5-2	ND	ND	ND	ND	222	ND	ND	49,000	26	758	ND	ND	ND	ND	ND	199
	2-2.5	ND	ND	ND	ND	ND	ND	29	42,700	16	639	ND	ND	ND	ND	ND	145
	2.5-3	ND	ND	632	ND	ND	ND	ND	29,100	16	653	ND	ND	ND	ND	ND	35
	3-3.5	ND	ND	479	ND	ND	ND	ND	23,300	28	768	ND	ND	ND	ND	ND	ND
3.5-4	ND	ND	746	ND	ND	ND	55	27,100	161	652	ND	ND	ND	ND	ND	292	
TP-15	0-0.5	ND	ND	ND	ND	ND	ND	69	43,800	22	708	ND	ND	ND	ND	ND	209
	0.5-1	ND	ND	494	ND	ND	ND	ND	23,200	18	431	ND	ND	ND	ND	ND	243
	1-1.5	ND	ND	ND	ND	ND	ND	ND	22,900	33	435	ND	ND	ND	ND	ND	131
	1.5-2	ND	ND	1,754	ND	207	ND	ND	49,300	24	931	ND	ND	ND	ND	ND	61
	2-2.5	ND	ND	968	ND	ND	ND	25	36,800	22	657	ND	ND	ND	ND	ND	40
	2.5-3	ND	ND	ND	ND	ND	ND	ND	37,200	14	735	ND	ND	ND	ND	ND	56
	3-3.5	ND	ND	551	ND	203	ND	ND	45,100	22	956	ND	ND	ND	ND	ND	87
3.5-4	ND	ND	633	ND	ND	ND	ND	24,100	20	483	ND	ND	ND	ND	ND	ND	
TP-16	0-0.5	119	ND	2,240	ND	213	ND	723	144,300	184	2,536	63	ND	ND	ND	ND	6,197
	0.5-1	100	ND	1,837	ND	ND	ND	678	139,000	201	2,592	43	ND	ND	ND	ND	5,541
	1-1.5	ND	ND	1,298	ND	143	ND	304	64,100	173	1,038	ND	ND	ND	ND	ND	2,706
	1.5-2	90	ND	1,117	ND	196	ND	526	102,900	197	1,762	23	ND	ND	ND	ND	3,873
	2-2.5	ND	ND	ND	ND	ND	ND	998	123,000	2,321	3,015	ND	ND	ND	ND	ND	4,185
	2.5-3	ND	ND	ND	ND	ND	ND	722	87,800	1,413	1,732	ND	ND	ND	ND	ND	2,841
	3-3.5	ND	ND	ND	ND	ND	ND	1,419	137,700	2,083	2,448	ND	ND	ND	ND	ND	2,590
3.5-4	ND	ND	868	ND	ND	ND	859	102,400	1,124	1,707	ND	ND	ND	ND	ND	2,120	
TP-17	0-0.5	285	ND	3,129	ND	555	ND	2,214	398,400	411	6,336	112	ND	ND	ND	ND	15,300
	0.5-1	94	ND	742	ND	ND	ND	462	94,600	152	1,921	36	ND	81	ND	ND	3,179
	1-1.5	ND	ND	ND	ND	ND	ND	ND	15,900	16	333	ND	ND	ND	ND	ND	131
	1.5-2	ND	ND	407	ND	ND	ND	ND	181	22	312	ND	ND	ND	ND	ND	115
	2-2.5	ND	ND	ND	ND	ND	ND	ND	11,100	18	239	ND	ND	ND	ND	ND	ND
	2.5-3	ND	36	1,606	ND	ND	ND	566	113,000	56	1,871	ND	ND	ND	ND	ND	2,583
	3-3.5	ND	ND	ND	ND	ND	ND	ND	20,100	45	334	ND	ND	ND	ND	ND	201
3.5-4	ND	ND	580	ND	ND	ND	156	50,900	35	990	ND	ND	ND	ND	ND	717	
TP-18	0-0.5	76	ND	1,667	ND	276	ND	742	144,600	183	2,522	48	ND	ND	ND	ND	4,900
	0.5-1	ND	8	1,215	ND	ND	ND	23	35,700	21	520	ND	ND	ND	ND	ND	94
	1-1.5	ND	ND	938	ND	115	ND	61	47,900	29	836	ND	ND	51	ND	ND	388
	1.5-2	ND	9	760	ND	82	ND	41	33,000	12	615	ND	ND	34	ND	ND	83
	2-2.5	ND	ND	807	ND	250	ND	158	58,000	54	968	15	ND	48	ND	ND	825
	2.5-3	ND	ND	878	ND	ND	ND	22	21,300	23	461	ND	ND	32	ND	ND	95
	3-3.5	ND	ND	1,064	ND	ND	ND	81	32,600	23	624	ND	ND	ND	ND	ND	272
3.5-4	53	15	1,540	ND	130	ND	402	88,000	94	1,425	25	ND	ND	ND	ND	2,414	
TP-19	0-0.5	ND	ND	2,112	ND	ND	ND	491	135,100	888	3,168	ND	ND	ND	ND	ND	7,458
	0.5-1	ND	60	1,973	ND	ND	ND	1,514	178,800	145	1,219	25	ND	ND	8	ND	448
	1-1.5	ND	7	710	ND	ND	ND	19	22,500	21	412	ND	ND	ND	ND	ND	70
	1.5-2	ND	14	1,005	ND	ND	ND	129	40,300	139	581	ND	ND	ND	ND	ND	1,119
	2-2.5	ND	ND	746	ND	ND	ND	154	45,600	160	1,067	ND	ND	31	ND	ND	1,351
	2.5-3	ND	ND	1,270	ND	ND	ND	85	37,700	107	620	ND	ND	32	ND	ND	367
	3-3.5	ND	ND	937	ND	ND	ND	229	46,400	101	783	ND	ND	ND	ND	ND	811
3.5-4	ND	ND	1,439	ND	ND	ND	176	46,800	199	771	18	ND	ND	ND	ND	1,256	

Test Pit	Sample Depth (feet bgs)	Sb	As	Ba	Ca	Cr	Co	Cu	Fe	Pb	Mn	Hg	K	Ni	Se	Ag	Zn
TP-20	0-0.5	ND	ND	1,076	ND	ND	ND	833	99,300	907	2,455	ND	ND	93	ND	ND	3,385
	0.5-1	ND	19	ND	ND	ND	ND	2,843	27,500	27	418	ND	ND	ND	ND	ND	51
	1-1.5	ND	10	602	ND	ND	ND	ND	20,500	ND	483	ND	ND	ND	ND	ND	ND
	1.5-2	ND	ND	621	ND	ND	ND	58	26,000	48	547	ND	ND	ND	ND	ND	209
	2-2.5	ND	ND	ND	ND	255	ND	287	32,100	124	493	ND	ND	82	ND	ND	344
	2.5-3	ND	ND	522	ND	361	ND	214	31,800	85	561	ND	ND	ND	ND	ND	345
	3-3.5	ND	ND	546	ND	ND	ND	1,605	38,800	104	630	ND	ND	ND	ND	ND	196
3.5-4	ND	ND	383	ND	ND	ND	ND	18,900	29	350	ND	ND	ND	ND	ND	46	
TP-21	0-0.5	ND	ND	ND	ND	ND	ND	172	36,700	431	631	ND	ND	ND	ND	ND	1,339
	0.5-1	225	639	ND	ND	659	ND	4,057	495,500	23,100	25,800	ND	ND	ND	ND	ND	48,900
	1-1.5	ND	ND	451	ND	152	ND	ND	26,100	37	472	ND	ND	ND	ND	ND	72
	1.5-2	ND	ND	ND	ND	ND	ND	ND	31,300	22	534	ND	ND	ND	ND	ND	75
	2-2.5	ND	ND	447	ND	ND	ND	ND	18,700	18	430	ND	ND	60	ND	ND	41
	2.5-3	ND	ND	377	ND	138	ND	ND	11,400	15	221	ND	ND	ND	ND	ND	ND
	3-3.5	ND	ND	354	ND	ND	ND	ND	9,990	15	221	ND	ND	ND	ND	ND	ND
3.5-4	ND	ND	357	ND	ND	ND	ND	10,900	14	232	ND	ND	ND	ND	ND	ND	
TP-22	0-0.5	75	ND	376	ND	ND	ND	388	79,200	306	1,473	30	ND	ND	ND	ND	4,049
	0.5-1	72	ND	511	ND	ND	ND	ND	121,500	270	2,112	ND	ND	ND	ND	ND	5,226
	1-1.5	ND	ND	1,012	ND	ND	ND	519	198,600	265	3,439	ND	ND	ND	ND	ND	7,927
	1.5-2	ND	ND	491	ND	ND	ND	668	244,100	398	3,962	ND	ND	ND	ND	ND	9,395
	2-2.5	ND	ND	418	ND	ND	ND	ND	3,520	470	573	ND	ND	ND	ND	ND	1,410
	2.5-3	ND	ND	ND	ND	ND	ND	267	100,200	149	1,812	ND	ND	ND	ND	ND	4,537
	3-3.5	221	ND	ND	ND	ND	ND	2,966	788,000	22,800	33,700	ND	ND	ND	ND	ND	58,700
3.5-4	133	ND	ND	ND	ND	ND	1,790	380,300	11,700	15,000	ND	ND	ND	ND	ND	31,900	
TP-23	0-0.5	ND	ND	409	ND	147	ND	81	26,100	126	396	ND	ND	ND	ND	ND	907
	0.5-1	ND	ND	410	ND	ND	ND	106	36,400	152	513	ND	ND	ND	ND	ND	1,368
	1-1.5	ND	ND	ND	ND	ND	ND	ND	13,800	63	187	ND	ND	ND	ND	ND	316
	1.5-2	ND	ND	524	ND	ND	ND	ND	8,003	17	168	ND	ND	ND	ND	ND	ND
	2-2.5	ND	ND	363	ND	ND	ND	ND	8,241	10	155	ND	ND	ND	ND	ND	ND
	2.5-3	ND	ND	494	ND	ND	ND	ND	9,010	16	212	ND	ND	ND	ND	ND	37
	3-3.5	ND	ND	441	ND	ND	ND	ND	7,665	19	115	ND	ND	ND	ND	ND	ND
3.5-4	ND	ND	385	ND	ND	ND	ND	7,311	14	127	ND	ND	ND	ND	ND	ND	
TP-24	0-0.5	ND	ND	385	ND	ND	ND	ND	22,400	126	288	ND	ND	ND	ND	ND	1,095
	0.5-1	ND	ND	ND	ND	ND	ND	170	33,200	119	470	ND	ND	ND	ND	ND	1,563
	1-1.5	ND	ND	ND	ND	ND	ND	112	23,000	168	300	ND	ND	ND	ND	ND	1,218
	1.5-2	ND	ND	ND	ND	ND	ND	159	24,000	151	344	ND	ND	ND	ND	ND	1,481
	2-2.5	ND	ND	ND	ND	184	ND	201	40,700	208	531	25	ND	ND	ND	ND	2,344
	2.5-3	ND	ND	647	ND	ND	ND	149	42,600	189	658	ND	ND	ND	ND	ND	2,049
	3-3.5	ND	ND	615	ND	ND	ND	109	34,900	279	555	ND	ND	ND	ND	ND	1,722
3.5-4	ND	ND	661	ND	99	ND	ND	8,030	22	228	ND	ND	ND	ND	ND	ND	
TP-25	0-0.5	ND	ND	341	ND	ND	ND	57	25,000	229	425	ND	ND	ND	ND	ND	1,065
	0.5-1	ND	ND	518	ND	ND	ND	ND	22,900	230	342	ND	ND	ND	ND	ND	783
	1-1.5	ND	ND	ND	ND	ND	ND	ND	16,000	53	237	ND	ND	ND	ND	ND	292
	1.5-2	ND	ND	413	ND	115	ND	ND	13,900	20	185	ND	ND	ND	ND	ND	175
	2-2.5	ND	ND	503	ND	ND	ND	ND	12,400	24	224	ND	ND	ND	ND	ND	132
	2.5-3	ND	ND	ND	ND	143	ND	ND	12,600	21	194	ND	ND	ND	ND	ND	125
	3-3.5	ND	ND	ND	ND	105	ND	ND	12,000	27	226	ND	ND	ND	ND	ND	91
3.5-4	ND	ND	306	ND	ND	ND	ND	10,600	21	240	ND	ND	ND	ND	ND	97	
TP-26	0-0.5	ND	36	854	ND	151	ND	191	155,100	289	911	17	ND	ND	ND	ND	1,768
	0.5-1	ND	ND	787	ND	ND	ND	81	25,000	389	521	ND	ND	ND	ND	ND	849
	1-1.5	ND	ND	1,022	ND	87	ND	15	14,900	45	272	ND	ND	ND	ND	ND	117
	1.5-2	ND	ND	761	ND	ND	ND	20	19,800	23	2,421	ND	ND	ND	ND	ND	61
	2-2.5	ND	ND	449	ND	ND	ND	ND	8,804	16	150	ND	ND	ND	ND	ND	ND
	2.5-3	ND	ND	ND	ND	ND	ND	ND	10,600	12	231	ND	ND	ND	ND	ND	33
	3-3.5	ND	ND	ND	ND	ND	ND	ND	10,000	25	195	ND	ND	ND	ND	ND	ND
3.5-4	ND	ND	390	ND	ND	ND	ND	8,322	13	222	ND	ND	ND	ND	ND	ND	
Screening Levels		NA	12.9	16,000	NA	131	NA	143	56,000	250	11,200	1.46	NA	39	NA	NA	3,200

Notes:

All units in parts per million (ppm)

NA = Not available

ND = Not detected by Olympus Innov-X Delta XRF

XRF = x-ray fluorescence

bgs = below ground surface

Shaded values exceed screening levels

Table 1b
Hand Cores XRF Results
Northport Waterfront Remedial Investigation
3/27/2019
Northport, Washington

Hand Core	Sample Depth (feet bgs)	Sb	As	Ba	Ca	Cr	Co	Cu	Fe	Pb	Mn	Hg	K	Ni	Se	Ag	Zn
HS-1	0-0.5	ND	36	848	ND	ND	ND	49	23,100	188	457	ND	ND	ND	ND	ND	813
	0.5-1	ND	ND	560	ND	ND	ND	313	49,500	361	888	ND	ND	59	ND	ND	2,334
	1-1.5	ND	ND	1,249	ND	ND	ND	193	73,800	388	1,012	26	ND	ND	ND	ND	2,957
	1.5-2	ND	ND	900	ND	ND	ND	159	54,600	508	669	23	ND	ND	ND	ND	2,455
	2-2.5	ND	ND	1,142	ND	ND	ND	213	88,800	760	1,671	20	ND	ND	ND	ND	3,834
HS-2	0-0.5	ND	ND	691	ND	ND	ND	72	31,100	241	588	ND	ND	ND	ND	ND	1,338
	0.5-1	44	ND	ND	ND	ND	ND	113	28,100	184	414	ND	ND	ND	ND	ND	1,213
	1-1.5	ND	ND	1,149	ND	137	ND	458	83,200	2,410	2,315	ND	ND	ND	ND	ND	7,008
	1.5-2	ND	ND	941	ND	ND	ND	482	72,200	2,220	1,814	ND	ND	ND	ND	ND	6,335
HS-3	0-0.5	ND	15	1,236	ND	109	ND	113	34,200	153	567	17	ND	ND	ND	ND	1,243
	0.5-1	ND	ND	860	ND	126	ND	231	67,600	1,541	966	ND	ND	ND	ND	ND	6,882
	1-1.5	61	35	713	ND	ND	ND	244	61,900	458	1,038	ND	ND	ND	ND	ND	2,493
Screening Levels		NA	12.9	16,000	NA	131	NA	143	56,000	250	11,200	1.46	NA	39	NA	NA	3,200

Notes:

All units in parts per million (ppm)

NA = Not available

ND = Not detected by Olympus Innov-X Delta XRF

XRF = X-ray fluorescence

bgs = below ground surface

Shaded values exceed screening levels

Table 1c
Surface Grab XRF Results¹
Northport Waterfront Remedial Investigation
3/25/19 through 3/28/19
Northport, Washington

Boring/ Test Pit	Sample Depth (feet bgs)	Sb	As	Ba	Ca	Cr	Co	Cu	Fe	Pb	Mn	Hg	K	Ni	Se	Ag	Zn
XRF-1	0-0.5	ND	ND	ND	ND	ND	ND	482	274,100	6,072	22,600	ND	ND	ND	ND	ND	35,900
XRF-2	0-0.5	129	ND	ND	ND	ND	ND	1,025	321,100	7,362	ND	ND	ND	ND	ND	ND	27,400
XRF-3	0-0.5	60	95	1,275	ND	968	ND	778	140,500	1,284	ND	ND	ND	ND	ND	ND	7,360
XRF-4	0-0.5	110	ND	812	ND	ND	ND	1,241	147,400	1,175	2,619	ND	ND	ND	ND	ND	6,248
XRF-5	0-0.5	186	ND	1,163	ND	ND	ND	1,177	187,000	219	3,687	71	ND	88	ND	ND	6,601
XRF-6	0-0.5	88	ND	730	ND	ND	ND	790	141,200	242	2,481	28	ND	123	ND	ND	5,287
XRF-7	0-0.5	78	ND	991	ND	ND	ND	1,136	200,000	521	3,789	48	ND	110	ND	ND	9,308
XRF-8	0-0.5	81	ND	1,218	ND	ND	ND	1,284	211,900	785	3,912	55	ND	116	ND	ND	8,772
XRF-9	0-0.5	90	48	746	ND	254	ND	1,008	156,400	360	2,806	28	ND	86	ND	ND	5,651
XRF-10	0-0.5	90	ND	1,232	ND	ND	ND	1,402	216,700	1,188	4,288	38	ND	157	ND	ND	11,300
XRF-11	0-0.5	87	ND	890	ND	ND	ND	1,032	218,000	393	3,572	35	ND	92	ND	ND	8,392
XRF-12	0-0.5	151	ND	1,202	ND	2,781	ND	1,165	188,900	553	3,092	53	ND	103	ND	ND	7,394
XRF-13	0-0.5	124	ND	920	ND	ND	ND	1,373	223,000	2,027	5,040	60	ND	103	ND	ND	14,600
XRF-14	0-0.5	160	55	1,919	ND	374	ND	2,156	282,800	501	4,529	88	ND	159	ND	ND	11,200
XRF-15	0-0.5	107	ND	1,474	ND	ND	ND	1,325	207,900	571	3,683	64	ND	105	ND	ND	8,968
XRF-16	0-0.5	176	ND	1,609	ND	331	ND	1,288	218,500	376	3,867	73	ND	ND	ND	ND	9,255
XRF-17	0-0.5	132	ND	893	ND	ND	ND	959	177,600	659	3,395	64	ND	169	ND	ND	8,069
XRF-18	0-0.5	148	ND	998	ND	379	ND	1,363	220,600	404	3,844	65	ND	ND	ND	ND	9,451
XRF-19	0-0.5	113	28	1,321	ND	ND	ND	1,201	190,700	251	3,326	56	ND	79	ND	ND	7,974
XRF-20	0-0.5	154	ND	ND	ND	278	ND	1,355	218,600	1,281	4,575	60	ND	121	ND	ND	10,100
XRF-21	0-0.5	ND	ND	660	ND	ND	ND	769	126,100	1,017	3,526	43	ND	104	ND	ND	7,294
XRF-22	0-0.5	815	ND	ND	ND	ND	ND	387	69,900	620	1,472	ND	ND	ND	ND	ND	2,535
XRF-23	0-0.5	62	ND	862	ND	ND	ND	975	185,400	3,250	5,761	ND	ND	114	ND	ND	12,700
XRF-24	0-0.5	89	ND	989	ND	ND	ND	1,464	364,700	6,836	12,800	ND	ND	115	ND	ND	32,100
XRF-25	0-0.5	43	ND	643	ND	ND	ND	185	33,600	250	572	15	ND	ND	ND	ND	2,017
XRF-26	0-0.5	ND	31	ND	ND	ND	ND	ND	20,900	270	371	ND	ND	103	ND	ND	158
XRF-27	0-0.5	38	ND	637	ND	ND	ND	112	26,000	187	533	15	ND	ND	ND	ND	1,470
XRF-28	0-0.5	76	ND	960	ND	ND	ND	448	118,300	1,261	2,996	ND	ND	ND	ND	ND	7,976
XRF-29	0-0.5	70	107	1,477	ND	ND	ND	818	207,200	3,403	6,492	ND	ND	ND	ND	ND	15,200
XRF-30	0-0.5	ND	ND	473	ND	ND	ND	74	19,600	107	386	ND	ND	ND	ND	ND	485
XRF-31	0-0.5	52	ND	1,156	ND	288	ND	387	111,700	1,290	2,811	24	ND	ND	ND	ND	5,691
XRF-32	0-0.5	155	ND	878	ND	332	ND	1,158	150,900	613	2,956	36	ND	107	ND	ND	7,337
XRF-33	0-0.5	145	ND	1,153	ND	321	ND	1,040	185,000	764	3,557	48	ND	166	ND	ND	9,031
XRF-34	0-0.5	145	30	821	ND	212	ND	926	141,700	248	2,549	33	ND	101	ND	ND	6,617
XRF-35	0-0.5	165	ND	1,535	ND	295	ND	1,339	2,205	251	3,725	66	ND	112	ND	ND	8,854
XRF-36	0-0.5	189	ND	1,683	ND	361	ND	1,624	248,900	251	4,415	60	ND	128	ND	ND	10,000
XRF-37	0-0.5	138	ND	1,443	ND	ND	ND	1,821	288,500	347	4,993	88	ND	153	ND	ND	11,400
XRF-38	0-0.5	ND	ND	1,063	ND	ND	ND	1,226	194,400	460	3,009	57	ND	166	ND	ND	9,425
XRF-39	0-0.5	220	ND	ND	ND	ND	ND	1,358	280,700	419	4,547	86	ND	ND	ND	ND	12,200
XRF-40	0-0.5	260	ND	1,652	ND	545	ND	2,559	465,200	1,225	8,481	146	ND	214	ND	ND	19,800
XRF-41	0-0.5	83	ND	1,614	ND	245	ND	985	158,800	299	2,874	48	ND	139	ND	ND	6,613

Boring/ Test Pit	Sample Depth (feet bgs)	Sb	As	Ba	Ca	Cr	Co	Cu	Fe	Pb	Mn	Hg	K	Ni	Se	Ag	Zn
XRF-42	0-0.5	157	ND	1,285	ND	1,971	ND	1,278	220,100	905	4,528	49	ND	127	ND	ND	9,224
XRF-43	0-0.5	77	ND	1,052	ND	ND	ND	833	135,100	260	2,102	42	ND	74	ND	ND	5,433
XRF-44	0-0.5	106	ND	727	ND	300	ND	969	157,700	310	2,717	39	ND	136	ND	ND	6,079
XRF-45	0-0.5	150	ND	1,169	ND	947	ND	1,186	190,500	345	3,175	51	ND	92	ND	ND	8,717
XRF-46	0-0.5	222	46	1,845	ND	ND	ND	1,505	281,500	446	4,875	83	ND	ND	ND	ND	11,100
XRF-47	0-0.5	238	ND	2,237	ND	464	ND	1,604	349,600	701	5,393	99	ND	ND	ND	ND	13,700
XRF-48	0-0.5	154	ND	2,035	ND	ND	ND	1,805	319,900	482	5,234	88	ND	191	ND	ND	13,700
XRF-49	0-0.5	216	ND	1,011	ND	ND	ND	2,025	282,600	562	4,935	111	ND	134	ND	ND	13,400
XRF-50	0-0.5	195	ND	1,647	ND	ND	ND	1,593	2,562	655	4,360	105	ND	ND	ND	ND	12,300
XRF-51	0-0.5	191	ND	1,507	ND	ND	ND	1,381	269,800	525	4,720	57	ND	165	ND	ND	12,700
XRF-52	0-0.5	206	35	1,621	ND	ND	ND	1,283	200,100	311	3,596	87	ND	89	ND	ND	9,379
XRF-53	0-0.5	ND	40	ND	ND	ND	ND	622	139,000	229	2,314	ND	ND	ND	ND	ND	5,676
XRF-54	0-0.5	228	ND	1,518	ND	472	ND	1,894	305,600	529	5,198	78	ND	118	ND	ND	12,800
XRF-55	0-0.5	122	ND	1,019	ND	ND	ND	758	127,800	197	1,936	37	ND	85	ND	ND	4,949
XRF-56	0-0.5	149	ND	753	ND	ND	ND	1,313	175,200	164	2,967	33	ND	120	ND	ND	7,715
XRF-57	0-0.5	58	ND	653	ND	ND	ND	620	85,300	101	1,567	32	ND	111	ND	ND	3,168
XRF-58	0-0.5	80	ND	ND	ND	ND	ND	696	96,700	212	1,574	ND	ND	76	ND	ND	3,973
XRF-59	0-0.5	73	ND	800	ND	ND	ND	652	76,200	79	1,384	ND	ND	88	ND	ND	2,444
XRF-60	0-0.5	72	ND	ND	ND	ND	ND	598	109,800	292	2,170	ND	ND	ND	ND	ND	3,331
XRF-61	0-0.5	ND	ND	ND	ND	ND	ND	355	46,300	81	904	ND	ND	105	ND	ND	1,413
XRF-62	0-0.5	ND	ND	ND	ND	ND	ND	200	16,500	18	243	62	ND	164	ND	ND	120
XRF-63	0-0.5	174	ND	731	ND	ND	ND	1,378	192,000	219	3,218	ND	ND	110	ND	ND	7,891
XRF-64	0-0.5	ND	ND	350	ND	ND	ND	274	34,900	113	467	23	ND	67	ND	ND	1,934
XRF-65	0-0.5	71	ND	ND	ND	221	ND	606	79,100	196	1,182	ND	ND	ND	ND	ND	3,828
XRF-66	0-0.5	ND	ND	ND	ND	ND	ND	160	20,400	145	343	26	ND	49	ND	ND	1,333
XRF-67	0-0.5	ND	ND	861	ND	148	ND	505	73,000	194	1,342	ND	ND	103	ND	ND	3,382
XRF-68	0-0.5	ND	ND	ND	ND	ND	ND	161	25,200	101	413	ND	ND	ND	ND	ND	943
XRF-69	0-0.5	87	ND	415	ND	ND	ND	458	54,900	217	1,083	ND	ND	82	ND	ND	2,269
XRF-70	0-0.5	ND	ND	ND	ND	ND	ND	411	57,300	460	803	ND	ND	92	ND	ND	1,909
XRF-71	0-0.5	ND	ND	459	ND	164	ND	531	84,300	502	1,449	ND	ND	88	ND	ND	3,194
XRF-72	0-0.5	55	ND	ND	ND	ND	ND	333	36,900	239	626	ND	ND	ND	ND	ND	1,611
XRF-73	0-0.5	ND	ND	ND	ND	ND	ND	141	13,900	197	259	ND	ND	ND	ND	ND	914
XRF-74	0-0.5	ND	ND	ND	ND	ND	ND	891	36,100	716	514	ND	ND	ND	ND	ND	1,749
XRF-75	0-0.5	ND	ND	ND	ND	ND	ND	141	20,100	160	450	ND	ND	ND	ND	ND	1,254
XRF-76	0-0.5	ND	51	ND	ND	ND	ND	966	40,600	837	1,678	ND	ND	ND	ND	ND	2,983
XRF-77	0-0.5	ND	29	ND	ND	ND	ND	161	23,300	190	400	ND	ND	55	ND	ND	172
XRF-78	0-0.5	ND	ND	364	ND	ND	ND	85	18,000	299	259	ND	ND	46	ND	ND	1,158
XRF-79	0-0.5	ND	ND	ND	ND	ND	ND	184	28,100	216	439	ND	ND	ND	ND	ND	1,467
XRF-80	0-0.5	ND	ND	ND	ND	ND	ND	194	29,700	193	562	ND	ND	ND	ND	ND	1,590
XRF-81	0-0.5	ND	ND	379	ND	ND	ND	183	30,600	293	484	ND	ND	63	ND	ND	1,896
XRF-82	0-0.5	ND	ND	ND	ND	ND	ND	178	26,800	303	436	ND	ND	117	ND	ND	1,080
XRF-83	0-0.5	ND	ND	ND	ND	ND	ND	119	14,300	124	314	ND	ND	ND	ND	ND	424
XRF-84	0-0.5	ND	ND	ND	ND	ND	ND	217	30,300	419	527	ND	ND	ND	ND	ND	1,485
XRF-85	0-0.5	ND	ND	ND	ND	ND	ND	348	56,800	498	1,177	ND	ND	94	ND	ND	2,893
XRF-86	0-0.5	ND	ND	ND	ND	ND	ND	743	96,700	2,850	2,434	ND	ND	77	ND	ND	8,333
XRF-87	0-0.5	ND	ND	ND	ND	ND	ND	325	42,600	578	853	ND	ND	69	ND	ND	2,366
XRF-88	0-0.5	ND	ND	ND	ND	ND	ND	714	135,500	1,350	2,796	ND	ND	122	ND	ND	7,998

Boring/ Test Pit	Sample Depth (feet bgs)	Sb	As	Ba	Ca	Cr	Co	Cu	Fe	Pb	Mn	Hg	K	Ni	Se	Ag	Zn
XRF-89	0-0.5	72	ND	595	ND	ND	ND	877	118,800	436	1,773	ND	ND	139	ND	ND	6,033
XRF-90	0-0.5	117	ND	ND	ND	ND	ND	851	178,600	333	3,109	75	ND	ND	ND	ND	7,766
XRF-91	0-0.5	ND	75	ND	ND	ND	ND	80	15,700	103	212	ND	ND	85	ND	ND	241
XRF-92	0-0.5	ND	ND	ND	ND	ND	ND	ND	14,900	27	308	ND	ND	ND	ND	ND	61
XRF-93	0-0.5	ND	ND	ND	ND	ND	ND	170	23,300	167	454	ND	ND	81	ND	ND	1,216
XRF-94	0-0.5	39	68	ND	ND	ND	ND	194	14,100	643	392	ND	ND	58	ND	ND	433
XRF-95	0-0.5	ND	ND	428	ND	ND	ND	782	34,600	809	646	ND	ND	65	ND	ND	1,897
XRF-96	0-0.5	ND	ND	ND	ND	ND	ND	103	14,500	122	220	ND	ND	ND	ND	ND	809
XRF-97	0-0.5	ND	ND	ND	ND	ND	ND	154	18,800	142	336	ND	ND	48	ND	ND	1,027
XRF-98	0-0.5	ND	ND	ND	ND	ND	ND	159	18,100	176	323	ND	ND	53	ND	ND	762
XRF-99	0-0.5	ND	ND	ND	ND	ND	ND	144	14,700	139	311	ND	ND	ND	ND	ND	1,046
XRF-100	0-0.5	ND	ND	ND	ND	ND	ND	46	18,700	142	383	20	ND	ND	ND	ND	849
XRF-101	0-0.5	76	ND	ND	ND	194	ND	690	78,300	110	1,453	ND	ND	76	ND	ND	3,418
XRF-102	0-0.5	89	ND	869	ND	ND	ND	813	96,700	537	2,137	21	ND	ND	ND	ND	4,095
XRF-103	0-0.5	107	ND	1,036	ND	ND	ND	667	149,100	874	3,782	35	ND	ND	ND	ND	8,178
XRF-104	0-0.5	216	ND	1,964	ND	324	ND	1,859	367,800	353	5,760	121	ND	ND	ND	ND	13,300
XRF-105	0-0.5	251	ND	975	ND	2,043	ND	2,319	353,300	848	5,756	99	ND	173	ND	ND	16,700
XRF-106	0-0.5	114	ND	1,475	ND	245	ND	1,062	186,600	731	2,946	50	ND	ND	ND	ND	7,538
XRF-107	0-0.5	113	ND	1,286	ND	174	ND	651	171,500	206	2,964	50	ND	ND	ND	ND	5,867
XRF-108	0-0.5	71	ND	1,558	ND	ND	ND	365	83,500	611	1,445	16	ND	ND	ND	ND	3,159
XRF-109	0-0.5	63	ND	ND	ND	ND	ND	1,055	237,600	5,305	11,800	ND	ND	160	ND	ND	22,400
Screening Levels		NA	12.9	16,000	NA	131	NA	143	56,000	250	11,200	1.46	NA	39	NA	NA	3,200

Notes:

¹All units in parts per million (ppm)

NA = Not available

ND = Not detected by Olympus Innov-X Delta XRF

XRF = X-ray fluorescence

bgs = below ground surface

Shaded values exceed screening levels

Table 2
Laboratory Analytical Results
Northport Waterfront Remedial Investigation
Northport, Washington

						Method Analyte	Metals																					
							Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V
						Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Location ID	Sample ID	Date	Date	Depth	Depth																							
HS-1	HS-1 (1.5-2.0)	3/27/2019	4/11/2019	1.5	2	9,700	13 U	18	810	6.4 U	5.8	33,000	40	14	450	86,000	800	12,000	1,600	450	17	1,700	25 U	6.4 U	490	13 U	43	6,300
HS-2	HS-2 (0.0-0.5)	3/27/2019	4/17/2019	0	0.5	5,000	6.8	8.3	280	19 U	3.3	27,000	18	6.2	130	24,000	190	15,000	400	110	11	1,000	3.7 U	1.1	160	1.9 U	25	2,200
	HS-2 (0.5-1.0)	3/27/2019	4/17/2019	0.5	1	7,100	19 U	9.8	430	9.7 U	7.8 U	23,000	28	11	230	37,000	320	12,000	560	180	14	1,100	39 U	9.7 U	220	19 U	32	2,800
	HS-2 (1.0-1.5)	3/27/2019	4/17/2019	1	1.5	11,000	19 U	43	410	9.7 U	7.7 U	35,000	28	17	640	84,000	2,700	9,900	2,200	230	12	2,200	39 U	9.7 U	830	19 U	39	15,000
HS-3	HS-3 (0.0-0.5)	3/27/2019	7/12/2019	0	0.5	4,700	4.3 J	7.4	270 J	1.2 U	4	37,000	18	6.5	140 J	25,000	170	18,000	410	70 J	11	830	4.8 U	1.3	180	2.4 U	23	1,700
	HS-3 (0.5-1.0)	3/27/2019	4/17/2019	0.5	1	8,200	100 U	51 U	370	51 U	41 U	25,000	51 U	51 U	400	51,000	1,300	11,000	790	160	51 U	1,000	200 U	51 U	1,000 U	100 U	51 U	6,300
TP-1	TP-1 (0.0-0.5)	3/26/2019	4/11/2019	0	0.5	13,000	24	18	780	10 U	8.1 U	46,000	56	28	1,200	120,000	1,900	7,400	3,800	51 U	14	3,600	40 U	10 U	1,600	20 U	42	13,000
	TP-1 (0.5-1.0)	3/26/2019	4/11/2019	0.5	1	7,600	12	9.3	330	5.5 U	4.4 U	16,000	29	14	590	52,000	470	4,200	1,200	51 U	13	1,300	22 U	5.5 U	460	11 U	29	4,500
	TP-1 (3.5-4.0)	3/26/2019	4/11/2019	3.5	4	5,600	2.1	4.9	69	1.1 U	0.84 U	3,900	12	6.1	170	17,000	100	4,000	330	50 U	11	470	4.2 U	1.1 U	110	2.1 U	24	620
TP-3	TP-3 (0.0-0.5)	3/26/2019	4/11/2019	0	0.5	6,400	11	7.5	450	5.3 U	4.6	37,000	25	11	320	45,000	570	14,000	990	92	11	1,100	21 U	5.3 U	350	11 U	27	3,900
	TP-3 (0.5-1.0)	3/26/2019	4/11/2019	0.5	1	15,000	110 U	56 U	720	56 U	45 U	60,000	56 U	56 U	1,000	150,000	5,700	7,800	6,500	49 U	56 U	3,600	220 U	56 U	1,100	110 U	56 U	23,000
	TP-3 (1.0-1.5)	3/26/2019	4/11/2019	1	1.5	4,800	2.3 U	4.3	48	1.2 U	2.1	2,400	15	5.2	68 J	17,000	15 J	2,900	250	49 U	11	490	4.7 U	1.2 U	77	2.3 U	34	360
	DUP-2	3/26/2019	4/11/2019	1	1.5	4,400	2.1 U	4.3	57	1.1 U	2.4	2,400	18	4.9	43 J	17,000	11 J	2,900	210	48 U	12	460	4.3 U	1.1 U	86	2.1 U	33	340
TP-4	TP-4 (0.0-0.5)	3/26/2019	4/11/2019	0	0.5	14,000	30	24	1,300	9.7 U	7.7 U	50,000	88	42	1,900	150,000	2,600	6,200	3,100	50 U	18	2,700	39 U	9.7 U	1,300	19 U	38	13,000
	TP-4 (0.5-1.0)	3/26/2019	4/11/2019	0.5	1	3,800	1.9 U	2.4	35	0.95 U	0.76 U	1,800	9.4	4.7	340	8,800	6	2,300	160	49 U	10	480	3.8 U	0.95 U	66	1.9 U	16	49
	TP-4 (3.5-4.0)	3/26/2019	4/11/2019	3.5	4	4,900	4.9	2.7	110	1.0 U	0.81 U	4,200	13	6.1	240	15,000	12	2,600	290	49 U	9.8	590	4.1 U	1.0 U	160	2.0 U	18	570
TP-5	TP-5 (0.0-0.5)	3/26/2019	4/11/2019	0	0.5	15,000	110 U	55 U	890	55 U	44 U	64,000	57	55 U	1,300	170,000	4,900	8,600	6,100	110	55 U	4,000	220 U	55 U	1,500	110 U	55 U	25,000
	TP-5 (0.5-1.0)	3/26/2019	4/11/2019	0.5	1	6,400	1.8 U	8.9	76	4.6 U	0.96	3,900	31	9.7	990	28,000	130	4,300	310	51 U	25	610	3.7 U	0.91 U	120	1.8 U	57	860
	TP-5 (1.0-1.5)	3/26/2019	4/11/2019	1	1.5	5,300	2.3 U	5.9	63	1.1 U	0.90 U	3,600	16	5.8	100	18,000	57	3,000	230	49 U	13	650	4.5 U	1.1 U	120	2.3 U	34	310
TP-6	TP-6 (0.0-0.5)	3/26/2019	4/11/2019	0	0.5	10,000	9.3 U	14	360	4.6 U	3.7 U	22,000	30	15	550	57,000	1,100	6,500	1,300	97	14	2,400	19 U	4.6 U	1,100	9.3 U	53	4,400
	TP-6 (0.5-1.0)	3/26/2019	4/11/2019	0.5	1	5,900	2.2 U	12	65	5.5 U	0.88 U	2,600	36	9.6	610	32,000	38	2,800	210	53	17	570	4.4 U	1.1 U	64	2.2 U	76	230
	TP-6 (2.0-2.5)	3/26/2019	4/11/2019	2	2.5	5,400	4.3 U	11	54	5.3 U	1.7 U	2,900	43	9	53	50,000	10	2,900	290	50 U	17	570	8.5 U	2.1 U	84	4.3 U	110	44
TP-7	TP-7 (0.0-0.5)	3/25/2019	4/11/2019	0	0.5	14,000	39	28	1,300	10 U	8.0 U	50,000	87	42	1,800	150,000	980	5,900	3,100	50 U	17	2,900	40 U	10 U	1,500	20 U	38	14,000
	TP-7 (0.5-1.0)	3/25/2019	4/11/2019	0.5	1	6,100	6.4	5.5	180	4.7 U	7.3	7,600	23	8.9	380	26,000	70	3,200	600	49 U	13	810	3.8 U	0.94 U	230	1.9 U	31	1,400
TP-9	TP-9 (0.0-0.5)	3/26/2019	4/11/2019	0	0.5	15,000	98 UJ	49 U	400	49 U	39 U	110,000	49 U	49 U	390	210,000	8,800	9,800	19,000	50 U	49 U	4,200	200 U	49 U	1,100	98 U	49 U	37,000
	TP-9 (2.0-2.5)	3/26/2019	4/11/2019	2	2.5	14,000	110 UJ	54 U	330	54 U	43 U	100,000	54 U	54 U	370	190,000	7,300	9,100	18,000	48 U	54 U	4,100	210 U	54 U	1,100	110 U	54 U	33,000
	DUP-1	3/26/2019	4/11/2019	2	2.5	15,000	99 UJ	50 U	340	50 U	40 U	98,000	50 U	50 U	390	180,000	6,900	9,200	17,000	49 U	50 U	3,400	200 U	50 U	990 U	99 U	50 U	32,000
TP-10	TP-10 (0.0-0.5)	3/26/2019	4/11/2019	0	0.5	8,800	11 U	15	520	5.6 U	6.3	29,000	28	13	850	67,000	1,500	11,000	2,000	280	17	1,400	23 U	7.9	340	11 U	34	6,700
	TP-10 (0.5-1.0)	3/26/2019	4/11/2019	0.5	1	13,000	22 U	41	260	11 U	8.9 U	45,000	19	23	1,300	88,000	5,600	7,700	4,000	50 U	14	5,000	45 U	15	1,900	22 U	45	12,000
	TP-10 (1.0-1.5)	3/26/2019	4/11/2019	1	1.5	6,400	2.0 U	6.2	67	1.0 U	0.81 U	3,400	22	6.3	22	16,000	37	3,600	230	47 U	14	660	4.0 U	1.0 U	120	2.0 U	30	220
TP-11	TP-11 (0.5-1.0)	3/25/2019	4/11/2019	0.5	1	16,000	19 U	43	440	9.7 U	7.8 U	50,000	34	35	1,800	120,000	4,700	9,300	4,000	48 U	13	5,700	39 U	9.7 U	2,200	19 U	65	16,000
	TP-11 (3.5-4.0)	3/25/2019	4/11/2019	3.5	4	6,500	4.3	6.9	120	1.9 U	1.5 U	8,300	18	9	440	29,000	640	3,900	670	50 U	13	1,100	7.7 U	1.9 U	340	3.9 U	27	2,300
TP-12	TP-12 (0.0-0.5)	3/25/2019	4/11/2019	0	0.5	15,000	84 U	42 U	320	42 U	34 U	120,000	42 U	42 U	400	200,000	11,000	10,000	18,000	50 U	42 U	5,000	170 U	42 U	840 U	84 U	42 U	46,000
	TP-12 (1.0-1.5)	3/25/2019	4/11/2019	1	1.5	7,200	20 U	10	120	10 U	12	14,000	22	10	200	39,000	1,400	4,300	1,800	50 U	21	1,500	41 U	10 U	340	20 U	44	3,700
TP-13	TP-13 (0.0-0.5)	3/25/2019	4/11/2019	0	0.5	16,000	96 U	48 U	770	48 U	39 U	52,000	53	48 U	1,100	170,000	2,900	7,400	4,500	97	48 U	3,300	190 U	48 U	1,100	96 U	48 U	21,000
TP-14	TP-14 (0.0-0.5)	3/25/2019	4/11/2019	0	0.5	22,000	91 U	46 U	640	46 U	36 U	77,000	52	46 U	1,200	160,000	3,900	12,000	5,000	49 U	46 U	7,900	180 U	46 U	3,700	91 U	76	19,000
	TP-14 (1.0-1.5)	3/25/2019	4/11/2019	1	1.5	11,000	9.9 U	19	170	5.0 U	4.0 U	21,000	22	19	470	40,000	280	6,200	420	48 U	17	3,800	20 U	5.0 U	1,900	9.9 U	61	670
	TP-14 (1.5-2.0)	3/25/2019	4/11/2019	1.5	2	5,900	2.0 U	5.4	85	1.0 U	0.9	5,000	25	8.2	110	26,000	40	3,200	310	49 U	15	1,200	4.0 U	1.0 U	330	2.0 U	58	210

Method Analyte						Metals																						
						Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
Units						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
Location ID	Sample ID	Date	Date	Depth	Depth																							
TP-16	TP-16 (0.0-0.5)	3/25/2019	4/11/2019	0	0.5	12,000	32	15	1,100	9.8 U	7.8 U	56,000	79	35	1,300	130,000	320	11,000	2,300	50 U	14	2,500	39 U	9.8 U	1,200	20 U	36	10,000
	TP-16 (0.5-1.0)	3/25/2019	4/11/2019	0.5	1	14,000	31	17	1,300	9.7 U	7.7 U	49,000	94	42	1,600	150,000	350	5,600	2,800	50 U	14	2,800	39 U	9.7 U	1,300	19 U	38	12,000
	TP-16 (3.0-3.5)	3/25/2019	4/11/2019	3	3.5	41,000	9.9 U	31	690	9.9 U	3.9 U	96,000	43	50	1,400	110,000	1,400	22,000	1,300	48 U	11	20,000	20 U	4.9 U	11,000	9.9 U	130	2,000
TP-18	TP-18 (0.0-0.5)	3/26/2019	4/11/2019	0	0.5	13,000	32	17	1,200	10 U	8.4 U	41,000	91	41	1,500	130,000	260	5,800	2,600	50 U	17	2,300	42 U	10 U	1,200	21 U	43	10,000
	TP-18 (3.5-4.0)	3/26/2019	7/9/2019	3.5	4	--	--	8.5	--	--	--	--	38	--	480	--	160	--	--	--	--	--	--	--	--	--	--	3,600
TP-19	TP-19 (0.0-0.5)	3/26/2019	4/11/2019	0	0.5	17,000	19 U	14	840	9.3 U	7.5 U	51,000	46	22	840	120,000	1,600	7,800	3,500	49 U	9.3 U	4,700	37 U	9.3 U	2,200	19 U	49	12,000
	TP-19 (0.5-1.0)	3/26/2019	4/11/2019	0.5	1	46,000	11 U	45	660	5.3 U	4.3 U	110,000	52	52	1,900	110,000	56	26,000	640	49 U	12	21,000	21 U	5.3 U	12,000	11 U	170	240
	TP-19 (1.5-2.0)	3/26/2019	4/11/2019	1.5	2	8,800	8.8 U	7.2	150	4.4 U	3.5 U	19,000	19	8.7	200	29,000	170	6,600	520	50 U	15	2,700	18 U	4.4 U	1,200	8.8 U	36	1,100
TP-21	TP-21 (0.5-1.0)	3/27/2019	4/11/2019	0.5	1	13,000	100 UJ	50 U	270	50 U	40 U	110,000	50 U	50 U	740	200,000	14,000	11,000	16,000	49 U	50 U	4,800	200 U	50 U	1,000 U	100 U	50 U	38,000
	TP-21 (1.0-1.5)	3/27/2019	4/11/2019	1	1.5	9,800	1.9 UJ	4.2	100	0.94 U	0.75 U	4,400	28	7.7	24	20,000	110	4,900	410	49 U	18	1,300	3.7 U	0.94 U	150	1.9 U	38	2,100
TP-22	TP-22 (0.0-0.5)	3/27/2019	4/11/2019	0	0.5	9,100	15	12	650	7.6 U	3.0 U	33,000	49	22	790	80,000	490	8,800	1,600	110	12	1,700	15 U	4.5	610	7.6 U	29	8,600
	TP-22 (0.5-1.0)	3/27/2019	4/17/2019	0.5	1	17,000	19 U	12	780	9.4 U	7.5 U	49,000	64	26	1,000	150,000	500	7,200	2,900	3,300	11	3,600	38 U	9.4 U	1,500	19 U	45	12,000
			7/8/2019			--	--	12 U	--	--	--	--	50	--	800	--	370	--	--	--	--	--	--	--	--	--	--	--
	TP-22 (1.0-1.5)	3/27/2019	4/17/2019	1	1.5	18,000	21 U	11	580	10 U	8.4 U	47,000	56	20	820	150,000	290	6,800	2,900	50 U	10 U	3,600	42 U	10 U	1,200	21 U	43	14,000
TP-22 (3.5-4.0)	3/27/2019	7/8/2019	3.5	4	--	--	58	--	--	--	--	48 U	--	1,600	--	13,000	--	--	--	--	--	--	--	--	--	--	30,000	
TP-23	TP-23 (0.0-0.5)	3/27/2019	4/11/2019	0	0.5	4,600	5.9	5.8	330	1.1 U	2.1	24,000	20	6.8	180	26,000	160	12,000	400	100	9.1	850	4.3 U	1.7	180	2.2 U	25	2,000
			7/8/2019			--	--	6.5	--	--	--	--	20	--	170	--	130	--	--	--	--	--	--	--	--	--	--	--
TP-25	TP-25 (0.0-0.5)	3/27/2019	4/11/2019	0	0.5	5,900	7.2	11	360	13 U	2.4	19,000	24	8.1	240	31,000	360	9,000	420	310	12	1,100	5.2 U	1.7	220	2.6 U	27	2,400
XRF-1	XRF-1	3/25/2019	4/17/2019	0	0.5	16,000	110 U	55 U	640	55 U	44 U	120,000	55 U	55 U	860	190,000	8,200	11,000	15,000	49 U	55 U	4,100	220 U	55 U	1,100 U	110 U	55 U	38,000
XRF-7	XRF-7	3/25/2019	4/11/2019	0	0.5	7,700	19	10	570	5.5 U	4.4 U	23,000	46	21	840	70,000	410	4,900	1,300	49 U	13	1,300	22 U	5.5 U	520	11 U	32	7,900
XRF-11	XRF-11	3/26/2019	4/17/2019	0	0.5	19,000	22 U	24	1,100	11 U	8.6 U	59,000	82	35	1,500	190,000	1,600	8,200	4,100	100	15	3,400	43 U	11 U	1,300	22 U	50	17,000
XRF-24	XRF-24	3/26/2019	4/17/2019	0	0.5	15,000	93 U	67	440	46 U	37 U	84,000	46 U	46 U	1,600	220,000	15,000	10,000	11,000	50	46 U	4,300	190 U	46 U	930 U	93 U	46 U	44,000
XRF-26	XRF-26	3/26/2019	4/17/2019	0	0.5	6,100	23 U	11	130	11 U	9.0 U	160,000	25	11 U	43	12,000	190	9,300	240	74	28	1,200	45 U	11 U	230 U	23 U	25	180
XRF-41	XRF-41	3/26/2019	7/8/2019	0	0.5	9,700	23	11	880	11 U	8.9 U	33,000	61	27	1,100	100,000	290	4,900	2,000	48 UJ	11	1,800	44 U	11 U	790	22 U	31	9,000
XRF-49	XRF-49	3/27/2019	4/17/2019	0	0.5	21,000	89 U	58	560	44 U	36 U	80,000	140	52	3,000	250,000	2,100	6,800	5,200	47 U	44 U	3,600	180 U	44 U	1,700	89 U	44	44,000
XRF-50	XRF-50	3/27/2019	4/17/2019	0	0.5	21,000	96 U	48	980	48 U	38 U	82,000	140	56	2,900	240,000	1,000	7,600	4,600	49 U	48 U	3,700	190 U	48 U	1,800	96 U	48 U	21,000
XRF-59	XRF-59	3/27/2019	7/15/2019	0	0.5	--	--	13	--	--	--	--	63	--	1,000	--	190	--	--	--	--	--	--	--	--	--	6,100	
XRF-60	XRF-60	3/27/2019	7/15/2019	0	0.5	--	--	10	--	--	--	--	51	--	770	--	380	--	--	--	--	--	--	--	--	--	6,200	
XRF-63	XRF-63	3/27/2019	4/17/2019	0	0.5	19,000	27 J	31	1,500 J	11 U	8.7 U	67,000	130	56	2,400	210,000	510	6,400	4,100	49 U	19	3,300	44 U	11 U	1,700	22 U	45	18,000
XRF-66	XRF-66	3/27/2019	4/17/2019	0	0.5	4,700	8.2	6.7	310	1.2 U	3.4	31,000	20	8.4	230	28,000	200	13,000	520	220	8.8	860	4.8 U	1.2 U	230	2.4 U	20	2,100
XRF-96	XRF-96	3/28/2019	7/12/2019	0	0.5	5,000	2.4 U	7.7	280	1.2 U	5.3	38,000	16	5.7	77	22,000	200	20,000	340	270 J	13	940	4.8 U	1.2 U	150	2.4 U	24	1,400
XRF-99	XRF-99	3/28/2019	7/12/2019	0	0.5	4,700	3.6	5.7	290	1.2 U	4.6	37,000	15	5.3	95	20,000	190	19,000	350	95 J	11	860	4.9 U	1.2 U	160	2.5 U	23	1,400
XRF-100	XRF-100	3/28/2019	4/11/2019	0	0.5	5,000	3.5	6.8	290	1.2 U	4.2	37,000	18	6.3	140	24,000	190	18,000	410	98 J	11	940	4.8 U	1.2 U	180	2.4 U	23	1,700
Screening levels						80,000	32	12.9	16,000	160	2	NA	131	NA	143	56,000	250	NA	11,200	1,460	39	NA	400	400	NA	0.8	400	3,200

Notes:

J = Analyte detected but value is an estimate.

U = Analyte was analyzed for but not detected.

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram

Bold = Detected

Shaded values exceed screening levels

Table 3
Average¹ Concentrations by Investigation Area and Sample Depth
Northport Waterfront Remedial Investigation
Northport, Washington

Investigation Area and Depth (feet bgs)	Arsenic	Copper	Lead	Zinc
Bay (area-wide)	19.2	329	1,150	4,492
0-0.5	9.8	286	271	2,943
0.5-1	28.5	448	172	2,151
1-1.5	11	163	129	2,383
1.5-2	7.2	239	176	2,999
2-2.5	-	89	212	1,276
2.5-3	-	125	115	1,748
3-3.5	-	826	5,800	15,308
3.5-4	58	492	2,984	8,289
Bayshore (area-wide)	11.8	126	344	1,541
0-0.5	7.8	162	176	1,285
0.5-1	9.8	148	541	2,412
1-1.5	43	182	671	2,573
1.5-2	18	165	693	2,257
2-2.5	-	71	267	1,322
2.5-3	-	ND	17	79
3-3.5	-	ND	26	46
3.5-4	-	ND	17	49
Beach (area-wide)	14.6	628	1,117	5,596
0-0.5	17.8	1,048	1,255	10,107
0.5-1	15.5	750	1,447	5,351
1-1.5	9.1	279	524	2,299
1.5-2	5.4	254	686	3,140
2-2.5	5.5	214	3,548	2,937
2.5-3	-	327	486	2,202
3-3.5	31	294	240	506
3.5-4	5.8	225	215	680
Hillside (area-wide)	5.1	419	845	2,197
0-0.5	11	286	353	1,383
0.5-1	ND	3,450	11,564	24,476
1-1.5	4.2	ND	19	36
1.5-2	-	29	35	142
2-2.5	-	144	71	193
2.5-3	-	107	50	173
3-3.5	-	803	60	98
3.5-4	-	ND	22	23
Jetty (area-wide)	18	796	168	4,361
0-0.5	18	796	168	4,361
Site-wide	14.5	524	986	4,637
Preliminary Cleanup or Screening Levels	12.9	143	250	3,200

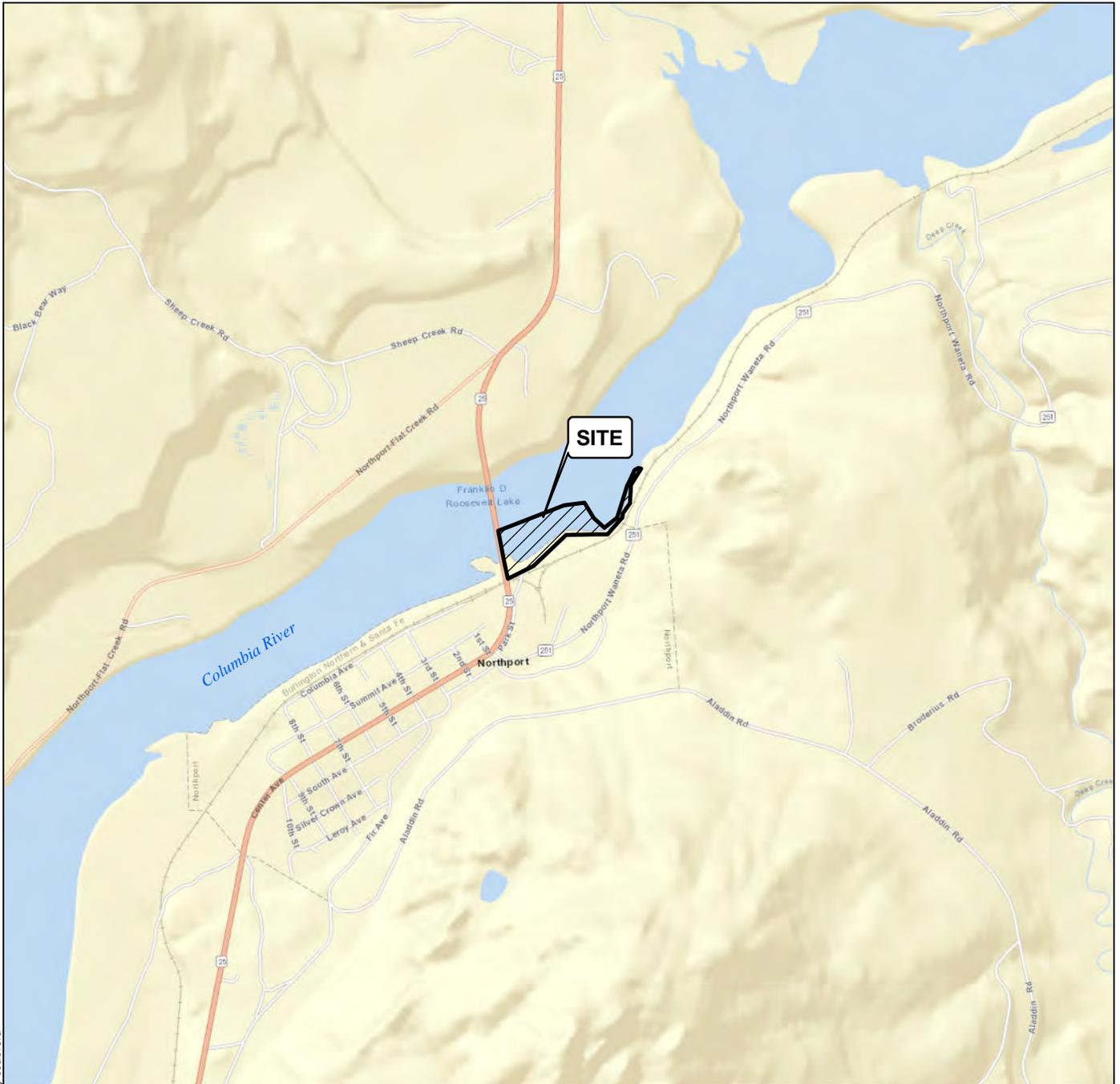
Notes:

¹ Averages are based on X-ray fluorescence (XRF) results for all contaminants, except for arsenic, which is based on laboratory analytical results

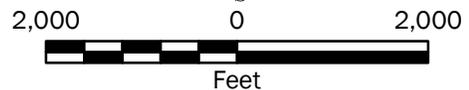
bgs = below ground surface, mg/kg = milligrams per kilogram, "-" = not analyzed

ND = Not detected

Average value exceeds screening level



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Vicinity Map

**Northport Waterfront Remedial Investigation
Northport, Washington**



Figure 1

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Mapbox Open Street Map, 2016
ESRI World Street Map.

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet



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Notes:

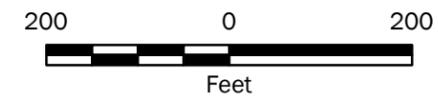
1. The locations of all features shown are approximate.
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3. bgs = below ground surface

Data Source: ESRI. River stage lower at the time of sampling (March 2019) than that depicted in figure.

Projection: NAD 1983 UTM Zone 11N

Legend

- | | | | |
|--|---------------------------------|--|-------------------------------|
| | Hand Sample (0 - 2 ft bgs) | | Pedestrian Access |
| | Surface Sample (0 - 0.5 ft bgs) | | Vehicle Traffic Access |
| | Test Pit Sample (0 - 4 ft bgs) | | Observed Slag (Ecology, 2018) |
| | Project Boundary | | |



Site Plan and Sampling Locations

Northport Waterfront Remedial Investigation
Northport, Washington



Figure 2



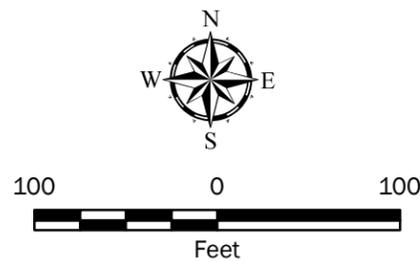
P:\0\0504160\GIS\MXD\050416000_F03a_VisualSlag_Beach.mxd Date Exported: 09/10/19 by ccaabrera

Notes:
 1. The locations of all features shown are approximate.
 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
 3. bgs = below ground surface
 Data Source: ESRI.
 Observed slag locations from Washington Department of Ecology, 2018.
 Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

- Legend**
- Exploration Location
 - Clinker Slag Present
 - Granular Slag Present
 - Clinker and Granular Slag Present
 - No Slag Present
 - ▭ Observed Slag (Ecology, 2018)

Depth Interval (bgs)

0.0 - 0.5 ft
0.5 - 1.0 ft
1.0 - 1.5 ft
1.5 - 2.0 ft
2.0 - 2.5 ft
2.5 - 3.0 ft
3.0 - 3.5 ft
3.5 - 4.0 ft



Visual Slag Deposition - Beach

Northport Waterfront Remedial Investigation
Northport, Washington

Figure 3a



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Notes:

1. The locations of all features shown are approximate.
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3. bgs = below ground surface

Data Source: ESRI.
 Observed slag locations from Washington Department of Ecology, 2018.

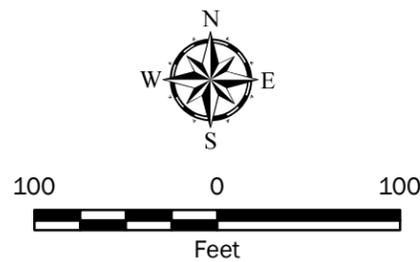
Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Legend

- Exploration Location
- Clinker Slag Present
- Granular Slag Present
- Clinker and Granular Slag Present
- No Slag Present
- ▭ Observed Slag (Ecology, 2018)

Depth Interval (bgs)

0.0 - 0.5 ft
0.5 - 1.0 ft
1.0 - 1.5 ft
1.5 - 2.0 ft
2.0 - 2.5 ft
2.5 - 3.0 ft
3.0 - 3.5 ft
3.5 - 4.0 ft



Visual Slag Deposition - Hillside	
Northport Waterfront Remedial Investigation Northport, Washington	
	Figure 3b



P:\0504160\GIS\MXD\050416000_F03c_VisualSlag_JettyBayShore.mxd Date Exported: 09/10/19 by ccabrera

Notes:
 1. The locations of all features shown are approximate.
 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
 3. bgs = below ground surface

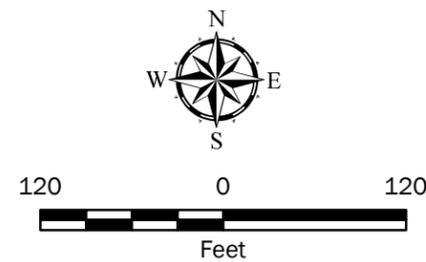
Data Source: ESRI.

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

- Legend**
- Exploration Location
 - Clinker Slag Present
 - Granular Slag Present
 - Clinker and Granular Slag Present
 - No Slag Present

Depth Interval (bgs)

0.0 - 0.5 ft
0.5 - 1.0 ft
1.0 - 1.5 ft
1.5 - 2.0 ft
2.0 - 2.5 ft
2.5 - 3.0 ft
3.0 - 3.5 ft
3.5 - 4.0 ft



Visual Slag Deposition Jetty, Bay & Bayshore	
Northport Waterfront Remedial Investigation Northport, Washington	
	Figure 3c



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Notes:
 1. The locations of all features shown are approximate.
 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
 3. Arsenic Screening Level = 12.9 mg/kg
 4. bgs = below ground surface

Data Source: ESRI.
 Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Legend

- Exploration Location

Arsenic Concentrations (based on lab results)

- ≥ 40 mg/kg
- ≥ 12.9 to < 40 mg/kg
- 0 to < 12.9 mg/kg
- ☒ Not Analyzed

Depth Interval (bgs)

0.0 - 0.5 ft
0.5 - 1.0 ft
1.0 - 1.5 ft
1.5 - 2.0 ft
2.0 - 2.5 ft
2.5 - 3.0 ft
3.0 - 3.5 ft
3.5 - 4.0 ft

100 0 100
Feet

Arsenic Concentrations - Beach

Northport Waterfront Remedial Investigation
Northport, Washington

GEOENGINEERS

Figure 4a



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. Arsenic Screening Level = 12.9 mg/kg
4. bgs = below ground surface

Data Source: ESRI.

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Legend

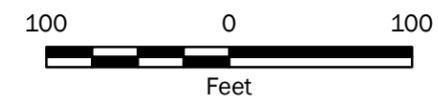
- Exploration Location

Arsenic Concentrations (based on lab results)

- ≥ 40 mg/kg
- ≥ 12.9 to < 40 mg/kg
- 0 to < 12.9 mg/kg
- ☒ Not Analyzed

Depth Interval (bgs)

- 0.0 - 0.5 ft
- 0.5 - 1.0 ft
- 1.0 - 1.5 ft
- 1.5 - 2.0 ft
- 2.0 - 2.5 ft
- 2.5 - 3.0 ft
- 3.0 - 3.5 ft
- 3.5 - 4.0 ft



Arsenic Concentrations - Hillside

Northport Waterfront Remedial Investigation
Northport, Washington



Figure 4b

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P:\0_0504160\GIS\MXD\050416000_F04c_Arsenic_JettyBayShore.mxd Date Exported: 09/13/19 by ccabrera

Notes:
 1. The locations of all features shown are approximate.
 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
 3. Arsenic Screening Level = 15 mg/kg
 4. bgs = below ground surface

Data Source: ESRI.
 Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Legend

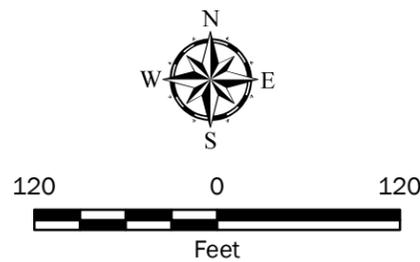
- Exploration Location

Arsenic Concentrations (based on lab results)

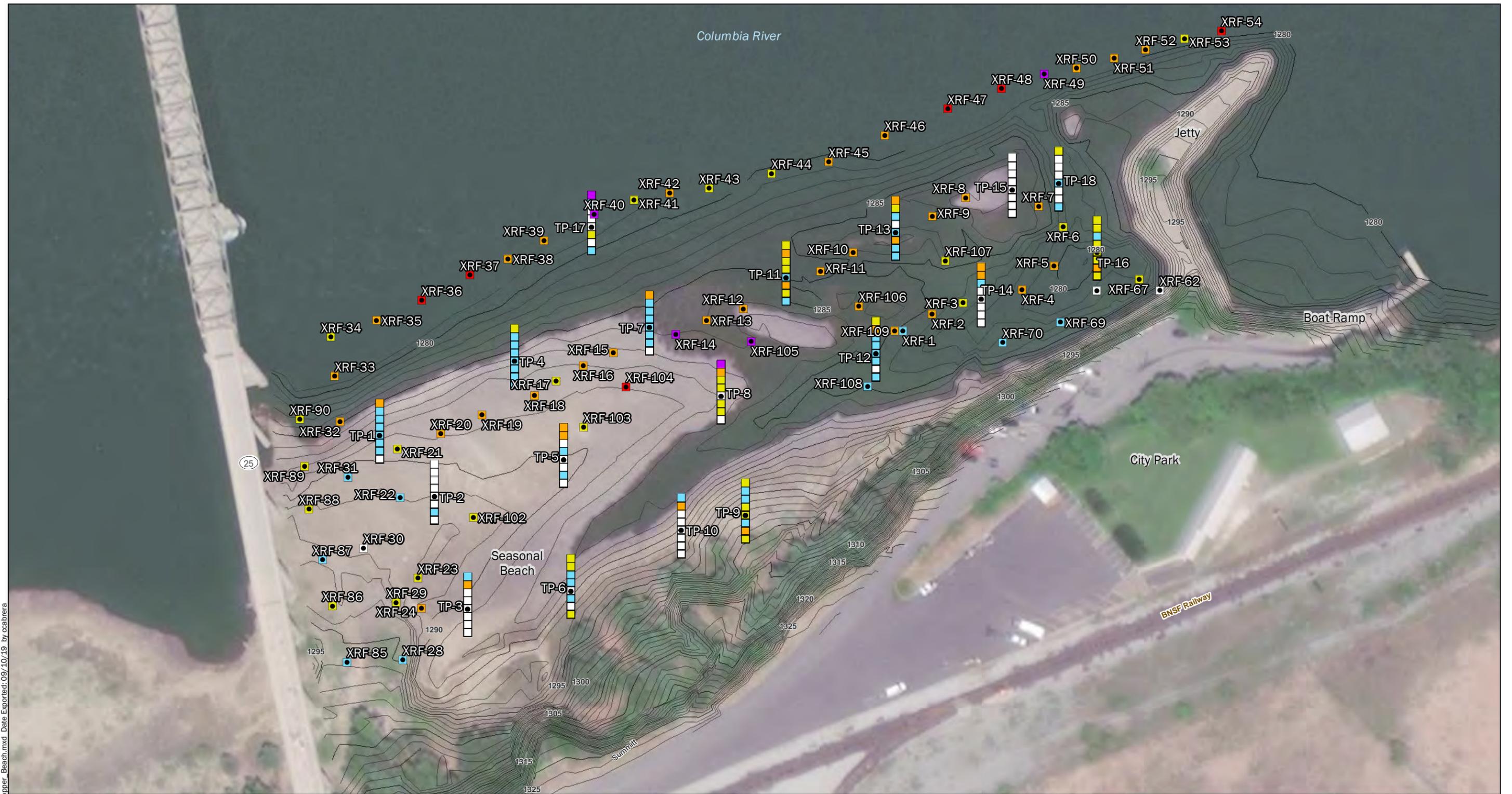
- ≥ 40 mg/kg
- ≥ 12.9 to < 40 mg/kg
- 0 to < 12.9 mg/kg
- ⊠ Not Analyzed

Depth Interval (bgs)

0.0 - 0.5 ft
0.5 - 1.0 ft
1.0 - 1.5 ft
1.5 - 2.0 ft
2.0 - 2.5 ft
2.5 - 3.0 ft
3.0 - 3.5 ft
3.5 - 4.0 ft



Arsenic Concentrations Jetty, Bay & Bayshore	
Northport Waterfront Remedial Investigation Northport, Washington	
	Figure 4c



P:\0_0504160\GIS\MXD\050416000_F05a_Copper_Beach.mxd Date Exported: 09/10/19 by ccaabrera

Notes:
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 3. Copper Screening Level = 143 mg/kg
 4. bgs = below ground surface

Data Source: ESRI.
 Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Legend

- Exploration Location

Copper Concentrations (based on XRF results)

- > 2,000 ppm
- 1,601 – 2,000 ppm
- 1,001 – 1,600 ppm
- 501 – 1,000 ppm
- 144 – 500 ppm
- ≤ 143 ppm

Depth Interval (bgs)

- 0.0 - 0.5 ft
- 0.5 - 1.0 ft
- 1.0 - 1.5 ft
- 1.5 - 2.0 ft
- 2.0 - 2.5 ft
- 2.5 - 3.0 ft
- 3.0 - 3.5 ft
- 3.5 - 4.0 ft

100 0 100
Feet

Copper Concentrations - Beach

Northport Waterfront Remedial Investigation
Northport, Washington

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Figure 5a



P:\0_0504160\GIS\MXD\050416000_F05b_Copper_Hillside.mxd Date Exported: 09/10/19 by ccabrera

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 3. Copper Screening Level = 143 mg/kg
 4. bgs = below ground surface

Data Source: ESRI.
 Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Legend

- Exploration Location

Copper Concentrations (based on XRF results)

- > 2,000 ppm
- 1,601 – 2,000 ppm
- 1,001 – 1,600 ppm
- 501 – 1,000 ppm
- 144 – 500 ppm
- ≤ 143 ppm

Depth Interval (bgs)

- 0.0 - 0.5 ft
- 0.5 - 1.0 ft
- 1.0 - 1.5 ft
- 1.5 - 2.0 ft
- 2.0 - 2.5 ft
- 2.5 - 3.0 ft
- 3.0 - 3.5 ft
- 3.5 - 4.0 ft

Copper Concentrations - Hillside	
Northport Waterfront Remedial Investigation Northport, Washington	
	Figure 5b



P:\0\0504160\GIS\MXD\050416000_F05c_Copper_JettyBayShore.mxd Date Exported: 09/10/19 by ccabrera

Notes:
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 3. Copper Screening Level = 143 mg/kg
 4. bgs = below ground surface

Data Source: ESRI.
 Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

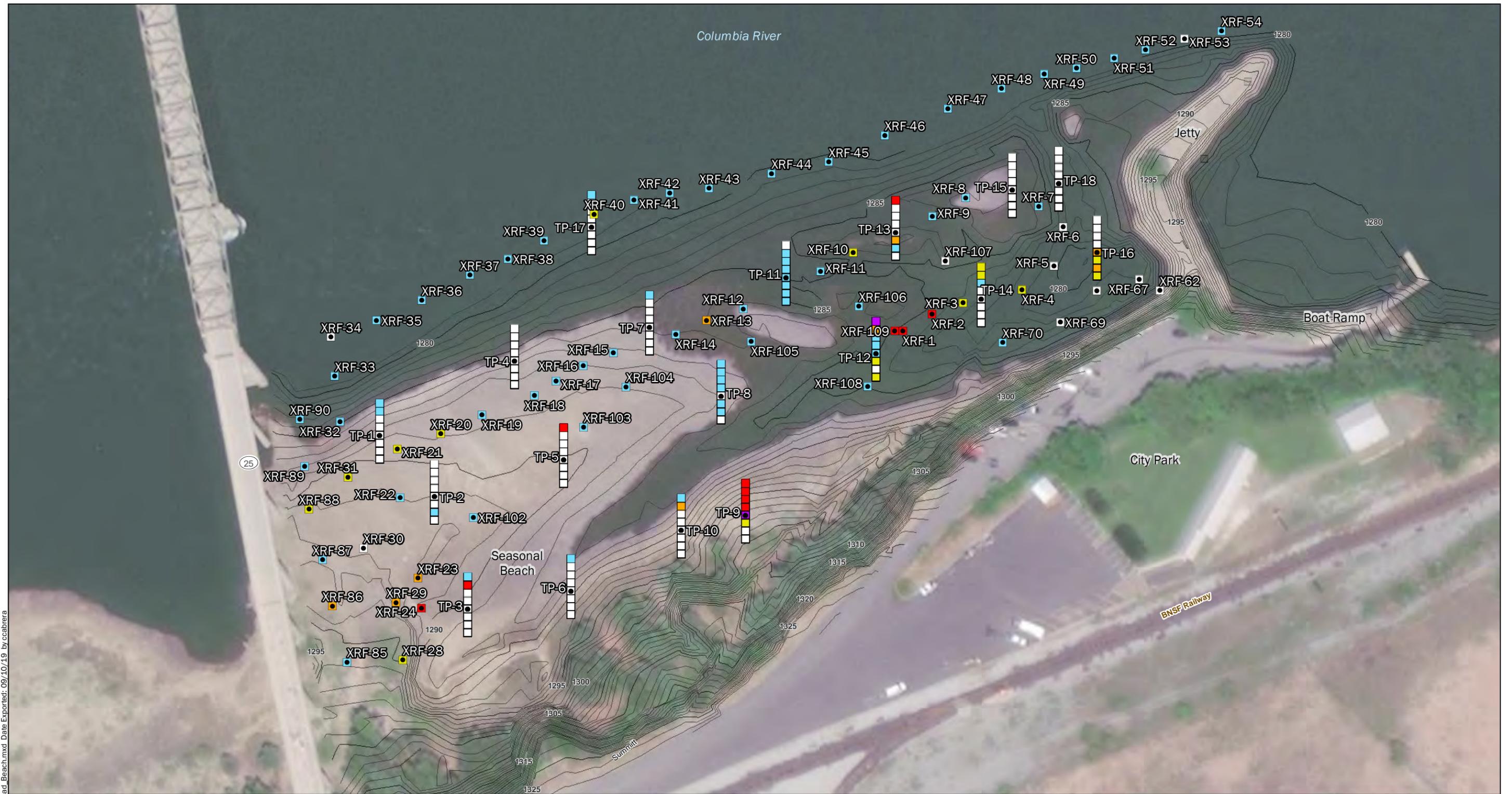
Legend

- Exploration Location
- Copper Concentrations (based on XRF results)**
- > 2,000 ppm
- 1,601 – 2,000 ppm
- 1,001 – 1,600 ppm
- 501 – 1,000 ppm
- 144 – 500 ppm
- ≤ 143 ppm

Depth Interval (bgs)

- 0.0 - 0.5 ft
- 0.5 - 1.0 ft
- 1.0 - 1.5 ft
- 1.5 - 2.0 ft
- 2.0 - 2.5 ft
- 2.5 - 3.0 ft
- 3.0 - 3.5 ft
- 3.5 - 4.0 ft

Copper Concentrations Jetty, Bay & Bayshore	
Northport Waterfront Remedial Investigation Northport, Washington	
	Figure 5c



P:\0\0504160\GIS\MXD\050416000_F06a_Lead_Beach.mxd Date Exported: 09/10/19 by cccabrera

Notes:
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 3. Lead Screening Level = 250 mg/kg
 4. bgs = below ground surface

Data Source: ESRI.
 Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Legend

- Exploration Location
- Lead Concentrations (based on XRF results)**
- ≥ 10,001 ppm
- 5,001 - 10,000 ppm
- 2,001 - 5,000 ppm
- 1,001 - 2,000 ppm
- 251 - 1,000 ppm
- ≤ 250 ppm

Depth Interval (bgs)

- 0.0 - 0.5 ft
- 0.5 - 1.0 ft
- 1.0 - 1.5 ft
- 1.5 - 2.0 ft
- 2.0 - 2.5 ft
- 2.5 - 3.0 ft
- 3.0 - 3.5 ft
- 3.5 - 4.0 ft

Lead Concentrations - Beach

Northport Waterfront Remedial Investigation
Northport, Washington

GEOENGINEERS

Figure 6a



P:\0\0504160\GIS\MXD\050416000_F06b_Lead_Hillside.mxd Date Exported: 09/10/19 by ccabrera

Notes:
 1. The locations of all features shown are approximate.
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 3. Lead Screening Level = 250 mg/kg
 4. bgs = below ground surface

Data Source: ESRI.
 Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Legend

- Exploration Location

Lead Concentrations (based on XRF results)

- ≥ 10,001 ppm
- 5,001 - 10,000 ppm
- 2,001 - 5,000 ppm
- 1,001 - 2,000 ppm
- 251 - 1,000 ppm
- ≤ 250 ppm

Depth Interval (bgs)

- 0.0 - 0.5 ft
- 0.5 - 1.0 ft
- 1.0 - 1.5 ft
- 1.5 - 2.0 ft
- 2.0 - 2.5 ft
- 2.5 - 3.0 ft
- 3.0 - 3.5 ft
- 3.5 - 4.0 ft

Lead Concentrations - Hillside	
Northport Waterfront Remedial Investigation Northport, Washington	
	Figure 6b



P:\0504160\GIS\MXD\050416000_F06c_Lead_JettyBayShore.mxd Date Exported: 09/10/19 by ccabrera

Notes:
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 3. Lead Screening Levels = 250 mg/kg
 4. bgs = below ground surface

Data Source: ESRI.
 Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Legend

- Exploration Location
- Lead Concentrations (based on XRF results)**
- ≥ 10,001 ppm
- 5,001 - 10,000 ppm
- 2,001 - 5,000 ppm
- 1,001 - 2,000 ppm
- 251 - 1,000 ppm
- ≤ 250 ppm

Depth Interval (bgs)

- 0.0 - 0.5 ft
- 0.5 - 1.0 ft
- 1.0 - 1.5 ft
- 1.5 - 2.0 ft
- 2.0 - 2.5 ft
- 2.5 - 3.0 ft
- 3.0 - 3.5 ft
- 3.5 - 4.0 ft

North arrow pointing North (N), South (S), East (E), and West (W).
 Scale bar showing 0, 120, and 120 feet.

**Lead Concentrations
 Jetty, Bay & Bayshore**

Northport Waterfront Remedial Investigation
 Northport, Washington

GEOENGINEERS

Figure 6c



P:\0_0504160\GIS\MXD\050416000_F07a_Zinc_Beach.mxd Date Exported: 09/10/19 by ccabrera

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. Zinc Screening Level = 3,200 mg/kg
4. bgs = below ground surface

Data Source: ESRI.
Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Legend

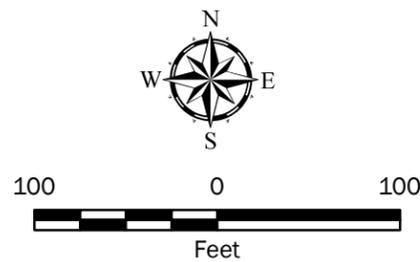
- Exploration Location

Zinc Concentrations (based on XRF results)

- ≥ 20,001 ppm
- 10,001 - 20,000 ppm
- 2,501 - 10,000 ppm
- 1,001 - 2,500 ppm
- 501 - 1,000 ppm
- ≤ 500 ppm

Depth Interval (bgs)

- 0.0 - 0.5 ft
- 0.5 - 1.0 ft
- 1.0 - 1.5 ft
- 1.5 - 2.0 ft
- 2.0 - 2.5 ft
- 2.5 - 3.0 ft
- 3.0 - 3.5 ft
- 3.5 - 4.0 ft



Zinc Concentrations - Beach	
Northport Waterfront Remedial Investigation Northport, Washington	
	Figure 7a



Notes:
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 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
 3. Zinc Screening Level = 3,200 mg/kg
 4. bgs = below ground surface

Data Source: ESRI.
 Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Legend

- Exploration Location

Zinc Concentrations (based on XRF results)

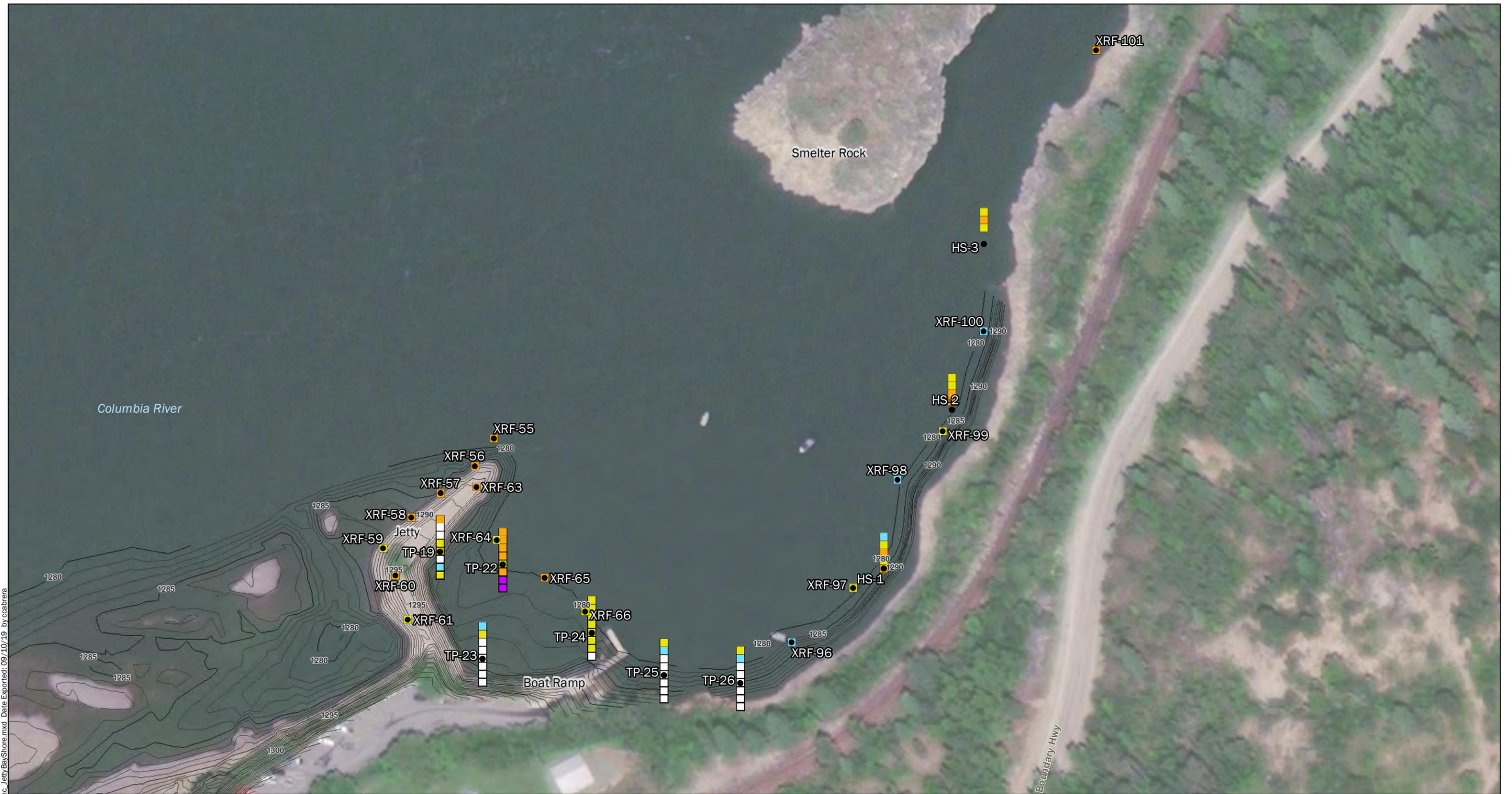
- ≥ 20,001 ppm
- 10,001 - 20,000 ppm
- 2,501 - 10,000 ppm
- 1,001 - 2,500 ppm
- 501 - 1,000 ppm
- ≤ 500 ppm

Depth Interval (bgs)

- 0.0 - 0.5 ft
- 0.5 - 1.0 ft
- 1.0 - 1.5 ft
- 1.5 - 2.0 ft
- 2.0 - 2.5 ft
- 2.5 - 3.0 ft
- 3.0 - 3.5 ft
- 3.5 - 4.0 ft

Zinc Concentrations - Hillside	
Northport Waterfront Remedial Investigation Northport, Washington	
	Figure 7b

P:\0\0504160\GIS\MXD\050416000_F07b_Zinc_Hillside.mxd Date Exported: 09/10/19 by ccaabrera



P:\0504160\GIS\MXD\050416000_F07c_Zinc_JettyBayShore.mxd Date Exported: 09/10/19 by ccabrera

Notes:
 1. The locations of all features shown are approximate.
 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
 3. Zinc Screening Level = 3,200 mg/kg
 4. bgs = below ground surface

Data Source: ESRI.
 Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Legend

- Exploration Location

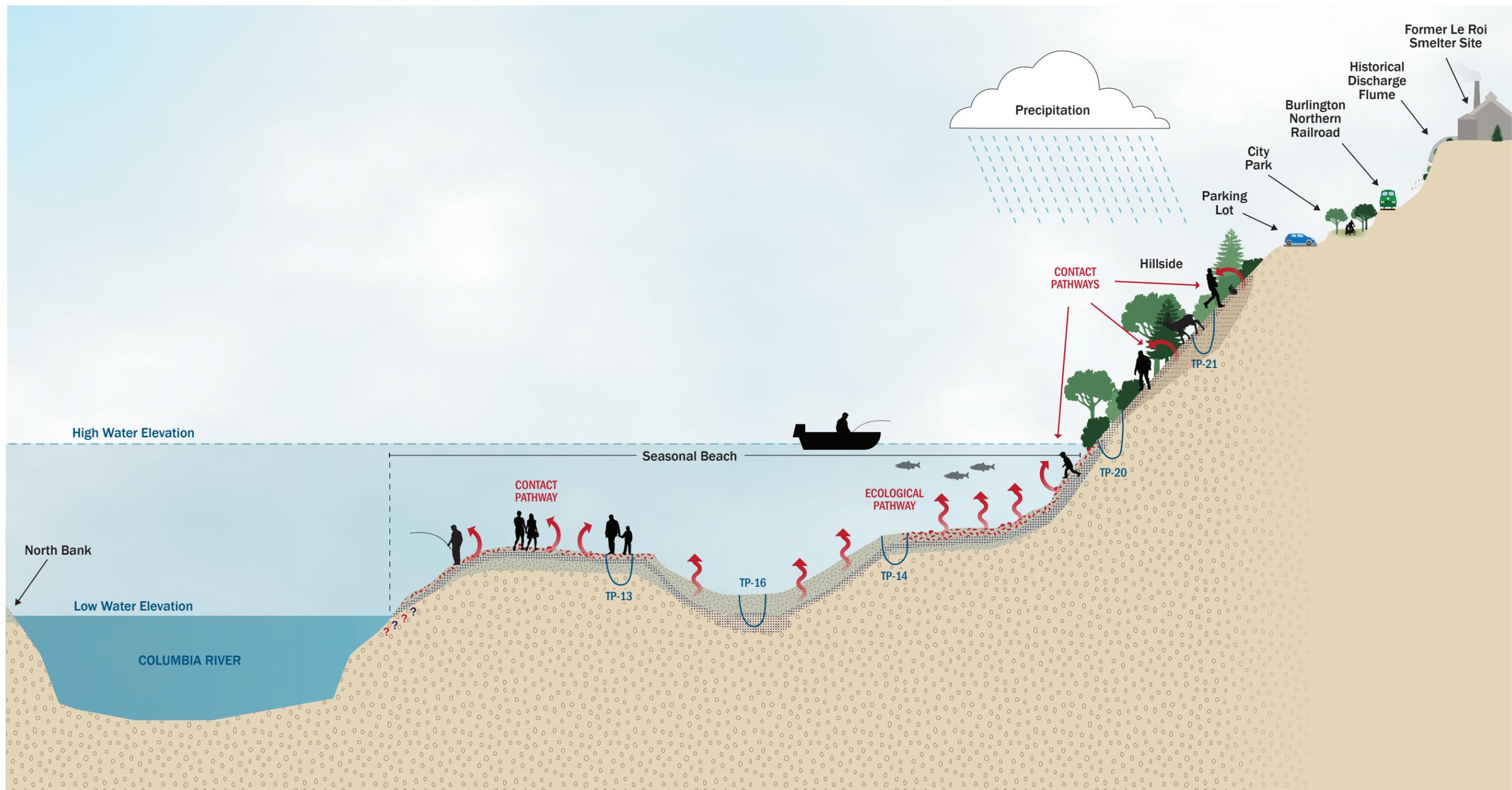
Zinc Concentrations (based on XRF results)

- ≥ 20,001 ppm
- 10,001 - 20,000 ppm
- 2,501 - 10,000 ppm
- 1,001 - 2,500 ppm
- 501 - 1,000 ppm
- ≤ 500 ppm

Depth Interval (bgs)

- 0.0 - 0.5 ft
- 0.5 - 1.0 ft
- 1.0 - 1.5 ft
- 1.5 - 2.0 ft
- 2.0 - 2.5 ft
- 2.5 - 3.0 ft
- 3.0 - 3.5 ft
- 3.5 - 4.0 ft

Zinc Concentrations Jetty, Bay & Bayshore	
Northport Waterfront Remedial Investigation Northport, Washington	
	Figure 7c



Notes:
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Data Source:

Legend:

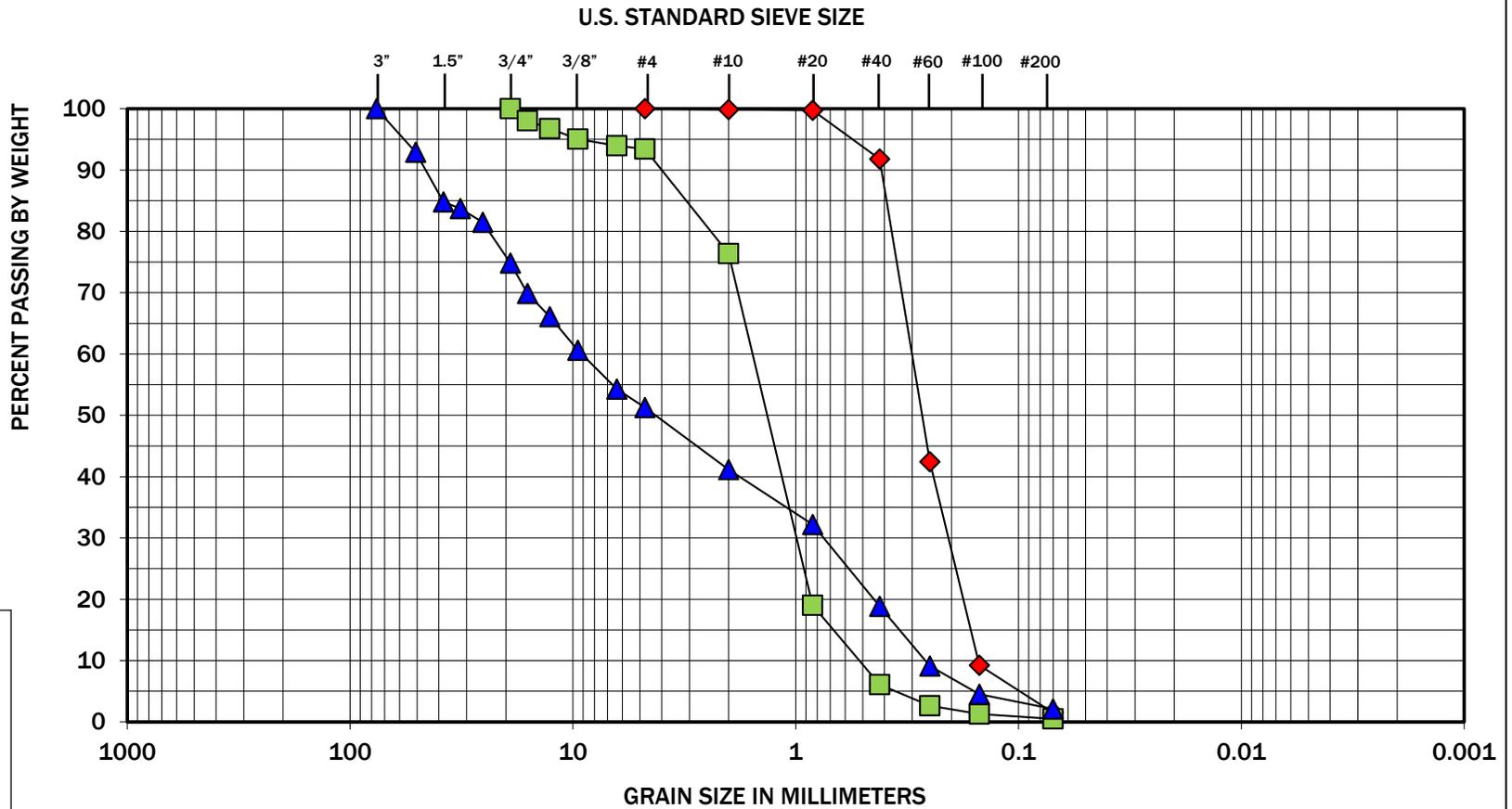
	Cobbles and Slags		Sand and Slag (SP)
	Increased Granular Slag		Gravel (GP)
	Exposure Pathway		Silty Sand (SP-SM)

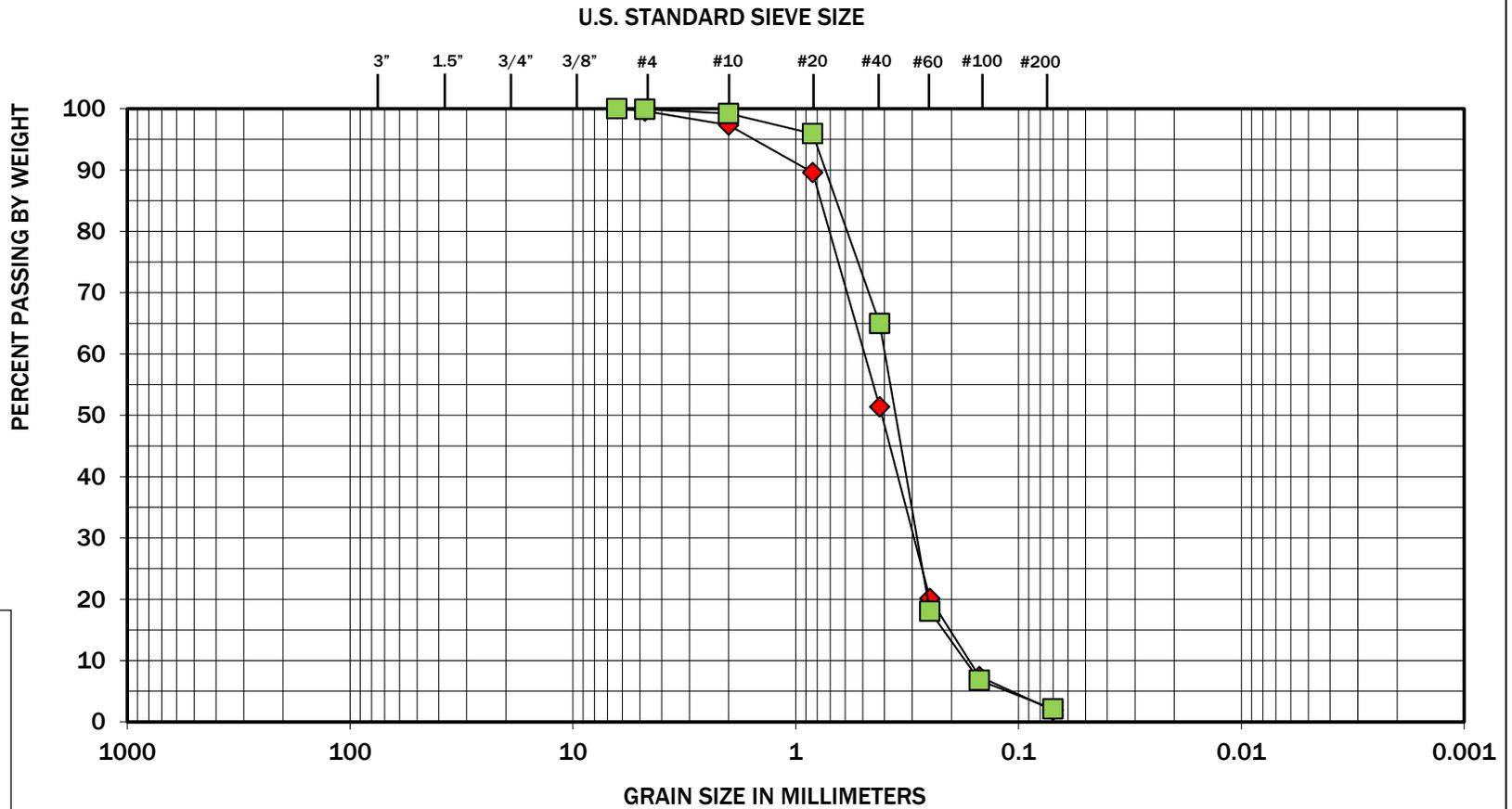
Not to Scale

Conceptual Site Model	
Northport Waterfront Remedial Investigation Northport, Washington	
	Figure 8

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APPENDIX A
Grain Size Results for Selected Samples





COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring Number	Depth (feet)	Moisture (%)	Soil Description
◆	TP-16	0 - 2	10	Fine to medium sand with trace silt
■	TP-22	0 - 3	7	Fine to medium sand with trace silt

Note: This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations, or generated by separate operations or processes.

The grain size analysis results were obtained in general accordance with ASTM D 6913.



Northport Waterfront Remedial Investigation
Northport, Washington

Sieve Analysis Results

Figure A-2

APPENDIX B

Sample Logs

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS <small>(LITTLE OR NO FINES)</small>		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
	SAND AND SANDY SOILS	CLEAN SANDS <small>(LITTLE OR NO FINES)</small>		SW	WELL-GRADED SANDS, GRAVELLY SANDS
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		SP	POORLY-GRADED SANDS, GRAVELLY SAND
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		SM	SILTY SANDS, SAND - SILT MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
		LIQUID LIMIT LESS THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		LIQUID LIMIT LESS THAN 50		OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
		LIQUID LIMIT GREATER THAN 50		CH	INORGANIC CLAYS OF HIGH PLASTICITY
		LIQUID LIMIT GREATER THAN 50		OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

Sampler Symbol Descriptions

	2.4-inch I.D. split barrel
	Standard Penetration Test (SPT)
	Shelby tube
	Piston
	Direct-Push
	Bulk or grab
	Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS		TYPICAL DESCRIPTIONS
GRAPH	LETTER	
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact



Measured groundwater level in exploration, well, or piezometer



Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point lead test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

Key to Exploration Logs



Figure B-1

Date Excavated	3/27/2019	Total Depth (ft)	2.5	Logged By	JDO	Excavator		Groundwater not observed
		Checked By	SHL	Equipment	Hand tools			Caving not observed
Surface Elevation (ft)	1285	Latitude	48.9222	Coordinate System	Horizontal Datum	WA State Plane North		
Vertical Datum	NAVD88	Longitude	-117.7701			WGS84 (feet)		

Elevation (feet)	Depth (feet)	SAMPLE		Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing					
1284	1	HS-1 (0.0 - 0.5)		SPSM	Brown silty sand with breccia (slate) (medium dense, moist)			
		HS-1 (0.5 - 1.0)						
		HS-1 (1.0 - 1.5)						
1283	2	HS-1 (1.5 - 2.0) CA						
		HS-1 (2.0 - 2.5)						

Hand sample completed at 2½ feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
 The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
 Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit HS-1



Project: Northport Waterfront Remedial Investigation
 Project Location: Northport, Washington
 Project Number: 0504-160-00

Figure B-2
 Sheet 1 of 1

Date Excavated	3/27/2019	Total Depth (ft)	2	Logged By	JDO	Excavator		Groundwater not observed
		Checked By	SHL	Equipment	Hand tools			Caving not observed
Surface Elevation (ft)	1281	Latitude	48.9228	Coordinate System	Horizontal Datum	WA State Plane North		
Vertical Datum	NAVD88	Longitude	-117.7697			WGS84 (feet)		

Elevation (feet)	Depth (feet)	SAMPLE		Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing					
1280	1	HS-2 (0.0 - 0.5)	CA	GP-GM	Brown sandy gravel with silt and cobbles (medium dense, moist)			Clinker slag observed at ground surface
		HS-2 (0.5 - 1.0)	CA					
		HS-2 (1.0 - 1.5)	CA					
		HS-2 (1.5 - 2.0)						
1279	2	Hand sample completed at about 2 feet below ground surface						

Notes: See Figure B-1 for explanation of symbols.
 The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
 Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit HS-2



Project: Northport Waterfront Remedial Investigation
 Project Location: Northport, Washington
 Project Number: 0504-160-00

Figure B-3
 Sheet 1 of 1

Date Excavated	3/27/2019	Total Depth (ft)	1.5	Logged By	JDO	Excavator		Groundwater not observed
		Checked By	SHL	Equipment	Hand tools			Caving not observed
Surface Elevation (ft)	1281	Latitude	48.9234	Coordinate System	Horizontal Datum	WA State Plane North		
Vertical Datum	NAVD88	Longitude	-117.7695			WGS84 (feet)		

Elevation (feet)	Depth (feet)	SAMPLE		Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing					
1280	1	HS-3 (0.0 - 0.5)		SP	Brown fine sand with gravel (loose, moist)			
		HS-3 (0.5 - 1.0) CA						
		HS-3 (1.0 - 1.5)		GP	Brown sandy gravel with cobbles (medium dense, moist)			

Hand sample completed at 1½ feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
 The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
 Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit HS-3



Project: Northport Waterfront Remedial Investigation
 Project Location: Northport, Washington
 Project Number: 0504-160-00

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_TESTPIT_4P_GEOTEC_%F

Date Excavated	3/26/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed	
Checked By	SHL	Equipment		See "Remarks" section for caving observed					
Surface Elevation (ft)	1289	Latitude	48.9217	Coordinate System	WA State Plane North	Vertical Datum	NAVD88	Horizontal Datum	WGS84 (feet)

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing						
1288	1	TP-1 (0.0 - 0.5)	CA	[Symbol]	GP	Black sandy gravel with cobbles (slag) (loose, moist)			Clinker slag observed at ground surface Minor caving observed at 0 to 4 feet below ground surface
		TP-1 (0.5 - 1.0)	CA						
1287	2	TP-1 (1.0 - 1.5)		[Symbol]	GP	Brown sandy gravel with trace silt and cobbles (loose, moist)			
		TP-1 (1.5 - 2.0)							
1286	3	TP-1 (2.0 - 2.5)		[Symbol]	GP	Brown sandy gravel with trace silt and cobbles (loose, moist)			
		TP-1 (2.5 - 3.0)							
1285	4	TP-1 (3.0 - 3.5)		[Symbol]	GP	Brown sandy gravel with trace silt and cobbles (loose, moist)			
		TP-1 (3.5 - 4.0)	CA						

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-1



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-5
Sheet 1 of 1

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_TESTPIT_4P_GEOTEC_%F

Date Excavated	3/26/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
Checked By	SHL	Equipment		Coordinate System	Horizontal Datum	WA State Plane North	WGS84 (feet)	See "Remarks" section for caving observed
Surface Elevation (ft)	1291	Latitude	48.9215	Vertical Datum	NAVD88	Longitude	-117.7758	

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing						
1280 1289 1288 1287	1 2 3 4	TP-2 (0.0 - 0.5)			GP	Brown sandy gravel with trace silt and cobbles (loose, moist)			Minor caving observed at 1 to 4 feet below ground surface
		TP-2 (0.5 - 1.0)							
		TP-2 (1.0 - 1.5)							
		TP-2 (1.5 - 2.0)							
		TP-2 (2.0 - 2.5)							
		TP-2 (2.5 - 3.0)							
		TP-2 (3.0 - 3.5)							
	4	TP-2 (3.5 - 4.0)							

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
 The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
 Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-2



Project: Northport Waterfront Remedial Investigation
 Project Location: Northport, Washington
 Project Number: 0504-160-00

Figure B-6
 Sheet 1 of 1

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_TESTPIT_4P_GEOTEC_%F

Date Excavated	3/26/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
Checked By	SHL	Equipment		Coordinate System	Horizontal Datum	WA State Plane North	WGS84 (feet)	See "Remarks" section for caving observed
Surface Elevation (ft)	1288	Latitude	48.9212	Coordinate System	Horizontal Datum	WA State Plane North	WGS84 (feet)	
Vertical Datum	NAVD88	Longitude	-117.7757					

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing						
1287	1	TP-3 (0.0 - 0.5)	CA	[Symbol]	SP	Brown medium to coarse sand with gravel, trace silt (loose, moist)			Minor caving observed at 2 to 4 feet below ground surface
		TP-3 (0.5 - 1.0)	CA		SP	Black sand (slag) with gravel (loose, moist)			
1286	2	TP-3 (1.0 - 1.5)	CA	[Symbol]	GP	Brown sandy gravel with trace silt and cobbles (loose, moist)			
		TP-3 (1.5 - 2.0)							
		TP-3 (2.0 - 2.5)							
1285	3	TP-3 (2.5 - 3.0)		[Symbol]					
		TP-3 (3.0 - 3.5)							
1284	4	TP-3 (3.5 - 4.0)		[Symbol]					

Test completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-3



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-7
Sheet 1 of 1

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_TESTPIT_4P_GEOTEC_%F

Date Excavated	3/26/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
		Checked By	SHL	Equipment				See "Remarks" section for caving observed
Surface Elevation (ft)	1288	Latitude	48.9219	Coordinate System	Horizontal Datum	WA State Plane North	WGS84 (feet)	
Vertical Datum	NAVD88	Longitude	-117.7755					

Elevation (feet)	Depth (feet)	SAMPLE		Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing					
1287	1	TP-4 (0.0 - 0.5)	CA	GP	Black medium to coarse sandy gravel with cobbles (slag)			Clinker slag observed at ground surface
		TP-4 (0.5 - 1.0)	CA	GP	Brown sandy gravel with trace silt and cobbles (loose, moist)			Minor caving observed at 1 to 4 feet below ground surface
1286	2	TP-4 (1.0 - 1.5)						
		TP-4 (1.5 - 2.0)						
		TP-4 (2.0 - 2.5)						
1285	3	TP-4 (2.5 - 3.0)						
		TP-4 (3.0 - 3.5)						
1284	4	TP-4 (3.5 - 4.0)	CA					

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-4



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-8
Sheet 1 of 1

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_TESTPIT_TP_GEOTEC.mxd

Date Excavated	3/26/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed	
Checked By	SHL	Equipment		See "Remarks" section for caving observed					
Surface Elevation (ft)	1290	Latitude	48.9216	Coordinate System	WA State Plane North	Vertical Datum	NAVD88	Horizontal Datum	WGS84 (feet)

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing						
1289	1	TP-5 (0.0 - 0.5)	CA	GP	GP	Black sandy gravel with cobbles (slag)			Clinker slag observed at ground surface
		TP-5 (0.5 - 1.0)	CA			Brown sandy gravel with trace silt and cobbles (loose, moist)			Minor caving 1 to 4 feet below ground surface
1288	2	TP-5 (1.0 - 1.5)	CA	GP	GP				
		TP-5 (1.5 - 2.0)							
1287	3	TP-5 (2.0 - 2.5)		GP	GP				
		TP-5 (2.5 - 3.0)							
1286	4	TP-5 (3.0 - 3.5)		GP	GP				
		TP-5 (3.5 - 4.0)							

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
 The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
 Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-5



Project: Northport Waterfront Remedial Investigation
 Project Location: Northport, Washington
 Project Number: 0504-160-00

Figure B-9
 Sheet 1 of 1

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_TESTPIT_4P_GEOTEC_%F

Date Excavated	3/26/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
Checked By	SHL	Equipment		Coordinate System	Horizontal Datum	WA State Plane North	WGS84 (feet)	See "Remarks" section for caving observed
Surface Elevation (ft)	1291	Latitude	48.9212	Vertical Datum	NAVD88	Longitude	-117.7753	

Elevation (feet)	Depth (feet)	SAMPLE		Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing					
1280	1	TP-6 (0.0 - 0.5)	CA	SP-SM	Brown medium to coarse gravelly sand with silt, cobbles, areas of black sand (loose, moist) (slag)			Clinker slag observed at ground surface
		TP-6 (0.5 - 1.0)	CA					
1289	2	TP-6 (1.0 - 1.5)		SP	Reddish brown medium gravelly sand with trace silt and cobbles (loose, moist)			Minor caving at 2 to 3 feet below ground surface
		TP-6 (1.5 - 2.0)		GP	Brown sandy gravel with trace silt and cobbles (loose, moist)			
		TP-6 (2.0 - 2.5)	CA					
1288	3	TP-6 (2.5 - 3.0)						
		TP-6 (3.0 - 3.5)						
1287	4	TP-6 (3.5 - 4.0)						

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-6



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-10
Sheet 1 of 1

Date Excavated	3/25/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
				Checked By	SHL	Equipment		Caving not observed
Surface Elevation (ft)	1286	Latitude	48.9219	Coordinate System	Horizontal Datum	WA State Plane North WGS84 (feet)		
Vertical Datum	NAVD88	Longitude	-117.7749					

Elevation (feet)	Depth (feet)	SAMPLE		Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing					
1285	1	TP-7 (0.0 - 0.5)	CA	SP	Black medium to coarse gravelly sand with cobbles (slag)			Clinker slag observed at ground surface
		TP-7 (0.5 - 1.0)	CA	GP	Brown sandy gravel with trace silt and cobbles (loose, moist)			
1284	2	TP-7 (1.0 - 1.5)						
		TP-7 (1.5 - 2.0)						
1283	3	TP-7 (2.0 - 2.5)						
		TP-7 (2.5 - 3.0)						
1282	4	TP-7 (3.0 - 3.5)						
		TP-7 (3.5 - 4.0)						

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-7



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-11
Sheet 1 of 1

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_TESTPIT_4P_GEOTEC.mxd

Date Excavated	3/25/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
Checked By	SHL	Equipment		Coordinate System	Horizontal Datum	WA State Plane North	WGS84 (feet)	See "Remarks" section for caving observed
Surface Elevation (ft)	1287	Latitude	48.9217	Vertical Datum	NAVD88	Longitude	-117.7746	

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing						
1286	1	TP-8 (0.0 - 0.5)			GP	Black sandy gravel with trace silt and cobbles (slag)			Clinker slag observed at ground surface Minor caving observed at 0 to 4 feet below ground surface
		TP-8 (0.5 - 1.0)			GP	Brown sandy gravel with trace silt and cobbles			
1285	2	TP-8 (1.0 - 1.5)							
		TP-8 (1.5 - 2.0)							
1284	3	TP-8 (2.0 - 2.5)							
		TP-8 (2.5 - 3.0)							
1283	4	TP-8 (3.0 - 3.5)							
		TP-8 (3.5 - 4.0)							

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-8



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-12
Sheet 1 of 1

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_TESTPIT_4P_GEOTEC.MF

Date Excavated	3/26/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
Checked By	SHL	Equipment		See "Remarks" section for caving observed				
Surface Elevation (ft)	1298	Latitude	48.9214	Coordinate System	WA State Plane North			
Vertical Datum	NAVD88	Longitude	-117.7745	Horizontal Datum	WGS84 (feet)			

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing						
1287	1	TP-9 (0.0 - 0.5)	CA	[Symbol]	GP	Black medium to coarse gravelly sand with cobbles (slag) (loose, moist)			Clinker slag observed at ground surface
		TP-9 (0.5 - 1.0)							
1286	2	TP-9 (1.0 - 1.5)		[Symbol]					Minor caving observed at 2 to 4 feet below ground surface
		TP-9 (1.5 - 2.0)							
1285	3	TP-9 (2.0 - 2.5)	CA	[Symbol]	SP	Brown fine to medium sand with gravel (medium dense, moist)			
		TP-9 (2.5 - 3.0)							
1284	4	TP-9 (3.0 - 3.5)		[Symbol]	SP	Light brown fine sand (medium sense, moist)			
		TP-9 (3.5 - 4.0)							

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-9



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-13
Sheet 1 of 1

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_TTESTPIT_4P_GEOTEC.MF

Date Excavated	3/26/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
Checked By	SHL	Equipment		Coordinate System	WA State Plane North	Caving not observed		
Surface Elevation (ft)	1293	Latitude	48.9214	Horizontal Datum	WGS84 (feet)			
Vertical Datum	NAVD88	Longitude	-117.7748					

Elevation (feet)	Depth (feet)	SAMPLE		Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing					
1292	1	TP-10 (0.0 - 0.5) CA	SP	SP	Brown fine to medium sand with gravel and roots (loose, moist)			
		TP-10 (0.5 - 1.0) CA			Black medium to coarse gravelly sand with cobbles (slag) (loose, moist)			
1291	2	TP-10 (1.0 - 1.5) CA	SPSM	SPSM	Brown fine sand with silt (medium dense, moist)			
		TP-10 (1.5 - 2.0)			Brown fine sand (medium dense, moist)			
1290	3	TP-10 (2.0 - 2.5)	SPSM	SPSM				
		TP-10 (2.5 - 3.0)						
1289	4	TP-10 (3.0 - 3.5)	SPSM	SPSM				
		TP-10 (3.50 - 4.0)						

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-10



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Date Excavated	3/25/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
Checked By	SHL	Equipment		Groundwater not observed		Caving not observed		
Surface Elevation (ft)	1284	Latitude	48.9221	Coordinate System	WA State Plane North			
Vertical Datum	NAVD88	Longitude	-117.7743	Horizontal Datum	WGS84 (feet)			

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing						
1283	1	TP-11 (0.0 - 0.5)		GP	GP	Dark brown to black sandy gravel with cobbles (slag)			Clinker slag observed at ground surface
		TP-11 (0.5 - 1.0) CA							
1282	2	TP-11 (1.0 - 1.5)		GP	GP	Brown sandy gravel with trace silt and cobbles (loose, moist)			
		TP-11 (1.5 - 2.0)							
		TP-11 (2.0 - 2.5)							
1281	3	TP-11 (2.5 - 3.0)		GP	GP				
		TP-11 (3.0 - 3.5)							
1280	4	TP-11 (3.5 - 4.0) CA		GP	GP				

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-11



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-15
Sheet 1 of 1

Date Excavated	3/25/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
Checked By	SHL	Equipment				See "Remarks" section for caving observed		
Surface Elevation (ft)	1283	Latitude	48.9218	Coordinate System	WA State Plane North			
Vertical Datum	NAVD88	Longitude	-117.7739	Horizontal Datum	WGS84 (feet)			

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing						
1282	1	TP-12 (0.0 - 0.5)	CA	[Symbolic Log]	SP	Black medium to coarse sand with gravel (slag)			Minor caving observed at 0 to 4 feet below ground surface
		TP-12 (0.5 - 1.0)			GP	Brown sandy gravel with trace silt and cobbles (loose, moist)			
1281	2	TP-12 (1.0 - 1.5)	CA	[Symbolic Log]					
		TP-12 (1.5 - 2.0)							
1280	3	TP-12 (2.0 - 2.5)		[Symbolic Log]					
		TP-12 (2.5 - 3.0)							
1279	4	TP-12 (3.0 - 3.5)		[Symbolic Log]					
		TP-12 (3.5 - 4.0)							

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-12



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-16
Sheet 1 of 1

Date Excavated	3/25/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
Checked By	SHL	Equipment				See "Remarks" section for caving observed		
Surface Elevation (ft)	1286	Latitude	48.9222	Coordinate System	WA State Plane North			
Vertical Datum	NAVD88	Longitude	-117.7738	Horizontal Datum	WGS84 (feet)			

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing						
1285	1	TP-13 (0.0 - 0.5)	CA	[Symbol]	SP	Dark brown to black sandy gravel (slag)			Clinker slag observed at ground surface Minor caving observed at 0 to 4 feet below ground surface
		TP-13 (0.5 - 1.0)				Brown sandy gravel with trace silt and cobbles (loose, moist)			
1284	2	TP-13 (1.0 - 1.5)							
		TP-13 (1.5 - 2.0)							
1283	3	TP-13 (2.0 - 2.5)							
		TP-13 (2.5 - 3.0)							
1282	4	TP-13 (3.0 - 3.5)							
		TP-13 (3.5 - 4.0)							

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
 The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
 Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-13



Project: Northport Waterfront Remedial Investigation
 Project Location: Northport, Washington
 Project Number: 0504-160-00

Figure B-17
 Sheet 1 of 1

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_TESTPIT_4P_GEOTEC_%F

Date Excavated	3/25/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	See "Remarks" section for groundwater observed
Checked By	SHL	Equipment		See "Remarks" section for caving observed				
Surface Elevation (ft) Vertical Datum	1281 NAVD88	Latitude Longitude	48.922 -117.7734	Coordinate System Horizontal Datum	WA State Plane North WGS84 (feet)			

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing						
1280	1	TP-14 (0.0 - 0.5) CA		GP	Black medium to coarse sand with gravel (slag)			Clinker slag observed at ground surface	
		TP-14 (0.5 - 1.0)			Brown sandy gravel with trace silt and cobbles (loose, moist)			Minor caving observed at 1 to 4 feet below ground surface	
1279	2	TP-14 (1.0 - 1.5) CA		GP	Becomes wet			Minor groundwater seepage at 3.5 feet below ground surface	
		TP-14 (1.5 - 2.0) CA							
1278	3	TP-14 (2.0 - 2.5)		GP	Becomes wet			Minor groundwater seepage at 3.5 feet below ground surface	
		TP-14 (2.5 - 3.0)							
1277	4	TP-14 (3.0 - 3.5)		GP	Becomes wet			Minor groundwater seepage at 3.5 feet below ground surface	
		TP-14 (3.5 - 4.0)							

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-14



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-18
Sheet 1 of 1

Date Excavated	3/25/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
Checked By	SHL	Equipment		Coordinate System	Horizontal Datum	WA State Plane North	WGS84 (feet)	See "Remarks" section for caving observed
Surface Elevation (ft)	1286	Latitude	48.9223	Vertical Datum	NAVD88	Longitude	-117.7733	

Elevation (feet)	Depth (feet)	SAMPLE		Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing					
1285	1	TP-15 (0.0 - 0.5)		GP	Black sandy gravel (loose, moist) (slag)			Clinker slag observed at ground surface Minor caving observed at 0 to 4 feet below ground surface
		TP-15 (0.5 - 1.0)		GP	Brown sandy gravel with trace silt and cobbles (loose, moist)			
1284		TP-15 (1.0 - 1.5)						
	2	TP-15 (1.5 - 2.0)						
		TP-15 (2.0 - 2.5)						
1283	3	TP-15 (2.5 - 3.0)						
		TP-15 (3.0 - 3.5)						
1282	4	TP-15 (3.5 - 4.0)						

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-15



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-19
Sheet 1 of 1

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_TESTPIT_4P_GEOTEC.mxd

Date Excavated	3/25/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	See "Remarks" section for groundwater observed
Checked By	SHL	Equipment		Coordinate System	WA State Plane North	Caving not observed		
Surface Elevation (ft)	1281	Latitude	48.9221	Horizontal Datum	WGS84 (feet)			
Vertical Datum	NAVD88	Longitude	-117.7729					

Elevation (feet)	Depth (feet)	SAMPLE		Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing					
1280	1	TP-16 (0.0 - 0.5)	CA	SP	Brown fine to medium sand (loose, moist)			
		TP-16 (0.5 - 1.0)	CA					
1279	2	TP-16 (1.0 - 1.5)		SP	Black medium to coarse sand with gravel (loose, moist) (slag)			Metal fragments observed
		TP-16 (1.5 - 2.0)						
1278	3	TP-16 (2.0 - 2.5)						
		TP-16 (2.5 - 3.0)						
1277	4	TP-16 (3.0 - 3.5)	CA					Minor groundwater seepage observed at 4 feet below ground surface
		TP-16 (3.5 - 4.0)						

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-16



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-20
Sheet 1 of 1

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary\Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_TESTPIT_4P_GEOTEC.mxd

Date Excavated	3/26/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
Checked By	SHL	Equipment		See "Remarks" section for caving observed				
Surface Elevation (ft)	1281	Latitude	48.9222	Coordinate System	WA State Plane North			
Vertical Datum	NAVD88	Longitude	-117.7751	Horizontal Datum	WGS84 (feet)			

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing						
1280	0	TP-17 (0.0 - 0.5)		[Symbolic log showing cobbles and silt]	GP	Black sandy gravel with cobbles (slag) (loose, moist)			Clinker slag observed at ground surface Minor caving observed at 0 to 4 feet below ground surface
	1	TP-17 (0.5 - 1.0)			GP	Brown sandy gravel with trace silt and cobbles (loose, moist)			
1279	2	TP-17 (1.0 - 1.5)		[Symbolic log showing silt and cobbles]					
	3	TP-17 (1.5 - 2.0)							
	4	TP-17 (2.0 - 2.5)							
1278	3	TP-17 (2.5 - 3.0)		[Symbolic log showing silt and cobbles]					
	4	TP-17 (3.0 - 3.5)							
1277	4	TP-17 (3.5 - 4.0)		[Symbolic log showing silt and cobbles]					

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-17



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-21
Sheet 1 of 1

Date Excavated	3/26/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	See "Remarks" section for groundwater observed
		Checked By	SHL			Equipment		See "Remarks" section for caving observed
Surface Elevation (ft)	1282	Latitude	48.9223	Coordinate System	Horizontal Datum	WA State Plane North WGS84 (feet)		
Vertical Datum	NAVD88	Longitude	-117.7731					

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing						
1281	1	TP-18 (0.0 - 0.5)	CA	[Symbol]	GP	Brownish gray gravelly sand with cobbles (slag) (loose, moist)			Minor caving observed at 1 to 4 feet below ground surface
		TP-18 (0.5 - 1.0)			GP	Brown sandy gravel with trace silt and cobbles (loose, moist)			
1280	2	TP-18 (1.0 - 1.5)		[Symbol]					
		TP-18 (1.5 - 2.0)							
1279	3	TP-18 (2.0 - 2.5)		[Symbol]					
		TP-18 (2.5 - 3.0)							
1278	4	TP-18 (3.0 - 3.5)		[Symbol]					
		TP-18 (3.5 - 4.0)							

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-18



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Date Excavated	3/26/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	See "Remarks" section for groundwater observed
		Checked By	SHL			Equipment		See "Remarks" section for caving observed
Surface Elevation (ft)	1282	Latitude	48.9224	Coordinate System	Horizontal Datum	WA State Plane North	WGS84 (feet)	
Vertical Datum	NAVD88	Longitude	-117.7724					

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS	
		Testing Sample	Sample Name Testing							
1281	1	TP-19 (0.0 - 0.5)	CA	[Symbolic Log]	SP	Grayish brown sand with gravel and cobbles (loose, moist)			Clinker slag observed at ground surface	
		TP-19 (0.5 - 1.0)	CA		SP	Black medium to coarse gravelly sand with cobbles (slag) (loose, moist)				
		TP-19 (1.0 - 1.5)			GP	Brown sandy gravel with trace silt and cobbles (loose, moist)				
1280	2	TP-19 (1.5 - 2.0)	CA	[Symbolic Log]						
		TP-19 (2.0 - 2.5)								
1279	3	TP-19 (2.5 - 3.0)								Minor caving observed at 3 to 4 feet below ground surface
		TP-19 (3.0 - 3.5)								Minor groundwater seepage observed at 4 feet below ground surface
1278	4	TP-19 (3.5 - 4.0)								

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-19



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-23
Sheet 1 of 1

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017\GLB\GEI6_TESTPIT_4P_GEOTEC_%F

Date Excavated	3/27/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
Checked By	SHL	Equipment		Coordinate System	Horizontal Datum	WA State Plane North	WGS84 (feet)	See "Remarks" section for caving observed
Surface Elevation (ft)	1303	Latitude	48.9213	Vertical Datum	NAVD88	Longitude	-117.7745	

Elevation (feet)	Depth (feet)	SAMPLE		MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing				
1302	1	TP-20 (0.0 - 0.5)		Black medium to coarse gravelly sand with cobbles (slag) (loose, moist)			Minor caving observed at 0 to 2 feet below ground surface
		TP-20 (0.5 - 1.0)		Brown medium gravelly sand with silt and cobbles (medium dense, moist)			
1301	2	TP-20 (1.0 - 1.5)		Brown sandy gravel with trace silt and cobbles (medium dense, moist)			
		TP-20 (1.5 - 2.0)					
1300	3	TP-20 (2.0 - 2.5)					
		TP-20 (2.5 - 3.0)					
1299	4	TP-20 (3.0 - 3.5)					
		TP-20 (3.5 - 4.0)					

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-20



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-24
Sheet 1 of 1

Date Excavated	3/27/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed	
Checked By	SHL	Equipment		Coordinate System	WA State Plane North	Caving not observed			
Surface Elevation (ft)	1298	Latitude	48.9214	Horizontal Datum	WGS84 (feet)				
Vertical Datum	NAVD88	Longitude	-117.7742						

Elevation (feet)	Depth (feet)	SAMPLE		Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing					
1287	1	TP-21 (0.0 - 0.5)	CA	SM	Grayish brown fine to medium silty sand with gravel and cobbles (medium dense, moist)			Clinker slag observed at ground surface
		TP-21 (0.5 - 1.0)		SP	Black medium to coarse gravelly sand with cobbles (slag) (loose, moist)			
1286	2	TP-21 (1.0 - 1.5)	CA	SM	Light brown silty sand (medium dense, moist)			
		TP-21 (1.5 - 2.0)						
		TP-21 (2.0 - 2.5)						
1285	3	TP-21 (2.5 - 3.0)		SP-SM	Light brown fine sand with silt (medium dense, moist)			
		TP-21 (3.0 - 3.5)						
1284	4	TP-21 (3.5 - 4.0)						

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-21



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-25
Sheet 1 of 1

Date Excavated	3/27/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	See "Remarks" section for groundwater observed
		Checked By	SHL			Equipment		See "Remarks" section for caving observed
Surface Elevation (ft)	1281	Latitude	48.9223	Coordinate System	Horizontal Datum	WA State Plane North WGS84 (feet)		
Vertical Datum	NAVD88	Longitude	-117.7721					

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing						
1280	1	TP-22 (0.0 - 0.5)	CA		SP	Brown fine to medium sand with trace silt (loose, moist)			
		TP-22 (0.5 - 1.0)	CA						
		TP-22 (1.0 - 1.5)	CA						
		TP-22 (1.5 - 2.0)							
1279	2	TP-22 (2.0 - 2.5)			ML	Gray clayey silt (medium stiff, moist)			
		TP-22 (2.5 - 3.0)			SP	Brown medium sand with trace silt, interbedded with gray clayey silt (medium dense, moist)			
1278	3	TP-22 (3.0 - 3.5)			SP	Black coarse sand with gravel (loose, moist) (slag) Becomes wet at 4 feet below ground surface			Minor caving observed at 3 to 4 feet below ground surface Minor groundwater seepage observed at 4 feet below ground surface
		TP-22 (3.5 - 4.0)							
1277	4	Test pit completed at 4 feet below ground surface							

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-22



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Date Excavated	3/27/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
Checked By	SHL	Equipment				See "Remarks" section for caving observed		
Surface Elevation (ft) Vertical Datum	1283 NAVD88	Latitude Longitude	48.922 -117.7722	Coordinate System Horizontal Datum	WA State Plane North WGS84 (feet)			

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing						
1282	1	TP-23 (0.0 - 0.5)	CA		SP	Brown fine to medium sand with trace silt (loose, moist)			Minor caving observed at 0 to 1 feet below ground surface
		TP-23 (0.5 - 1.0)							
		TP-23 (1.0 - 1.5)							
1281	2	TP-23 (1.5 - 2.0)							
		TP-23 (2.0 - 2.5)							
		TP-23 (2.5 - 3.0)							
1280	3	TP-23 (3.0 - 3.5)							
		TP-23 (3.5 - 4.0)							
1279	4	Test pit completed at 4 feet below ground surface							

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-23



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-27
Sheet 1 of 1

Date Excavated	3/27/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	See "Remarks" section for groundwater observed
				Checked By	SHL	Equipment		See "Remarks" section for caving observed
Surface Elevation (ft)	1281	Latitude	48.9221	Coordinate System	Horizontal Datum	WA State Plane North WGS84 (feet)		
Vertical Datum	NAVD88	Longitude	-117.7716					

Elevation (feet)	Depth (feet)	SAMPLE		Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing					
1280	1	TP-24 (0.0 - 0.5)		SP	Light brown fine sand (loose, moist)			Moderate to severe caving observed at 2½ feet to 4 feet below ground surface Significant groundwater seepage observed at 3½ feet below ground surface
		TP-24 (0.5 - 1.0)		SM	Brownish gray silty fine to medium sand (medium dense, moist)			
1279	2	TP-24 (1.0 - 1.5)			Reddish brown silty fine sand with gravel (medium dense, moist)			
		TP-24 (1.5 - 2.0)						
1278	3	TP-24 (2.5 - 3.0)		SP	Brown fine to medium sand with gravel (medium dense, moist)			
		TP-24 (3.0 - 3.5)						
1277	4	TP-24 (3.5 - 4.0)						

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-24



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-28
Sheet 1 of 1

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_TESTPIT_4P_GEOTEC_%F

Date Excavated	3/27/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	Groundwater not observed
		Checked By	SHL	Equipment				Caving not observed
Surface Elevation (ft)	1282	Latitude	48.9219	Coordinate System	Horizontal Datum	WA State Plane North WGS84 (feet)		
Vertical Datum	NAVD88	Longitude	-117.7713					

Elevation (feet)	Depth (feet)	SAMPLE		Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing					
1281	1	TP-25 (0.0 - 0.5)	CA	SM	Brown fine to medium silty sand with gravel (loose, moist)			Brick fragments
		TP-25 (0.5 - 1.0)						
1280	2	TP-25 (1.0 - 1.5)		SP	Light brown fine sand (medium dense, moist)			
		TP-25 (1.5 - 2.0)						
1279	3	TP-25 (2.0 - 2.5)						
		TP-25 (2.5 - 3.0)						
1278	4	TP-25 (3.0 - 3.5)						
		TP-25 (3.5 - 4.0)						

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-25



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Figure B-29
Sheet 1 of 1

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_TESTPIT_4P_GEOTEC.MXD

Date Excavated	3/27/2019	Total Depth (ft)	4	Logged By	JDO	Excavator	Caterpillar 303.5 Mini Track Hoe	See "Remarks" section for groundwater observed
				Checked By	SHL	Equipment		See "Remarks" section for caving observed
Surface Elevation (ft)	1286	Latitude	48.9219	Coordinate System	Horizontal Datum	WA State Plane North WGS84 (feet)		
Vertical Datum	NAVD88	Longitude	-117.7709					

Elevation (feet)	Depth (feet)	SAMPLE		Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing					
1285	1	TP-26 (0.0 - 0.5)		SP	Light brown fine sand (loose, moist)			Metal fragments
		TP-26 (0.5 - 1.0)		SP-SM	Brown fine to medium silty sand with gravel (loose, moist)			
		TP-26 (1.0 - 1.5)						
1284	2	TP-26 (1.5 - 2.0)		SP	Light brown fine sand (medium dense, moist)			Moderate to severe caving observed at 2 to 4 feet below ground surface
		TP-26 (2.0 - 2.5)						
1283	3	TP-26 (2.5 - 3.0)						
		TP-26 (3.0 - 3.5)			Becomes wet			Significant groundwater seepage observed at 3 feet below ground surface
1282	4	TP-26 (3.5 - 4.0)						

Test pit completed at 4 feet below ground surface

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on USGS Topo. Vertical approximated based on USGS Topo.

Log of Test Pit TP-26



Project: Northport Waterfront Remedial Investigation
Project Location: Northport, Washington
Project Number: 0504-160-00

Date: 8/6/19 Path: P:\0_0504160\GINT\0050416000.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_TESTPIT_4P_GEOTEC.MF

APPENDIX C
XRF Screening Procedures – EPA Method 6200

METHOD 6200

FIELD PORTABLE X-RAY FLUORESCENCE SPECTROMETRY FOR THE DETERMINATION OF ELEMENTAL CONCENTRATIONS IN SOIL AND SEDIMENT

SW-846 is not intended to be an analytical training manual. Therefore, method procedures are written based on the assumption that they will be performed by analysts who are formally trained in at least the basic principles of chemical analysis and in the use of the subject technology.

In addition, SW-846 methods, with the exception of required method use for the analysis of method-defined parameters, are intended to be guidance methods which contain general information on how to perform an analytical procedure or technique which a laboratory can use as a basic starting point for generating its own detailed Standard Operating Procedure (SOP), either for its own general use or for a specific project application. The performance data included in this method are for guidance purposes only, and are not intended to be and must not be used as absolute QC acceptance criteria for purposes of laboratory accreditation.

1.0 SCOPE AND APPLICATION

1.1 This method is applicable to the in situ and intrusive analysis of the 26 analytes listed below for soil and sediment samples. Some common elements are not listed in this method because they are considered "light" elements that cannot be detected by field portable x-ray fluorescence (FPXRF). These light elements are: lithium, beryllium, sodium, magnesium, aluminum, silicon, and phosphorus. Most of the analytes listed below are of environmental concern, while a few others have interference effects or change the elemental composition of the matrix, affecting quantitation of the analytes of interest. Generally elements of atomic number 16 or greater can be detected and quantitated by FPXRF. The following RCRA analytes have been determined by this method:

Analytes	CAS Registry No.
Antimony (Sb)	7440-36-0
Arsenic (As)	7440-38-0
Barium (Ba)	7440-39-3
Cadmium (Cd)	7440-43-9
Chromium (Cr)	7440-47-3
Cobalt (Co)	7440-48-4
Copper (Cu)	7440-50-8
Lead (Pb)	7439-92-1
Mercury (Hg)	7439-97-6
Nickel (Ni)	7440-02-0
Selenium (Se)	7782-49-2
Silver (Ag)	7440-22-4
Thallium (Tl)	7440-28-0
Tin (Sn)	7440-31-5

Analytes	CAS Registry No.
Vanadium (V)	7440-62-2
Zinc (Zn)	7440-66-6

In addition, the following non-RCRA analytes have been determined by this method:

Analytes	CAS Registry No.
Calcium (Ca)	7440-70-2
Iron (Fe)	7439-89-6
Manganese (Mn)	7439-96-5
Molybdenum (Mo)	7439-93-7
Potassium (K)	7440-09-7
Rubidium (Rb)	7440-17-7
Strontium (Sr)	7440-24-6
Thorium (Th)	7440-29-1
Titanium (Ti)	7440-32-6
Zirconium (Zr)	7440-67-7

1.2 This method is a screening method to be used with confirmatory analysis using other techniques (e.g., flame atomic absorption spectrometry (FLAA), graphite furnace atomic absorption spectrometry (GFAA), inductively coupled plasma-atomic emission spectrometry, (ICP-AES), or inductively coupled plasma-mass spectrometry, (ICP-MS)). This method's main strength is that it is a rapid field screening procedure. The method's lower limits of detection are typically above the toxicity characteristic regulatory level for most RCRA analytes. However, when the obtainable values for precision, accuracy, and laboratory-established sensitivity of this method meet project-specific data quality objectives (DQOs), FPXRF is a fast, powerful, cost effective technology for site characterization.

1.3 The method sensitivity or lower limit of detection depends on several factors, including the analyte of interest, the type of detector used, the type of excitation source, the strength of the excitation source, count times used to irradiate the sample, physical matrix effects, chemical matrix effects, and interelement spectral interferences. Example lower limits of detection for analytes of interest in environmental applications are shown in Table 1. These limits apply to a clean spiked matrix of quartz sand (silicon dioxide) free of interelement spectral interferences using long (100 -600 second) count times. These sensitivity values are given for guidance only and may not always be achievable, since they will vary depending on the sample matrix, which instrument is used, and operating conditions. A discussion of performance-based sensitivity is presented in Sec. 9.6.

1.4 Analysts should consult the disclaimer statement at the front of the manual and the information in Chapter Two for guidance on the intended flexibility in the choice of methods, apparatus, materials, reagents, and supplies, and on the responsibilities of the analyst for demonstrating that the techniques employed are appropriate for the analytes of interest, in the matrix of interest, and at the levels of concern.

In addition, analysts and data users are advised that, except where explicitly specified in a regulation, the use of SW-846 methods is *not* mandatory in response to Federal testing requirements. The information contained in this method is provided by EPA as guidance to be used by the analyst and the regulated community in making judgments necessary to generate results that meet the data quality objectives for the intended application.

1.5 Use of this method is restricted to use by, or under supervision of, personnel appropriately experienced and trained in the use and operation of an XRF instrument. Each analyst must demonstrate the ability to generate acceptable results with this method.

2.0 SUMMARY OF METHOD

2.1 The FPXRF technologies described in this method use either sealed radioisotope sources or x-ray tubes to irradiate samples with x-rays. When a sample is irradiated with x-rays, the source x-rays may undergo either scattering or absorption by sample atoms. This latter process is known as the photoelectric effect. When an atom absorbs the source x-rays, the incident radiation dislodges electrons from the innermost shells of the atom, creating vacancies. The electron vacancies are filled by electrons cascading in from outer electron shells. Electrons in outer shells have higher energy states than inner shell electrons, and the outer shell electrons give off energy as they cascade down into the inner shell vacancies. This rearrangement of electrons results in emission of x-rays characteristic of the given atom. The emission of x-rays, in this manner, is termed x-ray fluorescence.

Three electron shells are generally involved in emission of x-rays during FPXRF analysis of environmental samples. The three electron shells include the K, L, and M shells. A typical emission pattern, also called an emission spectrum, for a given metal has multiple intensity peaks generated from the emission of K, L, or M shell electrons. The most commonly measured x-ray emissions are from the K and L shells; only metals with an atomic number greater than 57 have measurable M shell emissions.

Each characteristic x-ray line is defined with the letter K, L, or M, which signifies which shell had the original vacancy and by a subscript alpha (α), beta (β), or gamma (γ) etc., which indicates the higher shell from which electrons fell to fill the vacancy and produce the x-ray. For example, a K_α line is produced by a vacancy in the K shell filled by an L shell electron, whereas a K_β line is produced by a vacancy in the K shell filled by an M shell electron. The K_α transition is on average 6 to 7 times more probable than the K_β transition; therefore, the K_α line is approximately 7 times more intense than the K_β line for a given element, making the K_α line the choice for quantitation purposes.

The K lines for a given element are the most energetic lines and are the preferred lines for analysis. For a given atom, the x-rays emitted from L transitions are always less energetic than those emitted from K transitions. Unlike the K lines, the main L emission lines (L_α and L_β) for an element are of nearly equal intensity. The choice of one or the other depends on what interfering element lines might be present. The L emission lines are useful for analyses involving elements of atomic number (Z) 58 (cerium) through 92 (uranium).

An x-ray source can excite characteristic x-rays from an element only if the source energy is greater than the absorption edge energy for the particular line group of the element, that is, the K absorption edge, L absorption edge, or M absorption edge energy. The absorption edge energy is somewhat greater than the corresponding line energy. Actually, the K absorption edge energy is approximately the sum of the K, L, and M line energies of the particular element, and the L absorption edge energy is approximately the sum of the L and M line energies. FPXRF is more sensitive to an element with an absorption edge energy close to but less than

the excitation energy of the source. For example, when using a cadmium-109 source, which has an excitation energy of 22.1 kiloelectron volts (keV), FPXRF would exhibit better sensitivity for zirconium which has a K line energy of 15.77 keV than to chromium, which has a K line energy of 5.41 keV.

2.2 Under this method, inorganic analytes of interest are identified and quantitated using a field portable energy-dispersive x-ray fluorescence spectrometer. Radiation from one or more radioisotope sources or an electrically excited x-ray tube is used to generate characteristic x-ray emissions from elements in a sample. Up to three sources may be used to irradiate a sample. Each source emits a specific set of primary x-rays that excite a corresponding range of elements in a sample. When more than one source can excite the element of interest, the source is selected according to its excitation efficiency for the element of interest.

For measurement, the sample is positioned in front of the probe window. This can be done in two manners using FPXRF instruments, specifically, in situ or intrusive. If operated in the in situ mode, the probe window is placed in direct contact with the soil surface to be analyzed. When an FPXRF instrument is operated in the intrusive mode, a soil or sediment sample must be collected, prepared, and placed in a sample cup. The sample cup is then placed on top of the window inside a protective cover for analysis.

Sample analysis is then initiated by exposing the sample to primary radiation from the source. Fluorescent and backscattered x-rays from the sample enter through the detector window and are converted into electric pulses in the detector. The detector in FPXRF instruments is usually either a solid-state detector or a gas-filled proportional counter. Within the detector, energies of the characteristic x-rays are converted into a train of electric pulses, the amplitudes of which are linearly proportional to the energy of the x-rays. An electronic multichannel analyzer (MCA) measures the pulse amplitudes, which is the basis of qualitative x-ray analysis. The number of counts at a given energy per unit of time is representative of the element concentration in a sample and is the basis for quantitative analysis. Most FPXRF instruments are menu-driven from software built into the units or from personal computers (PC).

The measurement time of each source is user-selectable. Shorter source measurement times (30 seconds) are generally used for initial screening and hot spot delineation, and longer measurement times (up to 300 seconds) are typically used to meet higher precision and accuracy requirements.

FPXRF instruments can be calibrated using the following methods: internally using fundamental parameters determined by the manufacturer, empirically based on site-specific calibration standards (SSCS), or based on Compton peak ratios. The Compton peak is produced by backscattering of the source radiation. Some FPXRF instruments can be calibrated using multiple methods.

3.0 DEFINITIONS

- 3.1 FPXRF -- Field portable x-ray fluorescence.
- 3.2 MCA -- Multichannel analyzer for measuring pulse amplitude.
- 3.3 SSCS -- Site-specific calibration standards.
- 3.4 FP -- Fundamental parameter.
- 3.5 ROI -- Region of interest.

3.6 SRM -- Standard reference material; a standard containing certified amounts of metals in soil or sediment.

3.7 eV -- Electron volt; a unit of energy equivalent to the amount of energy gained by an electron passing through a potential difference of one volt.

3.8 Refer to Chapter One, Chapter Three, and the manufacturer's instructions for other definitions that may be relevant to this procedure.

4.0 INTERFERENCES

4.1 The total method error for FPXRF analysis is defined as the square root of the sum of squares of both instrument precision and user- or application-related error. Generally, instrument precision is the least significant source of error in FPXRF analysis. User- or application-related error is generally more significant and varies with each site and method used. Some sources of interference can be minimized or controlled by the instrument operator, but others cannot. Common sources of user- or application-related error are discussed below.

4.2 Physical matrix effects result from variations in the physical character of the sample. These variations may include such parameters as particle size, uniformity, homogeneity, and surface condition. For example, if any analyte exists in the form of very fine particles in a coarser-grained matrix, the analyte's concentration measured by the FPXRF will vary depending on how fine particles are distributed within the coarser-grained matrix. If the fine particles "settle" to the bottom of the sample cup (i.e., against the cup window), the analyte concentration measurement will be higher than if the fine particles are not mixed in well and stay on top of the coarser-grained particles in the sample cup. One way to reduce such error is to grind and sieve all soil samples to a uniform particle size thus reducing sample-to-sample particle size variability. Homogeneity is always a concern when dealing with soil samples. Every effort should be made to thoroughly mix and homogenize soil samples before analysis. Field studies have shown heterogeneity of the sample generally has the largest impact on comparability with confirmatory samples.

4.3 Moisture content may affect the accuracy of analysis of soil and sediment sample analyses. When the moisture content is between 5 and 20 percent, the overall error from moisture may be minimal. However, moisture content may be a major source of error when analyzing samples of surface soil or sediment that are saturated with water. This error can be minimized by drying the samples in a convection or toaster oven. Microwave drying is not recommended because field studies have shown that microwave drying can increase variability between FPXRF data and confirmatory analysis and because metal fragments in the sample can cause arcing to occur in a microwave.

4.4 Inconsistent positioning of samples in front of the probe window is a potential source of error because the x-ray signal decreases as the distance from the radioactive source increases. This error is minimized by maintaining the same distance between the window and each sample. For the best results, the window of the probe should be in direct contact with the sample, which means that the sample should be flat and smooth to provide a good contact surface.

4.5 Chemical matrix effects result from differences in the concentrations of interfering elements. These effects occur as either spectral interferences (peak overlaps) or as x-ray absorption and enhancement phenomena. Both effects are common in soils contaminated with heavy metals. As examples of absorption and enhancement effects; iron (Fe) tends to absorb copper (Cu) x-rays, reducing the intensity of the Cu measured by the detector, while chromium (Cr) will be enhanced at the expense of Fe because the absorption edge of Cr is slightly lower in energy than the fluorescent peak of iron. The effects can be corrected mathematically through the use of fundamental parameter (FP) coefficients. The effects also can be compensated for using SSCS, which contain all the elements present on site that can interfere with one another.

4.6 When present in a sample, certain x-ray lines from different elements can be very close in energy and, therefore, can cause interference by producing a severely overlapped spectrum. The degree to which a detector can resolve the two different peaks depends on the energy resolution of the detector. If the energy difference between the two peaks in electron volts is less than the resolution of the detector in electron volts, then the detector will not be able to fully resolve the peaks.

The most common spectrum overlaps involve the K_{β} line of element Z-1 with the K_{α} line of element Z. This is called the K_{α}/K_{β} interference. Because the $K_{\alpha}:K_{\beta}$ intensity ratio for a given element usually is about 7:1, the interfering element, Z-1, must be present at large concentrations to cause a problem. Two examples of this type of spectral interference involve the presence of large concentrations of vanadium (V) when attempting to measure Cr or the presence of large concentrations of Fe when attempting to measure cobalt (Co). The V K_{α} and K_{β} energies are 4.95 and 5.43 keV, respectively, and the Cr K_{α} energy is 5.41 keV. The Fe K_{α} and K_{β} energies are 6.40 and 7.06 keV, respectively, and the Co K_{α} energy is 6.92 keV. The difference between the V K_{β} and Cr K_{α} energies is 20 eV, and the difference between the Fe K_{β} and the Co K_{α} energies is 140 eV. The resolution of the highest-resolution detectors in FPXRF instruments is 170 eV. Therefore, large amounts of V and Fe will interfere with quantitation of Cr or Co, respectively. The presence of Fe is a frequent problem because it is often found in soils at tens of thousands of parts per million (ppm).

4.7 Other interferences can arise from K/L, K/M, and L/M line overlaps, although these overlaps are less common. Examples of such overlap involve arsenic (As) K_{α} /lead (Pb) L_{α} and sulfur (S) K_{α} /Pb M_{α} . In the As/Pb case, Pb can be measured from the Pb L_{β} line, and As can be measured from either the As K_{α} or the As K_{β} line; in this way the interference can be corrected. If the As K_{β} line is used, sensitivity will be decreased by a factor of two to five times because it is a less intense line than the As K_{α} line. If the As K_{α} line is used in the presence of Pb, mathematical corrections within the instrument software can be used to subtract out the Pb interference. However, because of the limits of mathematical corrections, As concentrations cannot be efficiently calculated for samples with Pb:As ratios of 10:1 or more. This high ratio of Pb to As may result in reporting of a "nondetect" or a "less than" value (e.g., <300 ppm) for As, regardless of the actual concentration present.

No instrument can fully compensate for this interference. It is important for an operator to understand this limitation of FPXRF instruments and consult with the manufacturer of the FPXRF instrument to evaluate options to minimize this limitation. The operator's decision will be based on action levels for metals in soil established for the site, matrix effects, capabilities of the instrument, data quality objectives, and the ratio of lead to arsenic known to be present at the site. If a site is encountered that contains lead at concentrations greater than ten times the concentration of arsenic it is advisable that all critical soil samples be sent off site for confirmatory analysis using other techniques (e.g., flame atomic absorption spectrometry (FLAA), graphite furnace atomic absorption spectrometry (GFAA), inductively coupled plasma-

atomic emission spectrometry, (ICP-AES), or inductively coupled plasma-mass spectrometry, (ICP-MS)).

4.8 If SSCS are used to calibrate an FPXRF instrument, the samples collected must be representative of the site under investigation. Representative soil sampling ensures that a sample or group of samples accurately reflects the concentrations of the contaminants of concern at a given time and location. Analytical results for representative samples reflect variations in the presence and concentration ranges of contaminants throughout a site. Variables affecting sample representativeness include differences in soil type, contaminant concentration variability, sample collection and preparation variability, and analytical variability, all of which should be minimized as much as possible.

4.9 Soil physical and chemical effects may be corrected using SSCS that have been analyzed by inductively coupled plasma (ICP) or atomic absorption (AA) methods. However, a major source of error can be introduced if these samples are not representative of the site or if the analytical error is large. Another concern is the type of digestion procedure used to prepare the soil samples for the reference analysis. Analytical results for the confirmatory method will vary depending on whether a partial digestion procedure, such as Method 3050, or a total digestion procedure, such as Method 3052, is used. It is known that depending on the nature of the soil or sediment, Method 3050 will achieve differing extraction efficiencies for different analytes of interest. The confirmatory method should meet the project-specific data quality objectives (DQOs).

XRF measures the total concentration of an element; therefore, to achieve the greatest comparability of this method with the reference method (reduced bias), a total digestion procedure should be used for sample preparation. However, in the study used to generate the performance data for this method (see Table 8), the confirmatory method used was Method 3050, and the FPXRF data compared very well with regression correlation coefficients (r often exceeding 0.95, except for barium and chromium). The critical factor is that the digestion procedure and analytical reference method used should meet the DQOs of the project and match the method used for confirmation analysis.

4.10 Ambient temperature changes can affect the gain of the amplifiers producing instrument drift. Gain or drift is primarily a function of the electronics (amplifier or preamplifier) and not the detector as most instrument detectors are cooled to a constant temperature. Most FPXRF instruments have a built-in automatic gain control. If the automatic gain control is allowed to make periodic adjustments, the instrument will compensate for the influence of temperature changes on its energy scale. If the FPXRF instrument has an automatic gain control function, the operator will not have to adjust the instrument's gain unless an error message appears. If an error message appears, the operator should follow the manufacturer's procedures for troubleshooting the problem. Often, this involves performing a new energy calibration. The performance of an energy calibration check to assess drift is a quality control measure discussed in Sec. 9.2.

If the operator is instructed by the manufacturer to manually conduct a gain check because of increasing or decreasing ambient temperature, it is standard to perform a gain check after every 10 to 20 sample measurements or once an hour whichever is more frequent. It is also suggested that a gain check be performed if the temperature fluctuates more than 10° F. The operator should follow the manufacturer's recommendations for gain check frequency.

5.0 SAFETY

5.1 This method does not address all safety issues associated with its use. The user is responsible for maintaining a safe work environment and a current awareness file of OSHA regulations regarding the safe handling of the chemicals listed in this method. A reference file of material safety data sheets (MSDSs) should be available to all personnel involved in these analyses.

NOTE: No MSDS applies directly to the radiation-producing instrument because that is covered under the Nuclear Regulatory Commission (NRC) or applicable state regulations.

5.2 Proper training for the safe operation of the instrument and radiation training should be completed by the analyst prior to analysis. Radiation safety for each specific instrument can be found in the operator's manual. Protective shielding should never be removed by the analyst or any personnel other than the manufacturer. The analyst should be aware of the local state and national regulations that pertain to the use of radiation-producing equipment and radioactive materials with which compliance is required. There should be a person appointed within the organization that is solely responsible for properly instructing all personnel, maintaining inspection records, and monitoring x-ray equipment at regular intervals.

Licenses for radioactive materials are of two types, specifically: (1) a general license which is usually initiated by the manufacturer for receiving, acquiring, owning, possessing, using, and transferring radioactive material incorporated in a device or equipment, and (2) a specific license which is issued to named persons for the operation of radioactive instruments as required by local, state, or federal agencies. A copy of the radioactive material license (for specific licenses only) and leak tests should be present with the instrument at all times and available to local and national authorities upon request.

X-ray tubes do not require radioactive material licenses or leak tests, but do require approvals and licenses which vary from state to state. In addition, fail-safe x-ray warning lights should be illuminated whenever an x-ray tube is energized. Provisions listed above concerning radiation safety regulations, shielding, training, and responsible personnel apply to x-ray tubes just as to radioactive sources. In addition, a log of the times and operating conditions should be kept whenever an x-ray tube is energized. An additional hazard present with x-ray tubes is the danger of electric shock from the high voltage supply, however, if the tube is properly positioned within the instrument, this is only a negligible risk. Any instrument (x-ray tube or radioisotope based) is capable of delivering an electric shock from the basic circuitry when the system is inappropriately opened.

5.3 Radiation monitoring equipment should be used with the handling and operation of the instrument. The operator and the surrounding environment should be monitored continually for analyst exposure to radiation. Thermal luminescent detectors (TLD) in the form of badges and rings are used to monitor operator radiation exposure. The TLDs or badges should be worn in the area of maximum exposure. The maximum permissible whole-body dose from occupational exposure is 5 Roentgen Equivalent Man (REM) per year. Possible exposure pathways for radiation to enter the body are ingestion, inhaling, and absorption. The best precaution to prevent radiation exposure is distance and shielding.

6.0 EQUIPMENT AND SUPPLIES

The mention of trade names or commercial products in this manual is for illustrative purposes only, and does not constitute an EPA endorsement or exclusive recommendation for

use. The products and instrument settings cited in SW-846 methods represent those products and settings used during method development or subsequently evaluated by the Agency. Glassware, reagents, supplies, equipment, and settings other than those listed in this manual may be employed provided that method performance appropriate for the intended application has been demonstrated and documented.

6.1 FPXRF spectrometer -- An FPXRF spectrometer consists of four major components: (1) a source that provides x-rays; (2) a sample presentation device; (3) a detector that converts x-ray-generated photons emitted from the sample into measurable electronic signals; and (4) a data processing unit that contains an emission or fluorescence energy analyzer, such as an MCA, that processes the signals into an x-ray energy spectrum from which elemental concentrations in the sample may be calculated, and a data display and storage system. These components and additional, optional items, are discussed below.

6.1.1 Excitation sources -- FPXRF instruments use either a sealed radioisotope source or an x-ray tube to provide the excitation source. Many FPXRF instruments use sealed radioisotope sources to produce x-rays in order to irradiate samples. The FPXRF instrument may contain between one and three radioisotope sources. Common radioisotope sources used for analysis for metals in soils are iron Fe-55 (^{55}Fe), cadmium Cd-109 (^{109}Cd), americium Am-241 (^{241}Am), and curium Cm-244 (^{244}Cm). These sources may be contained in a probe along with a window and the detector; the probe may be connected to a data reduction and handling system by means of a flexible cable. Alternatively, the sources, window, and detector may be included in the same unit as the data reduction and handling system.

The relative strength of the radioisotope sources is measured in units of millicuries (mCi). All other components of the FPXRF system being equal, the stronger the source, the greater the sensitivity and precision of a given instrument. Radioisotope sources undergo constant decay. In fact, it is this decay process that emits the primary x-rays used to excite samples for FPXRF analysis. The decay of radioisotopes is measured in "half-lives." The half-life of a radioisotope is defined as the length of time required to reduce the radioisotopes strength or activity by half. Developers of FPXRF technologies recommend source replacement at regular intervals based on the source's half-life. This is due to the ever increasing time required for the analysis rather than a decrease in instrument performance. The characteristic x-rays emitted from each of the different sources have energies capable of exciting a certain range of analytes in a sample. Table 2 summarizes the characteristics of four common radioisotope sources.

X-ray tubes have higher radiation output, no intrinsic lifetime limit, produce constant output over their lifetime, and do not have the disposal problems of radioactive sources but are just now appearing in FPXRF instruments. An electrically-excited x-ray tube operates by bombarding an anode with electrons accelerated by a high voltage. The electrons gain an energy in electron volts equal to the accelerating voltage and can excite atomic transitions in the anode, which then produces characteristic x-rays. These characteristic x-rays are emitted through a window which contains the vacuum necessary for the electron acceleration. An important difference between x-ray tubes and radioactive sources is that the electrons which bombard the anode also produce a continuum of x-rays across a broad range of energies in addition to the characteristic x-rays. This continuum is weak compared to the characteristic x-rays but can provide substantial excitation since it covers a broad energy range. It has the undesired property of producing background in the spectrum near the analyte x-ray lines when it is scattered by the sample. For this reason a filter is often used between the x-ray tube and the sample to suppress the continuum radiation while passing the characteristic x-rays from the anode. This filter is sometimes incorporated into the window of the x-ray tube. The choice of

accelerating voltage is governed both by the anode material, since the electrons must have sufficient energy to excite the anode, which requires a voltage greater than the absorption edge of the anode material and by the instrument's ability to cool the x-ray tube. The anode is most efficiently excited by voltages 2 to 2.5 times the edge energy (most x-rays per unit power to the tube), although voltages as low as 1.5 times the absorption edge energy will work. The characteristic x-rays emitted by the anode are capable of exciting a range of elements in the sample just as with a radioactive source. Table 3 gives the recommended operating voltages and the sample elements excited for some common anodes.

6.1.2 Sample presentation device -- FPXRF instruments can be operated in two modes: in situ and intrusive. If operated in the in situ mode, the probe window is placed in direct contact with the soil surface to be analyzed. When an FPXRF instrument is operated in the intrusive mode, a soil or sediment sample must be collected, prepared, and placed in a sample cup. For FPXRF instruments operated in the intrusive mode, the probe may be rotated so that the window faces either upward or downward. A protective sample cover is placed over the window, and the sample cup is placed on top of the window inside the protective sample cover for analysis.

6.1.3 Detectors -- The detectors in the FPXRF instruments can be either solid-state detectors or gas-filled, proportional counter detectors. Common solid-state detectors include mercuric iodide (HgI_2), silicon pin diode and lithium-drifted silicon $\text{Si}(\text{Li})$. The HgI_2 detector is operated at a moderately subambient temperature controlled by a low power thermoelectric cooler. The silicon pin diode detector also is cooled via the thermoelectric Peltier effect. The $\text{Si}(\text{Li})$ detector must be cooled to at least -90°C either with liquid nitrogen or by thermoelectric cooling via the Peltier effect. Instruments with a $\text{Si}(\text{Li})$ detector have an internal liquid nitrogen dewar with a capacity of 0.5 to 1.0 L. Proportional counter detectors are rugged and lightweight, which are important features of a field portable detector. However, the resolution of a proportional counter detector is not as good as that of a solid-state detector. The energy resolution of a detector for characteristic x-rays is usually expressed in terms of full width at half-maximum (FWHM) height of the manganese K_α peak at 5.89 keV. The typical resolutions of the above mentioned detectors are as follows: HgI_2 -270 eV; silicon pin diode-250 eV; $\text{Si}(\text{Li})$ -170 eV; and gas-filled, proportional counter-750 eV.

During operation of a solid-state detector, an x-ray photon strikes a biased, solid-state crystal and loses energy in the crystal by producing electron-hole pairs. The electric charge produced is collected and provides a current pulse that is directly proportional to the energy of the x-ray photon absorbed by the crystal of the detector. A gas-filled, proportional counter detector is an ionization chamber filled with a mixture of noble and other gases. An x-ray photon entering the chamber ionizes the gas atoms. The electric charge produced is collected and provides an electric signal that is directly proportional to the energy of the x-ray photon absorbed by the gas in the detector.

6.1.4 Data processing units -- The key component in the data processing unit of an FPXRF instrument is the MCA. The MCA receives pulses from the detector and sorts them by their amplitudes (energy level). The MCA counts pulses per second to determine the height of the peak in a spectrum, which is indicative of the target analyte's concentration. The spectrum of element peaks are built on the MCA. The MCAs in FPXRF instruments have from 256 to 2,048 channels. The concentrations of target analytes are usually shown in ppm on a liquid crystal display (LCD) in the instrument. FPXRF instruments can store both spectra and from 3,000 to 5,000 sets of numerical analytical results. Most FPXRF instruments are menu-driven from software built into the

units or from PCs. Once the data-storage memory of an FPXRF unit is full or at any other time, data can be downloaded by means of an RS-232 port and cable to a PC.

6.2 Spare battery and battery charger.

6.3 Polyethylene sample cups -- 31 to 40 mm in diameter with collar, or equivalent (appropriate for FPXRF instrument).

6.4 X-ray window film -- Mylar™, Kapton™, Spectrolene™, polypropylene, or equivalent; 2.5 to 6.0 μm thick.

6.5 Mortar and pestle -- Glass, agate, or aluminum oxide; for grinding soil and sediment samples.

6.6 Containers -- Glass or plastic to store samples.

6.7 Sieves -- 60-mesh (0.25 mm), stainless-steel, Nylon, or equivalent for preparing soil and sediment samples.

6.8 Trowels -- For smoothing soil surfaces and collecting soil samples.

6.9 Plastic bags -- Used for collection and homogenization of soil samples.

6.10 Drying oven -- Standard convection or toaster oven, for soil and sediment samples that require drying.

7.0 REAGENTS AND STANDARDS

7.1 Reagent grade chemicals must be used in all tests. Unless otherwise indicated, it is intended that all reagents conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available. Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

7.2 Pure element standards -- Each pure, single-element standard is intended to produce strong characteristic x-ray peaks of the element of interest only. Other elements present must not contribute to the fluorescence spectrum. A set of pure element standards for commonly sought analytes is supplied by the instrument manufacturer, if designated for the instrument; not all instruments require the pure element standards. The standards are used to set the region of interest (ROI) for each element. They also can be used as energy calibration and resolution check samples.

7.3 Site-specific calibration standards -- Instruments that employ fundamental parameters (FP) or similar mathematical models in minimizing matrix effects may not require SSCS. If the FP calibration model is to be optimized or if empirical calibration is necessary, then SSCSs must be collected, prepared, and analyzed.

7.3.1 The SSCS must be representative of the matrix to be analyzed by FPXRF. These samples must be well homogenized. A minimum of 10 samples spanning the concentration ranges of the analytes of interest and of the interfering elements must be obtained from the site. A sample size of 4 to 8 ounces is recommended, and standard glass sampling jars should be used.

7.3.2 Each sample should be oven-dried for 2 to 4 hr at a temperature of less than 150 °C. If mercury is to be analyzed, a separate sample portion should be dried at ambient temperature as heating may volatilize the mercury. When the sample is dry, all large, organic debris and nonrepresentative material, such as twigs, leaves, roots, insects, asphalt, and rock should be removed. The sample should be homogenized (see Sec. 7.3.3) and then a representative portion ground with a mortar and pestle or other mechanical means, prior to passing through a 60-mesh sieve. Only the coarse rock fraction should remain on the screen.

7.3.3 The sample should be homogenized by using a riffle splitter or by placing 150 to 200 g of the dried, sieved sample on a piece of kraft or butcher paper about 1.5 by 1.5 feet in size. Each corner of the paper should be lifted alternately, rolling the soil over on itself and toward the opposite corner. The soil should be rolled on itself 20 times. Approximately 5 g of the sample should then be removed and placed in a sample cup for FPXRF analysis. The rest of the prepared sample should be sent off site for ICP or AA analysis. The method use for confirmatory analysis should meet the data quality objectives of the project.

7.4 Blank samples -- The blank samples should be from a "clean" quartz or silicon dioxide matrix that is free of any analytes at concentrations above the established lower limit of detection. These samples are used to monitor for cross-contamination and laboratory-induced contaminants or interferences.

7.5 Standard reference materials -- Standard reference materials (SRMs) are standards containing certified amounts of metals in soil or sediment. These standards are used for accuracy and performance checks of FPXRF analyses. SRMs can be obtained from the National Institute of Standards and Technology (NIST), the U.S. Geological Survey (USGS), the Canadian National Research Council, and the national bureau of standards in foreign nations. Pertinent NIST SRMs for FPXRF analysis include 2704, Buffalo River Sediment; 2709, San Joaquin Soil; and 2710 and 2711, Montana Soil. These SRMs contain soil or sediment from actual sites that has been analyzed using independent inorganic analytical methods by many different laboratories. When these SRMs are unavailable, alternate standards may be used (e.g., NIST 2702).

8.0 SAMPLE COLLECTION, PRESERVATION, AND STORAGE

Sample handling and preservation procedures used in FPXRF analyses should follow the guidelines in Chapter Three, "Inorganic Analytes."

9.0 QUALITY CONTROL

9.1 Follow the manufacturer's instructions for the quality control procedures specific to use of the testing product. Refer to Chapter One for additional guidance on quality assurance (QA) and quality control (QC) protocols. Any effort involving the collection of analytical data should include development of a structured and systematic planning document, such as a Quality Assurance Project Plan (QAPP) or a Sampling and Analysis Plan (SAP), which translates project objectives and specifications into directions for those that will implement the project and assess the results.

9.2 Energy calibration check -- To determine whether an FPXRF instrument is operating within resolution and stability tolerances, an energy calibration check should be run. The energy calibration check determines whether the characteristic x-ray lines are shifting,

which would indicate drift within the instrument. As discussed in Sec. 4.10, this check also serves as a gain check in the event that ambient temperatures are fluctuating greatly (more than 10 °F).

9.2.1 The energy calibration check should be run at a frequency consistent with manufacturer's recommendations. Generally, this would be at the beginning of each working day, after the batteries are changed or the instrument is shut off, at the end of each working day, and at any other time when the instrument operator believes that drift is occurring during analysis. A pure element such as iron, manganese, copper, or lead is often used for the energy calibration check. A manufacturer-recommended count time per source should be used for the check.

9.2.2 The instrument manufacturer's manual specifies the channel or kiloelectron volt level at which a pure element peak should appear and the expected intensity of the peak. The intensity and channel number of the pure element as measured using the source should be checked and compared to the manufacturer's recommendation. If the energy calibration check does not meet the manufacturer's criteria, then the pure element sample should be repositioned and reanalyzed. If the criteria are still not met, then an energy calibration should be performed as described in the manufacturer's manual. With some FPXRF instruments, once a spectrum is acquired from the energy calibration check, the peak can be optimized and realigned to the manufacturer's specifications using their software.

9.3 Blank samples -- Two types of blank samples should be analyzed for FPXRF analysis, specifically, instrument blanks and method blanks.

9.3.1 An instrument blank is used to verify that no contamination exists in the spectrometer or on the probe window. The instrument blank can be silicon dioxide, a polytetrafluoroethylene (PTFE) block, a quartz block, "clean" sand, or lithium carbonate. This instrument blank should be analyzed on each working day before and after analyses are conducted and once per every twenty samples. An instrument blank should also be analyzed whenever contamination is suspected by the analyst. The frequency of analysis will vary with the data quality objectives of the project. A manufacturer-recommended count time per source should be used for the blank analysis. No element concentrations above the established lower limit of detection should be found in the instrument blank. If concentrations exceed these limits, then the probe window and the check sample should be checked for contamination. If contamination is not a problem, then the instrument must be "zeroed" by following the manufacturer's instructions.

9.3.2 A method blank is used to monitor for laboratory-induced contaminants or interferences. The method blank can be "clean" silica sand or lithium carbonate that undergoes the same preparation procedure as the samples. A method blank must be analyzed at least daily. The frequency of analysis will depend on the data quality objectives of the project. If the method blank does not contain the target analyte at a level that interferes with the project-specific data quality objectives then the method blank would be considered acceptable. In the absence of project-specific data quality objectives, if the blank is less than the lowest level of detection or less than 10% of the lowest sample concentration for the analyte, whichever is greater, then the method blank would be considered acceptable. If the method blank cannot be considered acceptable, the cause of the problem must be identified, and all samples analyzed with the method blank must be reanalyzed.

9.4 Calibration verification checks -- A calibration verification check sample is used to check the accuracy of the instrument and to assess the stability and consistency of the analysis for the analytes of interest. A check sample should be analyzed at the beginning of each working day, during active sample analyses, and at the end of each working day. The frequency of calibration checks during active analysis will depend on the data quality objectives of the project. The check sample should be a well characterized soil sample from the site that is representative of site samples in terms of particle size and degree of homogeneity and that contains contaminants at concentrations near the action levels. If a site-specific sample is not available, then an NIST or other SRM that contains the analytes of interest can be used to verify the accuracy of the instrument. The measured value for each target analyte should be within ± 20 percent (%D) of the true value for the calibration verification check to be acceptable. If a measured value falls outside this range, then the check sample should be reanalyzed. If the value continues to fall outside the acceptance range, the instrument should be recalibrated, and the batch of samples analyzed before the unacceptable calibration verification check must be reanalyzed.

9.5 Precision measurements -- The precision of the method is monitored by analyzing a sample with low, moderate, or high concentrations of target analytes. The frequency of precision measurements will depend on the data quality objectives for the data. A minimum of one precision sample should be run per day. Each precision sample should be analyzed 7 times in replicate. It is recommended that precision measurements be obtained for samples with varying concentration ranges to assess the effect of concentration on method precision. Determining method precision for analytes at concentrations near the site action levels can be extremely important if the FPXRF results are to be used in an enforcement action; therefore, selection of at least one sample with target analyte concentrations at or near the site action levels or levels of concern is recommended. A precision sample is analyzed by the instrument for the same field analysis time as used for other project samples. The relative standard deviation (RSD) of the sample mean is used to assess method precision. For FPXRF data to be considered adequately precise, the RSD should not be greater than 20 percent with the exception of chromium. RSD values for chromium should not be greater than 30 percent. If both in situ and intrusive analytical techniques are used during the course of one day, it is recommended that separate precision calculations be performed for each analysis type.

The equation for calculating RSD is as follows:

$$\text{RSD} = (\text{SD}/\text{Mean Concentration}) \times 100$$

where:

RSD = Relative standard deviation for the precision measurement for the analyte
SD = Standard deviation of the concentration for the analyte
Mean concentration = Mean concentration for the analyte

The precision or reproducibility of a measurement will improve with increasing count time, however, increasing the count time by a factor of 4 will provide only 2 times better precision, so there is a point of diminishing return. Increasing the count time also improves the sensitivity, but decreases sample throughput.

9.6 The lower limits of detection should be established from actual measured performance based on spike recoveries in the matrix of concern or from acceptable method performance on a certified reference material of the appropriate matrix and within the appropriate calibration range for the application. This is considered the best estimate of the true method sensitivity as opposed to a statistical determination based on the standard deviation of

replicate analyses of a low-concentration sample. While the statistical approach demonstrates the potential data variability for a given sample matrix at one point in time, it does not represent what can be detected or most importantly the lowest concentration that can be calibrated. For this reason the sensitivity should be established as the lowest point of detection based on acceptable target analyte recovery in the desired sample matrix.

9.7 Confirmatory samples -- The comparability of the FPXRF analysis is determined by submitting FPXRF-analyzed samples for analysis at a laboratory. The method of confirmatory analysis must meet the project and XRF measurement data quality objectives. The confirmatory samples must be splits of the well homogenized sample material. In some cases the prepared sample cups can be submitted. A minimum of 1 sample for each 20 FPXRF-analyzed samples should be submitted for confirmatory analysis. This frequency will depend on project-specific data quality objectives. The confirmatory analyses can also be used to verify the quality of the FPXRF data. The confirmatory samples should be selected from the lower, middle, and upper range of concentrations measured by the FPXRF. They should also include samples with analyte concentrations at or near the site action levels. The results of the confirmatory analysis and FPXRF analyses should be evaluated with a least squares linear regression analysis. If the measured concentrations span more than one order of magnitude, the data should be log-transformed to standardize variance which is proportional to the magnitude of measurement. The correlation coefficient (r) for the results should be 0.7 or greater for the FPXRF data to be considered screening level data. If the r is 0.9 or greater and inferential statistics indicate the FPXRF data and the confirmatory data are statistically equivalent at a 99 percent confidence level, the data could potentially meet definitive level data criteria.

10.0 CALIBRATION AND STANDARDIZATION

10.1 Instrument calibration -- Instrument calibration procedures vary among FPXRF instruments. Users of this method should follow the calibration procedures outlined in the operator's manual for each specific FPXRF instrument. Generally, however, three types of calibration procedures exist for FPXRF instruments, namely: FP calibration, empirical calibration, and the Compton peak ratio or normalization method. These three types of calibration are discussed below.

10.2 Fundamental parameters calibration -- FP calibration procedures are extremely variable. An FP calibration provides the analyst with a "standardless" calibration. The advantages of FP calibrations over empirical calibrations include the following:

- No previously collected site-specific samples are necessary, although site-specific samples with confirmed and validated analytical results for all elements present could be used.
- Cost is reduced because fewer confirmatory laboratory results or calibration standards are necessary.

However, the analyst should be aware of the limitations imposed on FP calibration by particle size and matrix effects. These limitations can be minimized by adhering to the preparation procedure described in Sec. 7.3. The two FP calibration processes discussed below are based on an effective energy FP routine and a back scatter with FP (BFP) routine. Each FPXRF FP calibration process is based on a different iterative algorithmic method. The calibration procedure for each routine is explained in detail in the manufacturer's user manual for each FPXRF instrument; in addition, training courses are offered for each instrument.

10.2.1 Effective energy FP calibration -- The effective energy FP calibration is performed by the manufacturer before an instrument is sent to the analyst. Although SSCS can be used, the calibration relies on pure element standards or SRMs such as those obtained from NIST for the FP calibration. The effective energy routine relies on the spectrometer response to pure elements and FP iterative algorithms to compensate for various matrix effects.

Alpha coefficients are calculated using a variation of the Sherman equation, which calculates theoretical intensities from the measurement of pure element samples. These coefficients indicate the quantitative effect of each matrix element on an analyte's measured x-ray intensity. Next, the Lachance Traill algorithm is solved as a set of simultaneous equations based on the theoretical intensities. The alpha coefficients are then downloaded into the specific instrument.

The working effective energy FP calibration curve must be verified before sample analysis begins on each working day, after every 20 samples are analyzed, and at the end of sampling. This verification is performed by analyzing either an NIST SRM or an SSCS that is representative of the site-specific samples. This SRM or SSCS serves as a calibration check. A manufacturer-recommended count time per source should be used for the calibration check. The analyst must then adjust the y-intercept and slope of the calibration curve to best fit the known concentrations of target analytes in the SRM or SSCS.

A percent difference (%D) is then calculated for each target analyte. The %D should be within ± 20 percent of the certified value for each analyte. If the %D falls outside this acceptance range, then the calibration curve should be adjusted by varying the slope of the line or the y-intercept value for the analyte. The SRM or SSCS is reanalyzed until the %D falls within ± 20 percent. The group of 20 samples analyzed before an out-of-control calibration check should be reanalyzed.

The equation to calibrate %D is as follows:

$$\%D = ((C_s - C_k) / C_k) \times 100$$

where:

%D = Percent difference

C_k = Certified concentration of standard sample

C_s = Measured concentration of standard sample

10.2.2 BFP calibration -- BFP calibration relies on the ability of the liquid nitrogen-cooled, Si(Li) solid-state detector to separate the coherent (Compton) and incoherent (Rayleigh) backscatter peaks of primary radiation. These peak intensities are known to be a function of sample composition, and the ratio of the Compton to Rayleigh peak is a function of the mass absorption of the sample. The calibration procedure is explained in detail in the instrument manufacturer's manual. Following is a general description of the BFP calibration procedure.

The concentrations of all detected and quantified elements are entered into the computer software system. Certified element results for an NIST SRM or confirmed and validated results for an SSCS can be used. In addition, the concentrations of oxygen and silicon must be entered; these two concentrations are not found in standard metals analyses. The manufacturer provides silicon and oxygen concentrations for typical soil types. Pure element standards are then analyzed using a manufacturer-recommended

count time per source. The results are used to calculate correction factors in order to adjust for spectrum overlap of elements.

The working BFP calibration curve must be verified before sample analysis begins on each working day, after every 20 samples are analyzed, and at the end of the analysis. This verification is performed by analyzing either an NIST SRM or an SSCS that is representative of the site-specific samples. This SRM or SSCS serves as a calibration check. The standard sample is analyzed using a manufacturer-recommended count time per source to check the calibration curve. The analyst must then adjust the y-intercept and slope of the calibration curve to best fit the known concentrations of target analytes in the SRM or SSCS.

A %D is then calculated for each target analyte. The %D should fall within ± 20 percent of the certified value for each analyte. If the %D falls outside this acceptance range, then the calibration curve should be adjusted by varying the slope of the line the y-intercept value for the analyte. The standard sample is reanalyzed until the %D falls within ± 20 percent. The group of 20 samples analyzed before an out-of-control calibration check should be reanalyzed.

10.3 Empirical calibration -- An empirical calibration can be performed with SSCS, site-typical standards, or standards prepared from metal oxides. A discussion of SSCS is included in Sec. 7.3; if no previously characterized samples exist for a specific site, site-typical standards can be used. Site-typical standards may be selected from commercially available characterized soils or from SSCS prepared for another site. The site-typical standards should closely approximate the site's soil matrix with respect to particle size distribution, mineralogy, and contaminant analytes. If neither SSCS nor site-typical standards are available, it is possible to make gravimetric standards by adding metal oxides to a "clean" sand or silicon dioxide matrix that simulates soil. Metal oxides can be purchased from various chemical vendors. If standards are made on site, a balance capable of weighing items to at least two decimal places is necessary. Concentrated ICP or AA standard solutions can also be used to make standards. These solutions are available in concentrations of 10,000 parts per million, thus only small volumes have to be added to the soil.

An empirical calibration using SSCS involves analysis of SSCS by the FPXRF instrument and by a conventional analytical method such as ICP or AA. A total acid digestion procedure should be used by the laboratory for sample preparation. Generally, a minimum of 10 and a maximum of 30 well characterized SSCS, site-typical standards, or prepared metal oxide standards are necessary to perform an adequate empirical calibration. The exact number of standards depends on the number of analytes of interest and interfering elements. Theoretically, an empirical calibration with SSCS should provide the most accurate data for a site because the calibration compensates for site-specific matrix effects.

The first step in an empirical calibration is to analyze the pure element standards for the elements of interest. This enables the instrument to set channel limits for each element for spectral deconvolution. Next the SSCS, site-typical standards, or prepared metal oxide standards are analyzed using a count time of 200 seconds per source or a count time recommended by the manufacturer. This will produce a spectrum and net intensity of each analyte in each standard. The analyte concentrations for each standard are then entered into the instrument software; these concentrations are those obtained from the laboratory, the certified results, or the gravimetrically determined concentrations of the prepared standards. This gives the instrument analyte values to regress against corresponding intensities during the modeling stage. The regression equation correlates the concentrations of an analyte with its net intensity.

The calibration equation is developed using a least squares fit regression analysis. After the regression terms to be used in the equation are defined, a mathematical equation can be developed to calculate the analyte concentration in an unknown sample. In some FPXRF instruments, the software of the instrument calculates the regression equation. The software uses calculated intercept and slope values to form a multiterm equation. In conjunction with the software in the instrument, the operator can adjust the multiterm equation to minimize interelement interferences and optimize the intensity calibration curve.

It is possible to define up to six linear or nonlinear terms in the regression equation. Terms can be added and deleted to optimize the equation. The goal is to produce an equation with the smallest regression error and the highest correlation coefficient. These values are automatically computed by the software as the regression terms are added, deleted, or modified. It is also possible to delete data points from the regression line if these points are significant outliers or if they are heavily weighing the data. Once the regression equation has been selected for an analyte, the equation can be entered into the software for quantitation of analytes in subsequent samples. For an empirical calibration to be acceptable, the regression equation for a specific analyte should have a correlation coefficient of 0.98 or greater or meet the DQOs of the project.

In an empirical calibration, one must apply the DQOs of the project and ascertain critical or action levels for the analytes of interest. It is within these concentration ranges or around these action levels that the FPXRF instrument should be calibrated most accurately. It may not be possible to develop a good regression equation over several orders of analyte concentration.

10.4 Compton normalization method -- The Compton normalization method is based on analysis of a single, certified standard and normalization for the Compton peak. The Compton peak is produced from incoherent backscattering of x-ray radiation from the excitation source and is present in the spectrum of every sample. The Compton peak intensity changes with differing matrices. Generally, matrices dominated by lighter elements produce a larger Compton peak, and those dominated by heavier elements produce a smaller Compton peak. Normalizing to the Compton peak can reduce problems with varying matrix effects among samples. Compton normalization is similar to the use of internal standards in organics analysis. The Compton normalization method may not be effective when analyte concentrations exceed a few percent.

The certified standard used for this type of calibration could be an NIST SRM such as 2710 or 2711. The SRM must be a matrix similar to the samples and must contain the analytes of interests at concentrations near those expected in the samples. First, a response factor has to be determined for each analyte. This factor is calculated by dividing the net peak intensity by the analyte concentration. The net peak intensity is gross intensity corrected for baseline reading. Concentrations of analytes in samples are then determined by multiplying the baseline corrected analyte signal intensity by the normalization factor and by the response factor. The normalization factor is the quotient of the baseline corrected Compton K_{α} peak intensity of the SRM divided by that of the samples. Depending on the FPXRF instrument used, these calculations may be done manually or by the instrument software.

11.0 PROCEDURE

11.1 Operation of the various FPXRF instruments will vary according to the manufacturers' protocols. Before operating any FPXRF instrument, one should consult the manufacturer's manual. Most manufacturers recommend that their instruments be allowed to warm up for 15 to 30 minutes before analysis of samples. This will help alleviate drift or energy calibration problems later during analysis.

11.2 Each FPXRF instrument should be operated according to the manufacturer's recommendations. There are two modes in which FPXRF instruments can be operated: in situ and intrusive. The in situ mode involves analysis of an undisturbed soil sediment or sample. Intrusive analysis involves collection and preparation of a soil or sediment sample before analysis. Some FPXRF instruments can operate in both modes of analysis, while others are designed to operate in only one mode. The two modes of analysis are discussed below.

11.3 For in situ analysis, remove any large or nonrepresentative debris from the soil surface before analysis. This debris includes rocks, pebbles, leaves, vegetation, roots, and concrete. Also, the soil surface must be as smooth as possible so that the probe window will have good contact with the surface. This may require some leveling of the surface with a stainless-steel trowel. During the study conducted to provide example performance data for this method, this modest amount of sample preparation was found to take less than 5 min per sample location. The last requirement is that the soil or sediment not be saturated with water. Manufacturers state that their FPXRF instruments will perform adequately for soils with moisture contents of 5 to 20 percent but will not perform well for saturated soils, especially if ponded water exists on the surface. Another recommended technique for in situ analysis is to tamp the soil to increase soil density and compactness for better repeatability and representativeness. This condition is especially important for heavy element analysis, such as barium. Source count times for in situ analysis usually range from 30 to 120 seconds, but source count times will vary among instruments and depending on the desired method sensitivity. Due to the heterogeneous nature of the soil sample, in situ analysis can provide only "screening" type data.

11.4 For intrusive analysis of surface or sediment, it is recommended that a sample be collected from a 4- by 4-inch square that is 1 inch deep. This will produce a soil sample of approximately 375 g or 250 cm³, which is enough soil to fill an 8-ounce jar. However, the exact dimensions and sample depth should take into consideration the heterogeneous deposition of contaminants and will ultimately depend on the desired project-specific data quality objectives. The sample should be homogenized, dried, and ground before analysis. The sample can be homogenized before or after drying. The homogenization technique to be used after drying is discussed in Sec. 4.2. If the sample is homogenized before drying, it should be thoroughly mixed in a beaker or similar container, or if the sample is moist and has a high clay content, it can be kneaded in a plastic bag. One way to monitor homogenization when the sample is kneaded in a plastic bag is to add sodium fluorescein dye to the sample. After the moist sample has been homogenized, it is examined under an ultraviolet light to assess the distribution of sodium fluorescein throughout the sample. If the fluorescent dye is evenly distributed in the sample, homogenization is considered complete; if the dye is not evenly distributed, mixing should continue until the sample has been thoroughly homogenized. During the study conducted to provide data for this method, the time necessary for homogenization procedure using the fluorescein dye ranged from 3 to 5 min per sample. As demonstrated in Secs. 13.5 and 13.7, homogenization has the greatest impact on the reduction of sampling variability. It produces little or no contamination. Often, the direct analysis through the plastic bag is possible without the more labor intensive steps of drying, grinding, and sieving given in Secs. 11.5 and 11.6. Of course, to achieve the best data quality possible all four steps should be followed.

11.5 Once the soil or sediment sample has been homogenized, it should be dried. This can be accomplished with a toaster oven or convection oven. A small aliquot of the sample (20 to 50 g) is placed in a suitable container for drying. The sample should be dried for 2 to 4 hr in the convection or toaster oven at a temperature not greater than 150 °C. Samples may also be air dried under ambient temperature conditions using a 10- to 20-g portion. Regardless of what drying mechanism is used, the drying process is considered complete when a constant sample weight can be obtained. Care should be taken to avoid sample cross-contamination and these measures can be evaluated by including an appropriate method blank sample along with any sample preparation process.

CAUTION: Microwave drying is not a recommended procedure. Field studies have shown that microwave drying can increase variability between the FPXRF data and confirmatory analysis. High levels of metals in a sample can cause arcing in the microwave oven, and sometimes slag forms in the sample. Microwave oven drying can also melt plastic containers used to hold the sample.

11.6 The homogenized dried sample material should be ground with a mortar and pestle and passed through a 60-mesh sieve to achieve a uniform particle size. Sample grinding should continue until at least 90 percent of the original sample passes through the sieve. The grinding step normally takes an average of 10 min per sample. An aliquot of the sieved sample should then be placed in a 31.0-mm polyethylene sample cup (or equivalent) for analysis. The sample cup should be one-half to three-quarters full at a minimum. The sample cup should be covered with a 2.5 μm Mylar (or equivalent) film for analysis. The rest of the soil sample should be placed in a jar, labeled, and archived for possible confirmation analysis. All equipment including the mortar, pestle, and sieves must be thoroughly cleaned so that any cross-contamination is below the established lower limit of detection of the procedure or DQOs of the analysis. If all recommended sample preparation steps are followed, there is a high probability the desired laboratory data quality may be obtained.

12.0 DATA ANALYSIS AND CALCULATIONS

Most FPXRF instruments have software capable of storing all analytical results and spectra. The results are displayed in ppm and can be downloaded to a personal computer, which can be used to provide a hard copy printout. Individual measurements that are smaller than three times their associated SD should not be used for quantitation. See the manufacturer's instructions regarding data analysis and calculations.

13.0 METHOD PERFORMANCE

13.1 Performance data and related information are provided in SW-846 methods only as examples and guidance. The data do not represent required performance criteria for users of the methods. Instead, performance criteria should be developed on a project-specific basis, and the laboratory should establish in-house QC performance criteria for the application of this method. These performance data are not intended to be and must not be used as absolute QC acceptance criteria for purposes of laboratory accreditation.

13.2 The sections to follow discuss three performance evaluation factors; namely, precision, accuracy, and comparability. The example data presented in Tables 4 through 8 were generated from results obtained from six FPXRF instruments (see Sec. 13.3). The soil samples analyzed by the six FPXRF instruments were collected from two sites in the United States. The soil samples contained several of the target analytes at concentrations ranging from "nondetect" to tens of thousands of mg/kg. These data are provided for guidance purposes only.

13.3 The six FPXRF instruments included the TN 9000 and TN Lead Analyzer manufactured by TN Spectrace; the X-MET 920 with a SiLi detector and X-MET 920 with a gas-filled proportional detector manufactured by Metorex, Inc.; the XL Spectrum Analyzer manufactured by Niton; and the MAP Spectrum Analyzer manufactured by Scitec. The TN 9000 and TN Lead Analyzer both have a HgI_2 detector. The TN 9000 utilized an Fe-55, Cd-109, and Am-241 source. The TN Lead Analyzer had only a Cd-109 source. The X-Met 920 with the SiLi detector had a Cd-109 and Am-241 source. The X-MET 920 with the gas-filled proportional detector had only a Cd-109 source. The XL Spectrum Analyzer utilized a silicon pin-diode

detector and a Cd-109 source. The MAP Spectrum Analyzer utilized a solid-state silicon detector and a Cd-109 source.

13.4 All example data presented in Tables 4 through 8 were generated using the following calibrations and source count times. The TN 9000 and TN Lead Analyzer were calibrated using fundamental parameters using NIST SRM 2710 as a calibration check sample. The TN 9000 was operated using 100, 60, and 60 second count times for the Cd-109, Fe-55, and Am-241 sources, respectively. The TN Lead analyzer was operated using a 60 second count time for the Cd-109 source. The X-MET 920 with the Si(Li) detector was calibrated using fundamental parameters and one well characterized site-specific soil standard as a calibration check. It used 140 and 100 second count times for the Cd-109 and Am-241 sources, respectively. The X-MET 920 with the gas-filled proportional detector was calibrated empirically using between 10 and 20 well characterized site-specific soil standards. It used 120 second times for the Cd-109 source. The XL Spectrum Analyzer utilized NIST SRM 2710 for calibration and the Compton peak normalization procedure for quantitation based on 60 second count times for the Cd-109 source. The MAP Spectrum Analyzer was internally calibrated by the manufacturer. The calibration was checked using a well-characterized site-specific soil standard. It used 240 second times for the Cd-109 source.

13.5 Precision measurements -- The example precision data are presented in Table 4. These data are provided for guidance purposes only. Each of the six FPXRF instruments performed 10 replicate measurements on 12 soil samples that had analyte concentrations ranging from "nondetects" to thousands of mg/kg. Each of the 12 soil samples underwent 4 different preparation techniques from in situ (no preparation) to dried and ground in a sample cup. Therefore, there were 48 precision data points for five of the instruments and 24 precision points for the MAP Spectrum Analyzer. The replicate measurements were taken using the source count times discussed at the beginning of this section.

For each detectable analyte in each precision sample a mean concentration, standard deviation, and RSD was calculated for each analyte. The data presented in Table 4 is an average RSD for the precision samples that had analyte concentrations at 5 to 10 times the lower limit of detection for that analyte for each instrument. Some analytes such as mercury, selenium, silver, and thorium were not detected in any of the precision samples so these analytes are not listed in Table 4. Some analytes such as cadmium, nickel, and tin were only detected at concentrations near the lower limit of detection so that an RSD value calculated at 5 to 10 times this limit was not possible.

One FPXRF instrument collected replicate measurements on an additional nine soil samples to provide a better assessment of the effect of sample preparation on precision. Table 5 shows these results. These data are provided for guidance purposes only. The additional nine soil samples were comprised of three from each texture and had analyte concentrations ranging from near the lower limit of detection for the FPXRF analyzer to thousands of mg/kg. The FPXRF analyzer only collected replicate measurements from three of the preparation methods; no measurements were collected from the in situ homogenized samples. The FPXRF analyzer conducted five replicate measurements of the in situ field samples by taking measurements at five different points within the 4-inch by 4-inch sample square. Ten replicate measurements were collected for both the intrusive undried and unground and intrusive dried and ground samples contained in cups. The cups were shaken between each replicate measurement.

Table 5 shows that the precision dramatically improved from the in situ to the intrusive measurements. In general there was a slight improvement in precision when the sample was dried and ground. Two factors caused the precision for the in situ measurements to be poorer. The major factor is soil heterogeneity. By moving the probe within the 4-inch by 4-inch square,

measurements of different soil samples were actually taking place within the square. Table 5 illustrates the dominant effect of soil heterogeneity. It overwhelmed instrument precision when the FPXRF analyzer was used in this mode. The second factor that caused the RSD values to be higher for the in situ measurements is the fact that only five instead of ten replicates were taken. A lesser number of measurements caused the standard deviation to be larger which in turn elevated the RSD values.

13.6 Accuracy measurements -- Five of the FPXRF instruments (not including the MAP Spectrum Analyzer) analyzed 18 SRMs using the source count times and calibration methods given at the beginning of this section. The 18 SRMs included 9 soil SRMs, 4 stream or river sediment SRMs, 2 sludge SRMs, and 3 ash SRMs. Each of the SRMs contained known concentrations of certain target analytes. A percent recovery was calculated for each analyte in each SRM for each FPXRF instrument. Table 6 presents a summary of this data. With the exception of cadmium, chromium, and nickel, the values presented in Table 6 were generated from the 13 soil and sediment SRMs only. The 2 sludge and 3 ash SRMs were included for cadmium, chromium, and nickel because of the low or nondetectable concentrations of these three analytes in the soil and sediment SRMs.

Only 12 analytes are presented in Table 6. These are the analytes that are of environmental concern and provided a significant number of detections in the SRMs for an accuracy assessment. No data is presented for the X-MET 920 with the gas-filled proportional detector. This FPXRF instrument was calibrated empirically using site-specific soil samples. The percent recovery values from this instrument were very sporadic and the data did not lend itself to presentation in Table 6.

Table 7 provides a more detailed summary of accuracy data for one particular FPXRF instrument (TN 9000) for the 9 soil SRMs and 4 sediment SRMs. These data are provided for guidance purposes only. Table 7 shows the certified value, measured value, and percent recovery for five analytes. These analytes were chosen because they are of environmental concern and were most prevalently certified for in the SRM and detected by the FPXRF instrument. The first nine SRMs are soil and the last 4 SRMs are sediment. Percent recoveries for the four NIST SRMs were often between 90 and 110 percent for all analytes.

13.7 Comparability -- Comparability refers to the confidence with which one data set can be compared to another. In this case, FPXRF data generated from a large study of six FPXRF instruments was compared to SW-846 Methods 3050 and 6010 which are the standard soil extraction for metals and analysis by inductively coupled plasma. An evaluation of comparability was conducted by using linear regression analysis. Three factors were determined using the linear regression. These factors were the y-intercept, the slope of the line, and the coefficient of determination (r^2).

As part of the comparability assessment, the effects of soil type and preparation methods were studied. Three soil types (textures) and four preparation methods were examined during the study. The preparation methods evaluated the cumulative effect of particle size, moisture, and homogenization on comparability. Due to the large volume of data produced during this study, linear regression data for six analytes from only one FPXRF instrument is presented in Table 8. Similar trends in the data were seen for all instruments. These data are provided for guidance purposes only.

Table 8 shows the regression parameters for the whole data set, broken out by soil type, and by preparation method. These data are provided for guidance purposes only. The soil types are as follows: soil 1--sand; soil 2--loam; and soil 3--silty clay. The preparation methods are as follows: preparation 1--in situ in the field; preparation 2--intrusive, sample collected and homogenized; preparation 3--intrusive, with sample in a sample cup but sample still wet and not

ground; and preparation 4—intrusive, with sample dried, ground, passed through a 40-mesh sieve, and placed in sample cup.

For arsenic, copper, lead, and zinc, the comparability to the confirmatory laboratory was excellent with r^2 values ranging from 0.80 to 0.99 for all six FPXRF instruments. The slopes of the regression lines for arsenic, copper, lead, and zinc, were generally between 0.90 and 1.00 indicating the data would need to be corrected very little or not at all to match the confirmatory laboratory data. The r^2 values and slopes of the regression lines for barium and chromium were not as good as for the other for analytes, indicating the data would have to be corrected to match the confirmatory laboratory.

Table 8 demonstrates that there was little effect of soil type on the regression parameters for any of the six analytes. The only exceptions were for barium in soil 1 and copper in soil 3. In both of these cases, however, it is actually a concentration effect and not a soil effect causing the poorer comparability. All barium and copper concentrations in soil 1 and 3, respectively, were less than 350 mg/kg.

Table 8 shows there was a preparation effect on the regression parameters for all six analytes. With the exception of chromium, the regression parameters were primarily improved going from preparation 1 to preparation 2. In this step, the sample was removed from the soil surface, all large debris was removed, and the sample was thoroughly homogenized. The additional two preparation methods did little to improve the regression parameters. This data indicates that homogenization is the most critical factor when comparing the results. It is essential that the sample sent to the confirmatory laboratory match the FPXRF sample as closely as possible.

Sec. 11.0 of this method discusses the time necessary for each of the sample preparation techniques. Based on the data quality objectives for the project, an analyst must decide if it is worth the extra time necessary to dry and grind the sample for small improvements in comparability. Homogenization requires 3 to 5 min. Drying the sample requires one to two hours. Grinding and sieving requires another 10 to 15 min per sample. Lastly, when grinding and sieving is conducted, time has to be allotted to decontaminate the mortars, pestles, and sieves. Drying and grinding the samples and decontamination procedures will often dictate that an extra person be on site so that the analyst can keep up with the sample collection crew. The cost of requiring an extra person on site to prepare samples must be balanced with the gain in data quality and sample throughput.

13.8 The following documents may provide additional guidance and insight on this method and technique:

13.8.1 A. D. Hewitt, "Screening for Metals by X-ray Fluorescence Spectrometry/Response Factor/Compton K_{α} Peak Normalization Analysis," American Environmental Laboratory, pp 24-32, 1994.

13.8.2 S. Piorek and J. R. Pasmore, "Standardless, In Situ Analysis of Metallic Contaminants in the Natural Environment With a PC-Based, High Resolution Portable X-Ray Analyzer," Third International Symposium on Field Screening Methods for Hazardous Waste and Toxic Chemicals, Las Vegas, Nevada, February 24-26, 1993, Vol 2, pp 1135-1151, 1993.

13.8.3 S. Shefsky, "Sample Handling Strategies for Accurate Lead-in-soil Measurements in the Field and Laboratory," *International Symposium of Field Screening Methods for Hazardous Waste and Toxic Chemicals*, Las Vegas, NV, January 29-31, 1997.

14.0 POLLUTION PREVENTION

14.1 Pollution prevention encompasses any technique that reduces or eliminates the quantity and/or toxicity of waste at the point of generation. Numerous opportunities for pollution prevention exist in laboratory operation. The EPA has established a preferred hierarchy of environmental management techniques that places pollution prevention as the management option of first choice. Whenever feasible, laboratory personnel should use pollution prevention techniques to address their waste generation. When wastes cannot be feasibly reduced at the source, the Agency recommends recycling as the next best option.

14.2 For information about pollution prevention that may be applicable to laboratories and research institutions consult *Less is Better: Laboratory Chemical Management for Waste Reduction* available from the American Chemical Society's Department of Government Relations and Science Policy, 1155 16th St., N.W. Washington, D.C. 20036, <http://www.acs.org>.

15.0 WASTE MANAGEMENT

The Environmental Protection Agency requires that laboratory waste management practices be conducted consistent with all applicable rules and regulations. The Agency urges laboratories to protect the air, water, and land by minimizing and controlling all releases from hoods and bench operations, complying with the letter and spirit of any sewer discharge permits and regulations, and by complying with all solid and hazardous waste regulations, particularly the hazardous waste identification rules and land disposal restrictions. For further information on waste management, consult *The Waste Management Manual for Laboratory Personnel* available from the American Chemical Society at the address listed in Sec. 14.2.

16.0 REFERENCES

1. Metorex, X-MET 920 User's Manual.
2. Spectrace Instruments, "Energy Dispersive X-ray Fluorescence Spectrometry: An Introduction," 1994.
3. TN Spectrace, Spectrace 9000 Field Portable/Benchtop XRF Training and Applications Manual.
4. Unpublished SITE data, received from PRC Environment Management, Inc.

17.0 TABLES, DIAGRAMS, FLOWCHARTS, AND VALIDATION DATA

The following pages contain the tables referenced by this method. A flow diagram of the procedure follows the tables.

TABLE 1

EXAMPLE INTERFERENCE FREE LOWER LIMITS OF DETECTION

Analyte	Chemical Abstract Series Number	Lower Limit of Detection in Quartz Sand (milligrams per kilogram)
Antimony (Sb)	7440-36-0	40
Arsenic (As)	7440-38-0	40
Barium (Ba)	7440-39-3	20
Cadmium (Cd)	7440-43-9	100
Calcium (Ca)	7440-70-2	70
Chromium (Cr)	7440-47-3	150
Cobalt (Co)	7440-48-4	60
Copper (Cu)	7440-50-8	50
Iron (Fe)	7439-89-6	60
Lead (Pb)	7439-92-1	20
Manganese (Mn)	7439-96-5	70
Mercury (Hg)	7439-97-6	30
Molybdenum (Mo)	7439-93-7	10
Nickel (Ni)	7440-02-0	50
Potassium (K)	7440-09-7	200
Rubidium (Rb)	7440-17-7	10
Selenium (Se)	7782-49-2	40
Silver (Ag)	7440-22-4	70
Strontium (Sr)	7440-24-6	10
Thallium (Tl)	7440-28-0	20
Thorium (Th)	7440-29-1	10
Tin (Sn)	7440-31-5	60
Titanium (Ti)	7440-32-6	50
Vanadium (V)	7440-62-2	50
Zinc (Zn)	7440-66-6	50
Zirconium (Zr)	7440-67-7	10

Source: Refs. 1, 2, and 3

These data are provided for guidance purposes only.

TABLE 2

SUMMARY OF RADIOISOTOPE SOURCE CHARACTERISTICS

Source	Activity (mCi)	Half-Life (Years)	Excitation Energy (keV)	Elemental Analysis Range	
Fe-55	20-50	2.7	5.9	Sulfur to Chromium Molybdenum to Barium	K Lines L Lines
Cd-109	5-30	1.3	22.1 and 87.9	Calcium to Rhodium Tantalum to Lead Barium to Uranium	K Lines K Lines L Lines
Am-241	5-30	432	26.4 and 59.6	Copper to Thulium Tungsten to Uranium	K Lines L Lines
Cm-244	60-100	17.8	14.2	Titanium to Selenium Lanthanum to Lead	K Lines L Lines

Source: Refs. 1, 2, and 3

TABLE 3

SUMMARY OF X-RAY TUBE SOURCE CHARACTERISTICS

Anode Material	Recommended Voltage Range (kV)	K-alpha Emission (keV)	Elemental Analysis Range	
Cu	18-22	8.04	Potassium to Cobalt Silver to Gadolinium	K Lines L Lines
Mo	40-50	17.4	Cobalt to Yttrium Europium to Radon	K Lines L Lines
Ag	50-65	22.1	Zinc to Technicium Ytterbium to Neptunium	K Lines L Lines

Source: Ref. 4

Notes: The sample elements excited are chosen by taking as the lower limit the same ratio of excitation line energy to element absorption edge as in Table 2 (approximately 0.45) and the requirement that the excitation line energy be above the element absorption edge as the upper limit (L2 edges used for L lines). K-beta excitation lines were ignored.

TABLE 4

EXAMPLE PRECISION VALUES

Analyte	Average Relative Standard Deviation for Each Instrument at 5 to 10 Times the Lower Limit of Detection					
	TN 9000	TN Lead Analyzer	X-MET 920 (SiLi Detector)	X-MET 920 (Gas-Filled Detector)	XL Spectrum Analyzer	MAP Spectrum Analyzer
Antimony	6.54	NR	NR	NR	NR	NR
Arsenic	5.33	4.11	3.23	1.91	12.47	6.68
Barium	4.02	NR	3.31	5.91	NR	NR
Cadmium	29.84 ^a	NR	24.80 ^a	NR	NR	NR
Calcium	2.16	NR	NR	NR	NR	NR
Chromium	22.25	25.78	22.72	3.91	30.25	NR
Cobalt	33.90	NR	NR	NR	NR	NR
Copper	7.03	9.11	8.49	9.12	12.77	14.86
Iron	1.78	1.67	1.55	NR	2.30	NR
Lead	6.45	5.93	5.05	7.56	6.97	12.16
Manganese	27.04	24.75	NR	NR	NR	NR
Molybdenum	6.95	NR	NR	NR	12.60	NR
Nickel	30.85 ^a	NR	24.92 ^a	20.92 ^a	NA	NR
Potassium	3.90	NR	NR	NR	NR	NR
Rubidium	13.06	NR	NR	NR	32.69 ^a	NR
Strontium	4.28	NR	NR	NR	8.86	NR
Tin	24.32 ^a	NR	NR	NR	NR	NR
Titanium	4.87	NR	NR	NR	NR	NR
Zinc	7.27	7.48	4.26	2.28	10.95	0.83
Zirconium	3.58	NR	NR	NR	6.49	NR

These data are provided for guidance purposes only.

Source: Ref. 4

^a These values are biased high because the concentration of these analytes in the soil samples was near the lower limit of detection for that particular FPXRF instrument.

NR Not reported.

NA Not applicable; analyte was reported but was below the established lower limit detection.

TABLE 5

EXAMPLES OF PRECISION AS AFFECTED BY SAMPLE PREPARATION

Analyte	Average Relative Standard Deviation for Each Preparation Method		
	In Situ-Field	Intrusive-Undried and Unground	Intrusive-Dried and Ground
Antimony	30.1	15.0	14.4
Arsenic	22.5	5.36	3.76
Barium	17.3	3.38	2.90
Cadmium ^a	41.2	30.8	28.3
Calcium	17.5	1.68	1.24
Chromium	17.6	28.5	21.9
Cobalt	28.4	31.1	28.4
Copper	26.4	10.2	7.90
Iron	10.3	1.67	1.57
Lead	25.1	8.55	6.03
Manganese	40.5	12.3	13.0
Mercury	ND	ND	ND
Molybdenum	21.6	20.1	19.2
Nickel ^a	29.8	20.4	18.2
Potassium	18.6	3.04	2.57
Rubidium	29.8	16.2	18.9
Selenium	ND	20.2	19.5
Silver ^a	31.9	31.0	29.2
Strontium	15.2	3.38	3.98
Thallium	39.0	16.0	19.5
Thorium	NR	NR	NR
Tin	ND	14.1	15.3
Titanium	13.3	4.15	3.74
Vanadium	NR	NR	NR
Zinc	26.6	13.3	11.1
Zirconium	20.2	5.63	5.18

These data are provided for guidance purposes only.

Source: Ref. 4

^a These values may be biased high because the concentration of these analytes in the soil samples was near the lower limit of detection.

ND Not detected.

NR Not reported.

TABLE 6
EXAMPLE ACCURACY VALUES

Analyte	Instrument															
	TN 9000				TN Lead Analyzer				X-MET 920 (SiLi Detector)				XL Spectrum Analyzer			
	n	Range of % Rec.	Mean % Rec.	SD	n	Range of % Rec.	Mean % Rec.	SD	n	Range of % Rec.	Mean % Rec.	SD	n	Range of % Rec.	Mean % Rec.	SD
Sb	2	100-149	124.3	NA	--	--	--	--	--	--	--	--	--	--	--	--
As	5	68-115	92.8	17.3	5	44-105	83.4	23.2	4	9.7-91	47.7	39.7	5	38-535	189.8	206
Ba	9	98-198	135.3	36.9	--	--	--	--	9	18-848	168.2	262	--	--	--	--
Cd	2	99-129	114.3	NA	--	--	--	--	6	81-202	110.5	45.7	--	--	--	--
Cr	2	99-178	138.4	NA	--	--	--	--	7	22-273	143.1	93.8	3	98-625	279.2	300
Cu	8	61-140	95.0	28.8	6	38-107	79.1	27.0	11	10-210	111.8	72.1	8	95-480	203.0	147
Fe	6	78-155	103.7	26.1	6	89-159	102.3	28.6	6	48-94	80.4	16.2	6	26-187	108.6	52.9
Pb	11	66-138	98.9	19.2	11	68-131	97.4	18.4	12	23-94	72.7	20.9	13	80-234	107.3	39.9
Mn	4	81-104	93.1	9.70	3	92-152	113.1	33.8	--	--	--	--	--	--	--	--
Ni	3	99-122	109.8	12.0	--	--	--	--	--	--	--	--	3	57-123	87.5	33.5
Sr	8	110-178	132.6	23.8	--	--	--	--	--	--	--	--	7	86-209	125.1	39.5
Zn	11	41-130	94.3	24.0	10	81-133	100.0	19.7	12	46-181	106.6	34.7	11	31-199	94.6	42.5

Source: Ref. 4. These data are provided for guidance purposes only.

n: Number of samples that contained a certified value for the analyte and produced a detectable concentration from the FPXRF instrument.

SD: Standard deviation; NA: Not applicable; only two data points, therefore, a SD was not calculated.

%Rec.: Percent recovery.

-- No data.

TABLE 7

EXAMPLE ACCURACY FOR TN 9000^a

Standard Reference Material	Arsenic			Barium			Copper			Lead			Zinc		
	Cert. Conc.	Meas. Conc.	%Rec.												
RTC CRM-021	24.8	ND	NA	586	1135	193.5	4792	2908	60.7	144742	149947	103.6	546	224	40.9
RTC CRM-020	397	429	92.5	22.3	ND	NA	753	583	77.4	5195	3444	66.3	3022	3916	129.6
BCR CRM 143R	--	--	--	--	--	--	131	105	80.5	180	206	114.8	1055	1043	99.0
BCR CRM 141	--	--	--	--	--	--	32.6	ND	NA	29.4	ND	NA	81.3	ND	NA
USGS GXR-2	25.0	ND	NA	2240	2946	131.5	76.0	106	140.2	690	742	107.6	530	596	112.4
USGS GXR-6	330	294	88.9	1300	2581	198.5	66.0	ND	NA	101	80.9	80.1	118	ND	NA
NIST 2711	105	104	99.3	726	801	110.3	114	ND	NA	1162	1172	100.9	350	333	94.9
NIST 2710	626	722	115.4	707	782	110.6	2950	2834	96.1	5532	5420	98.0	6952	6476	93.2
NIST 2709	17.7	ND	NA	968	950	98.1	34.6	ND	NA	18.9	ND	NA	106	98.5	93.0
NIST 2704	23.4	ND	NA	414	443	107.0	98.6	105	106.2	161	167	103.5	438	427	97.4
CNRC PACS-1	211	143	67.7	--	772	NA	452	302	66.9	404	332	82.3	824	611	74.2
SARM-51	--	--	--	335	466	139.1	268	373	139.2	5200	7199	138.4	2200	2676	121.6
SARM-52	--	--	--	410	527	128.5	219	193	88.1	1200	1107	92.2	264	215	81.4

Source: Ref. 4. These data are provided for guidance purposes only.

^a All concentrations in milligrams per kilogram.

%Rec.: Percent recovery; ND: Not detected; NA: Not applicable.

-- No data.

TABLE 8

EXAMPLE REGRESSION PARAMETERS FOR COMPARABILITY¹

	Arsenic				Barium				Copper			
	n	r ²	Int.	Slope	n	r ²	Int.	Slope	n	r ²	Int.	Slope
All Data	824	0.94	1.62	0.94	1255	0.71	60.3	0.54	984	0.93	2.19	0.93
Soil 1	368	0.96	1.41	0.95	393	0.05	42.6	0.11	385	0.94	1.26	0.99
Soil 2	453	0.94	1.51	0.96	462	0.56	30.2	0.66	463	0.92	2.09	0.95
Soil 3	—	—	—	—	400	0.85	44.7	0.59	136	0.46	16.60	0.57
Prep 1	207	0.87	2.69	0.85	312	0.64	53.7	0.55	256	0.87	3.89	0.87
Prep 2	208	0.97	1.38	0.95	315	0.67	64.6	0.52	246	0.96	2.04	0.93
Prep 3	204	0.96	1.20	0.99	315	0.78	64.6	0.53	236	0.97	1.45	0.99
Prep 4	205	0.96	1.45	0.98	313	0.81	58.9	0.55	246	0.96	1.99	0.96
	Lead				Zinc				Chromium			
	n	r ²	Int.	Slope	n	r ²	Int.	Slope	n	r ²	Int.	Slope
All Data	1205	0.92	1.66	0.95	1103	0.89	1.86	0.95	280	0.70	64.6	0.42
Soil 1	357	0.94	1.41	0.96	329	0.93	1.78	0.93	—	—	—	—
Soil 2	451	0.93	1.62	0.97	423	0.85	2.57	0.90	—	—	—	—
Soil 3	397	0.90	2.40	0.90	351	0.90	1.70	0.98	186	0.66	38.9	0.50
Prep 1	305	0.80	2.88	0.86	286	0.79	3.16	0.87	105	0.80	66.1	0.43
Prep 2	298	0.97	1.41	0.96	272	0.95	1.86	0.93	77	0.51	81.3	0.36
Prep 3	302	0.98	1.26	0.99	274	0.93	1.32	1.00	49	0.73	53.7	0.45
Prep 4	300	0.96	1.38	1.00	271	0.94	1.41	1.01	49	0.75	31.6	0.56

Source: Ref. 4. These data are provided for guidance purposes only.

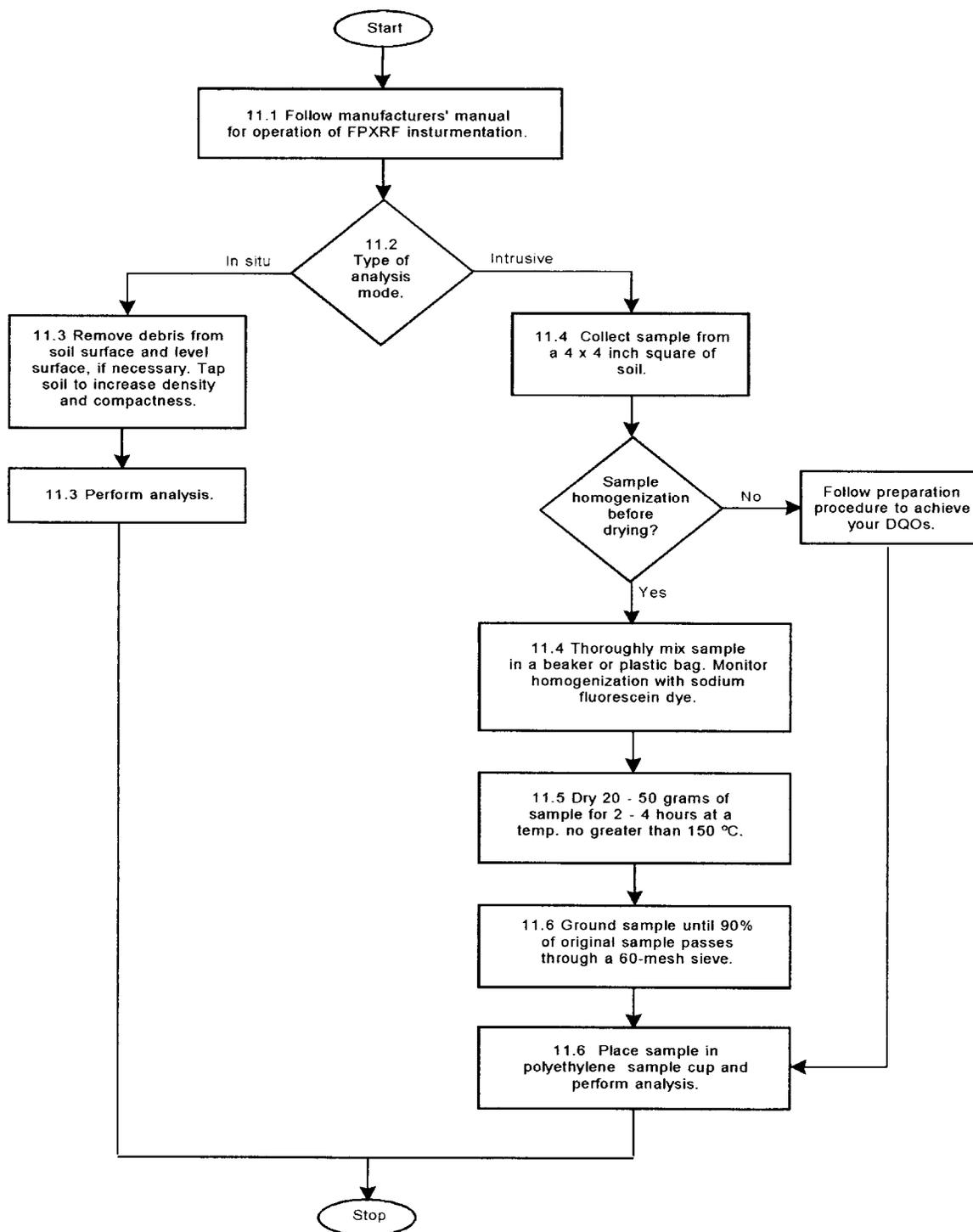
¹ Log-transformed data

n: Number of data points; r²: Coefficient of determination; Int.: Y-intercept

— No applicable data

METHOD 6200

FIELD PORTABLE X-RAY FLUORESCENCE SPECTROMETRY FOR THE DETERMINATION OF ELEMENTAL CONCENTRATIONS IN SOIL AND SEDIMENT



APPENDIX D
**Data Validation Memorandum and Chemical Analytical
Results**

Project: Washington State Department of Ecology – Northport Waterfront Remedial Investigation
March 2019 Samples

GEI File No: 0504-160-00

Date: July 22, 2019

This report documents the results of a United States Environmental Protection Agency (EPA)-defined Stage 2A data validation (EPA Document 540-R-08-005; EPA 2009) of analytical data from the analyses of soil samples collected as part of the March 2019 sampling event, and the associated laboratory and field quality control (QC) samples. The samples were obtained from the Northport Waterfront site located in Stevens County near Northport, Washington.

Please note that the data from SDG 590-10699-1 were validated on May 17, 2019. The data from SDG 590-10699-2 were added to this report on July 22, 2019.

OBJECTIVE AND QUALITY CONTROL ELEMENTS

GeoEngineers completed the data validation consistent with the EPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (EPA 2017) (National Functional Guidelines) to determine if the laboratory analytical results meet the project objectives and are usable for their intended purpose. Data usability was assessed by determining if:

- The samples were analyzed using well-defined and acceptable methods that provide reporting limits below applicable regulatory criteria;
- The precision and accuracy of the data are well-defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

In accordance with the Quality Assurance Project Plan (QAPP), Appendix A of the Northport Waterfront Remedial Investigation Work Plan (GeoEngineers 2019), the data validation included review of the following QC elements:

- Data Package Completeness
- Chain-of-Custody Documentation
- Holding Times and Sample Preservation
- Method Blanks
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory Control Samples/Laboratory Control Sample Duplicates
- Laboratory/Field Duplicates

VALIDATED SAMPLE DELIVERY GROUPS

This data validation included review of the sample delivery groups (SDGs) listed below in Table D-1.

TABLE D-1. SUMMARY OF VALIDATED SAMPLE DELIVERY GROUPS

Laboratory SDG	Samples Validated
590-10699-1	HS-1 (1.5-2.0), HS-2 (0.0-0.5), HS-2 (0.5-1.0), HS-2 (1.0-1.5), HS-3 (0.5-1.0), TP-1 (0.0-0.5), TP-1 (0.5-1.0), TP-1 (3.5-4.0), TP-3 (0.0-0.5), TP-3 (0.5-1.0), TP-3 (1.0-1.5), DUP-2, TP-4 (0.0-0.5), TP-4 (0.5-1.0), TP-4 (3.5-4.0), TP-5 (0.0-0.5), TP-5 (0.5-1.0), TP-5 (1.0-1.5), TP-6 (0.0-0.5), TP-6 (0.5-1.0), TP-6 (2.0-2.5), TP-7 (0.0-0.5), TP-7 (0.5-1.0), TP-9 (0.0-0.5), TP-9 (2.0-2.5), DUP-1, TP-10 (0.0-0.5), TP-10 (0.5-1.0), TP-10 (1.0-1.5), TP-11 (0.5-1.0), TP-11 (3.5-4.0), TP-12 (0.0-0.5), TP-12 (1.0-1.5), TP-13 (0.0-0.5), TP-14 (0.0-0.5), TP-14 (1.0-1.5), TP-14 (1.5-2.0), TP-16 (0.0-0.5), TP-16 (0.5-1.0), TP-16 (3.0-3.5), TP-18 (0.0-0.5), TP-19 (0.0-0.5), TP-19 (0.5-1.0), TP-19 (1.5-2.0), TP-21 (0.5-1.0), TP-21 (1.0-1.5), TP-22 (0.0-0.5), TP-22 (0.5-1.0), TP-22 (1.0-1.5), TP-23 (0.0-0.5), TP-25 (0.0-0.5), XRF-1, XRF-7, XRF-11, XRF-24, XRF-26, XRF-49, XRF-50, XRF-63, XRF-66
590-10699-2	HS-3 (0.0-0.5), TP-18 (3.5-4.0), TP-22 (0.5-1.0), TP-22 (3.5-4.0), TP-23 (0.0-0.5), XRF-41, XRF-59, XRF-60, XRF-96, XRF-99, XRF-100

CHEMICAL ANALYSIS PERFORMED

Eurofins TestAmerica Laboratories, Inc. (TestAmerica), located in Spokane, Washington, performed laboratory analyses on the samples using one or more of the following methods:

- Total Metals by Methods SW6010C and SW7471B

DATA VALIDATION SUMMARY

The results for each of the QC elements are summarized below.

Data Package Completeness

TestAmerica provided the required deliverables for the data validation according to the National Functional Guidelines. The laboratory followed adequate corrective action processes and the identified anomalies were discussed in the relevant laboratory case narrative.

Chain-of-Custody Documentation

Chain-of-custody (COC) forms were provided with the laboratory analytical reports. The COCs were accurate and complete when submitted to the laboratory, with the following exceptions:

SDG 590-10699-1: The laboratory noted that Samples Dup-1 and Dup-2 were received on 4/2/2019 and added to the COC by of GeoEngineers. Additionally, the COC forms did not list a field sampler.

Holding Times and Sample Preservation

The sample holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection. Established holding times were met for each analysis, with the exception noted below. The sample coolers arrived at the laboratory within the appropriate temperatures of between 2 and 6 degrees Celsius, with the following exceptions:

SDG 590-10699-1: Two sample cooler temperatures recorded at the laboratory were 6.6 and 8.8 degrees Celsius. The samples were collected between 3/25/2019 and 3/27/2019, kept on ice during sampling, and

stored in GeoEngineers field refrigerator until 3/29/2019. On 3/29/2019, the samples were placed in coolers on ice and relinquished to the laboratory. It was determined through professional judgment that since the samples were stored in the GeoEngineers field refrigerator until the day they were relinquished on ice to the laboratory, this temperature is likely isolated to the time between transit and being relinquished and should not affect the sample analytical results.

SDG 590-10699-2: The 28-day holding time for mercury analysis was exceeded in Samples HS-3 (0.0-0.5), XRF-41, XRF-96, XRF-99 and XRF-100. The positive results and reporting limit for total mercury were qualified as estimated (J and UJ, accordingly) in these samples.

Method Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. A method blank was analyzed with each batch of samples, at a frequency of 1 per 20 samples. For each sample batch, method blanks for the applicable methods were analyzed at the required frequency. None of the analytes of interest were detected in the method blanks.

Matrix Spikes/Matrix Spike Duplicates

Since the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a matrix spike (MS) analysis on one sample from the associated batch, known as the parent sample. One aliquot of the sample is analyzed in the normal manner and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a percent recovery is calculated. Matrix spike duplicate (MSD) analyses are generally performed for organic analyses as a precision check and analyzed in the same sequence as a matrix spike. Using the result values from the MS and MSD, the relative percent difference (RPD) is calculated. The percent recovery control limits for MS and MSD analyses are specified in the laboratory documents, as are the RPD control limits for MS/MSD sample sets.

One MS/MSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for each analysis and the percent recovery and RPD values were within the proper control limit, with the following exceptions:

SDG 590-10699-1: The laboratory performed an MS/MSD sample set on Sample TP-9 (2.0-2.5). The percent recoveries for total antimony were less than the control limits in the MS/MSD sample set digested on 4/9/2019 at 13:01. The reporting limits for total antimony were qualified as estimated (UJ) in Samples TP-9 (0.0-0.5), TP 9 (2.0-2.5), and Dup-1.

Additionally, in the same MS/MSD sample set, the percent recoveries for total barium, total magnesium, and total potassium were less than the control limits in the MS; however, the percent recoveries for these target analytes were within the control limits in the corresponding MSD. No action was required for these outliers.

Also, in the same MS/MSD sample set, the percent recoveries for total aluminum, total calcium, total copper, total iron, total lead, total manganese, total silver, and total zinc were outside the control limits in the MS and MSD. The parent sample concentrations for these target analytes were greater than four times the amount spiked into the sample; therefore, no qualifications were required.

The laboratory performed an MS/MSD sample set on Sample TP-21 (0.5-1.0). The percent recoveries for total antimony were less than the control limits in the MS/MSD sample set digested on 4/9/2019 at 13:16. The reporting limits for total antimony were qualified as estimated (UJ) in Samples TP-21 (0.5-1.0) and TP-21 (1.0 1.5).

Additionally, in the same MS/MSD sample set, the percent recoveries for total aluminum, total calcium, total copper, total iron, total lead, total magnesium, total manganese, and total silver were outside the control limits in the MS and MSD. The parent sample concentrations for these target analytes were greater than four times the amount spiked into the sample; therefore, no qualifications were required.

The laboratory performed an MS/MSD sample set on Sample XRF-63. The percent recoveries and RPD for total antimony were less than and greater than the control limits, respectively, in the MS/MSD sample set digested on 4/9/2019 at 13:19. The positive result for total antimony was qualified as estimated (J) in Sample XRF-63.

Additionally, in the same MS/MSD sample set, the percent recovery for total silver was greater than the control limits in the MS; however, the percent recovery for this target analyte was within the control limits in the corresponding MSD. No action was required for this outlier.

Also, in the same MS/MSD sample set, the percent recoveries for total aluminum, total barium, total calcium, total copper, total iron, total lead, total manganese, and total zinc were outside the control limits in the MS and MSD. The parent sample concentrations for these target analytes were greater than four times the amount spiked into the sample; therefore, no qualifications were required.

SDG 590-10699-2: The laboratory performed an MS/MSD sample set on Sample HS-3 (0.0-0.5). The percent recoveries for total barium were less than the control limits in the MS/MSD sample set digested on 7/10/2019. The positive result for total barium was qualified as estimated (J) in Sample HS-3 (0.0-0.5).

Additionally, in the same MS/MSD sample set, the percent recoveries for total copper were outside the control limits and the RPD was greater than the control limit. The positive result for total copper was qualified as estimated (J) in Sample HS-3 (0.0-0.5).

Laboratory Control Samples/Laboratory Control Sample Duplicates

A laboratory control sample (LCS) is a blank sample that is spiked with a known amount of analyte and then analyzed. An LCS is similar to an MS, but without the possibility of matrix interference. Given that matrix interference is not an issue, the LCS/LCSD control limits for accuracy and precision are usually more rigorous than for MS/MSD analyses. Additionally, data qualification based on LCS/LCSD analyses would apply to all samples in the associated batch, instead of just the parent sample. The percent recovery control limits for LCS and LCSD analyses are specified in the laboratory documents, as are the RPD control limits for LCS/LCSD sample sets.

One LCS analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for all analyses and the percent recovery values were within the proper control limits.



Laboratory Duplicates

Internal laboratory duplicate analyses are performed to monitor the precision of the analyses. Two separate aliquots of a sample are analyzed as distinct samples in the laboratory and the RPD between the two results is calculated. Duplicate analyses should be performed once per analytical batch. If one or more of the samples used has a concentration less than five times the reporting limit for that sample, the absolute difference is used instead of the RPD. The RPD control limits are specified in the laboratory documents. Laboratory duplicates were analyzed at the proper frequency and the specified acceptance criteria were met, with the following exceptions:

SDG 590-10699-1: The laboratory performed a laboratory duplicate analysis on Sample XRF-63. The RPD for total barium was greater than the control limit in the laboratory duplicate digested on 4/9/2019 at 13:19. The positive result for this target analyte was qualified as estimated (J) in this sample.

SDG 590-10699-2: The laboratory performed a laboratory duplicate analysis on Sample HS-3 (0.0-0.5). The RPD for total antimony was greater than the control limit in the laboratory duplicate digested on 7/10/2019. The positive result for this target analyte was qualified as estimated (J) in this sample.

Field Duplicates

In order to assess precision, field duplicate samples were collected and analyzed along with the reviewed sample batches. The duplicate samples were analyzed for the same parameters as the associated parent samples. Precision is determined by calculating the RPD between each pair of samples. If one or more of the sample analytes has a concentration less than five times the reporting limit for that sample, then the absolute difference is used instead of the RPD. The RPD control limits are specified in the QAPP.

SDG 590-10699-1: Two field duplicate sample pairs, TP-3 (1.0-1.5)/Dup-2 and TP-9 (2.0-2.5)/Dup-1, were submitted with this SDG. The precision criteria for all target analytes were met for these sample pairs, with the exception of total copper and total lead in the sample pair TP-3 (1.0-1.5)/Dup-2. The positive results for these target analytes were qualified as estimated (J) in these samples.

OVERALL ASSESSMENT

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the MS/MSD and LCS percent recovery values, with the exceptions noted above. Precision was acceptable, as demonstrated by the MS/MSD and laboratory/field duplicate RPD values, with the exceptions noted above.

The data are acceptable for the intended use, with the following qualifications listed below in Table D-2.



TABLE D-2 SUMMARY OF QUALIFIED SAMPLES

Sample ID	Analyte	Qualifier	Reason
HS-3 (0.0-0.5)	Total antimony	J	Laboratory Duplicate RPD
	Total barium	J	MS/MSD Recovery
	Total copper	J	MS/MSD Recovery and RPD
	Total mercury	J	Holding Time
TP-3 (1.0-1.5)	Total copper	J	Field Duplicate Precision
	Total lead	J	Field Duplicate Precision
Dup-2	Total copper	J	Field Duplicate Precision
	Total lead	J	Field Duplicate Precision
TP-9 (0.0-0.5)	Total antimony	UJ	MS/MSD Recovery
TP-9 (2.0-2.5)	Total antimony	UJ	MS/MSD Recovery
Dup-1	Total antimony	UJ	MS/MSD Recovery
TP-21 (0.5-1.0)	Total antimony	UJ	MS/MSD Recovery
TP-21 (1.0-1.5)	Total antimony	UJ	MS/MSD Recovery
XRF-41	Total mercury	UJ	Holding Time
XRF-63	Total antimony	J	MS/MSD Recovery and Precision
	Total barium	J	Laboratory Duplicate Precision
XRF-96	Total mercury	J	Holding Time
XRF-99	Total mercury	J	Holding Time
XRF-100	Total mercury	J	Holding Time

REFERENCES

GeoEngineers, Inc., 2019. "Northport Waterfront Remedial Investigation Work Plan," prepared for Washington State Department of Ecology. March 7, 2019.

U.S. Environmental Protection Agency (EPA), 2009. "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use," EPA-540-R-08-005. January 2009.

U.S. Environmental Protection Agency (EPA), 2017. "Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review," EPA-540-R-2017-001. January 2017.

ANALYTICAL REPORT

Eurofins TestAmerica, Spokane
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Laboratory Job ID: 590-10699-1

Client Project/Site: Northport Waterfront Remedial Investigat

For:

GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

Attn: Scott Lathen



Authorized for release by:
4/19/2019 11:27:34 AM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Job ID: 590-10699-1

Laboratory: Eurofins TestAmerica, Spokane

Narrative

Receipt

The samples were received on 3/29/2019 1:00 PM; the samples arrived in good condition. The temperatures of the 5 coolers at receipt time were 2.0° C, 2.9° C, 3.7° C, 6.6° C and 8.8° C.

Receipt Exceptions

The following samples were submitted to the laboratory on 04/02/2019 at 1615 and added to this job per the client's request: Dup-1 (590-10699-342) and Dup-2 (590-10699-343).

Metals

Method 6010C: The low level continuing calibration verification (CCVL) associated with batch 590-21733 recovered above the upper control limit for Thallium and Zinc. The samples associated with this CCV were either >10x or non-detects for the affected analytes; therefore, the data have been reported.

Method 6010C: The low level continuing calibration verification (CCVL) associated with batch 590-21733 recovered above the upper control limit for Thallium. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 6010C: The low level continuing calibration verification (CCVL) associated with batch 590-21815 recovered above the upper control limit for Thallium. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 6010C: The low level CCV failed below acceptance limits for Silver affecting the following samples: (590-10699-A-295-C MS) and (590-10699-A-295-D MSD).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-10699-1	TP-1 (0.0-0.5)	Solid	03/26/19 09:12	03/29/19 13:00
590-10699-2	TP-1 (0.5-1.0)	Solid	03/26/19 09:14	03/29/19 13:00
590-10699-8	TP-1 (3.5-4.0)	Solid	03/26/19 09:26	03/29/19 13:00
590-10699-17	TP-3 (0.0-0.5)	Solid	03/26/19 10:30	03/29/19 13:00
590-10699-18	TP-3 (0.5-1.0)	Solid	03/26/19 10:32	03/29/19 13:00
590-10699-19	TP-3 (1.0-1.5)	Solid	03/26/19 10:34	03/29/19 13:00
590-10699-25	TP-4 (0.0-0.5)	Solid	03/26/19 08:37	03/29/19 13:00
590-10699-26	TP-4 (0.5-1.0)	Solid	03/26/19 08:39	03/29/19 13:00
590-10699-32	TP-4 (3.5-4.0)	Solid	03/26/19 08:51	03/29/19 13:00
590-10699-33	TP-5 (0.0-0.5)	Solid	03/26/19 08:02	03/29/19 13:00
590-10699-34	TP-5 (0.5-1.0)	Solid	03/26/19 08:04	03/29/19 13:00
590-10699-35	TP-5 (1.0-1.5)	Solid	03/26/19 08:06	03/29/19 13:00
590-10699-41	TP-6 (0.0-0.5)	Solid	03/26/19 12:52	03/29/19 13:00
590-10699-42	TP-6 (0.5-1.0)	Solid	03/26/19 12:54	03/29/19 13:00
590-10699-45	TP-6 (2.0-2.5)	Solid	03/26/19 13:00	03/29/19 13:00
590-10699-49	TP-7 (0.0-0.5)	Solid	03/25/19 15:36	03/29/19 13:00
590-10699-50	TP-7 (0.5-1.0)	Solid	03/25/19 15:38	03/29/19 13:00
590-10699-65	TP-9 (0.0-0.5)	Solid	03/26/19 14:04	03/29/19 13:00
590-10699-69	TP-9 (2.0-2.5)	Solid	03/26/19 14:12	03/29/19 13:00
590-10699-73	TP-10 (0.0-0.5)	Solid	03/26/19 13:28	03/29/19 13:00
590-10699-74	TP-10 (0.5-1.0)	Solid	03/26/19 13:30	03/29/19 13:00
590-10699-75	TP-10 (1.0-1.5)	Solid	03/26/19 13:32	03/29/19 13:00
590-10699-82	TP-11 (0.5-1.0)	Solid	03/25/19 14:59	03/29/19 13:00
590-10699-88	TP-11 (3.5-4.0)	Solid	03/25/19 15:11	03/29/19 13:00
590-10699-89	TP-12 (0.0-0.5)	Solid	03/25/19 11:55	03/29/19 13:00
590-10699-91	TP-12 (1.0-1.5)	Solid	03/25/19 11:59	03/29/19 13:00
590-10699-97	TP-13 (0.0-0.5)	Solid	03/25/19 14:20	03/29/19 13:00
590-10699-117	TP-14 (0.0-0.5)	Solid	03/25/19 12:39	03/29/19 13:00
590-10699-119	TP-14 (1.0-1.5)	Solid	03/25/19 12:43	03/29/19 13:00
590-10699-120	TP-14 (1.5-2.0)	Solid	03/25/19 12:45	03/29/19 13:00
590-10699-133	TP-16 (0.0-0.5)	Solid	03/25/19 13:11	03/29/19 13:00
590-10699-134	TP-16 (0.5-1.0)	Solid	03/25/19 13:13	03/29/19 13:00
590-10699-139	TP-16 (3.0-3.5)	Solid	03/25/19 13:23	03/29/19 13:00
590-10699-149	TP-18 (0.0-0.5)	Solid	03/26/19 15:04	03/29/19 13:00
590-10699-157	TP-19 (0.0-0.5)	Solid	03/26/19 15:53	03/29/19 13:00
590-10699-158	TP-19 (0.5-1.0)	Solid	03/26/19 15:55	03/29/19 13:00
590-10699-160	TP-19 (1.5-2.0)	Solid	03/26/19 15:59	03/29/19 13:00
590-10699-174	TP-21 (0.5-1.0)	Solid	03/27/19 08:37	03/29/19 13:00
590-10699-175	TP-21 (1.0-1.5)	Solid	03/27/19 08:39	03/29/19 13:00
590-10699-181	TP-22 (0.0-0.5)	Solid	03/27/19 09:28	03/29/19 13:00
590-10699-182	TP-22 (0.5-1.0)	Solid	03/27/19 09:30	03/29/19 13:00
590-10699-183	TP-22 (1.0-1.5)	Solid	03/27/19 09:32	03/29/19 13:00
590-10699-189	TP-23 (0.0-0.5)	Solid	03/27/19 09:57	03/29/19 13:00
590-10699-205	TP-25 (0.0-0.5)	Solid	03/27/19 11:10	03/29/19 13:00
590-10699-224	HS-1 (1.5-2.0)	Solid	03/27/19 14:00	03/29/19 13:00
590-10699-226	HS-2 (0.0-0.5)	Solid	03/27/19 14:07	03/29/19 13:00
590-10699-227	HS-2 (0.5-1.0)	Solid	03/27/19 14:09	03/29/19 13:00
590-10699-228	HS-2 (1.0-1.5)	Solid	03/27/19 14:11	03/29/19 13:00
590-10699-231	HS-3 (0.5-1.0)	Solid	03/27/19 15:06	03/29/19 13:00
590-10699-233	XRF-1	Solid	03/25/19 14:24	03/29/19 13:00
590-10699-239	XRF-7	Solid	03/25/19 15:40	03/29/19 13:00
590-10699-243	XRF-11	Solid	03/26/19 08:24	03/29/19 13:00
590-10699-256	XRF-24	Solid	03/26/19 11:04	03/29/19 13:00

Sample Summary

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-10699-258	XRF-26	Solid	03/26/19 11:41	03/29/19 13:00
590-10699-281	XRF-49	Solid	03/27/19 08:41	03/29/19 13:00
590-10699-282	XRF-50	Solid	03/27/19 08:55	03/29/19 13:00
590-10699-295	XRF-63	Solid	03/27/19 12:46	03/29/19 13:00
590-10699-298	XRF-66	Solid	03/27/19 13:05	03/29/19 13:00
590-10699-342	Dup-1	Solid	03/26/19 08:00	03/29/19 13:00
590-10699-343	Dup-2	Solid	03/26/19 08:30	03/29/19 13:00

- 1
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- 12

Definitions/Glossary

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Qualifiers

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-1 (0.0-0.5)

Lab Sample ID: 590-10699-1

Date Collected: 03/26/19 09:12

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 96.0

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	13000		400		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Antimony	24		20		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Arsenic	18		10		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Barium	780		10		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Beryllium	ND		10		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Cadmium	ND		8.1		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Calcium	46000		810		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Chromium	56		10		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Cobalt	28		10		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Copper	1200		32		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Iron	120000		810		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Lead	1900		24		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Magnesium	7400		400		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Manganese	3800		120		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Nickel	14		10		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Potassium	3600		200		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Selenium	ND		40		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Silver	ND		10		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Sodium	1600		200		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Thallium	ND	^	20		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Vanadium	42		10		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10
Zinc	13000		40		mg/Kg	☼	04/09/19 12:59	04/11/19 17:53	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		51		ug/Kg	☼	04/10/19 14:31	04/12/19 14:01	1

Client Sample ID: TP-1 (0.5-1.0)

Lab Sample ID: 590-10699-2

Date Collected: 03/26/19 09:14

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 96.7

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	7600		220		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Antimony	12		11		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Arsenic	9.3		5.5		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Barium	330		5.5		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Beryllium	ND		5.5		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Cadmium	ND		4.4		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Calcium	16000		440		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Chromium	29		5.5		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Cobalt	14		5.5		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Copper	590		18		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Iron	52000		440		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Lead	470		13		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Magnesium	4200		220		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Manganese	1200		66		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Nickel	13		5.5		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Potassium	1300		110		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Selenium	ND		22		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-1 (0.5-1.0)

Date Collected: 03/26/19 09:14

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-2

Matrix: Solid

Percent Solids: 96.7

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.5		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Sodium	460		110		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Thallium	ND	^	11		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Vanadium	29		5.5		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5
Zinc	4500		22		mg/Kg	☼	04/09/19 12:59	04/11/19 10:14	5

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		51		ug/Kg	☼	04/10/19 14:31	04/12/19 14:10	1

Client Sample ID: TP-1 (3.5-4.0)

Date Collected: 03/26/19 09:26

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-8

Matrix: Solid

Percent Solids: 95.6

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5600		42		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Antimony	2.1		2.1		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Arsenic	4.9		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Barium	69		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Beryllium	ND		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Cadmium	ND		0.84		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Calcium	3900		84		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Chromium	12		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Cobalt	6.1		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Copper	170		3.4		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Iron	17000		84		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Lead	100		2.5		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Magnesium	4000		42		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Manganese	330		13		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Nickel	11		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Potassium	470		21		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Selenium	ND		4.2		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Silver	ND		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Sodium	110		21		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Thallium	ND	^	2.1		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Vanadium	24		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1
Zinc	620		4.2		mg/Kg	☼	04/09/19 12:59	04/11/19 10:40	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg	☼	04/10/19 14:31	04/12/19 14:13	1

Client Sample ID: TP-3 (0.0-0.5)

Date Collected: 03/26/19 10:30

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-17

Matrix: Solid

Percent Solids: 89.4

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	6400		210		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Antimony	11		11		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-3 (0.0-0.5)

Lab Sample ID: 590-10699-17

Date Collected: 03/26/19 10:30

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 89.4

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.5		5.3		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Barium	450		5.3		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Beryllium	ND		5.3		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Cadmium	4.6		4.2		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Calcium	37000		420		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Chromium	25		5.3		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Cobalt	11		5.3		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Copper	320		17		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Iron	45000		420		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Lead	570		13		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Magnesium	14000		210		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Manganese	990		64		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Nickel	11		5.3		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Potassium	1100		110		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Selenium	ND		21		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Silver	ND		5.3		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Sodium	350		110		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Thallium	ND [^]		11		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Vanadium	27		5.3		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5
Zinc	3900		21		mg/Kg	☼	04/09/19 12:59	04/11/19 10:44	5

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	92		50		ug/Kg	☼	04/10/19 14:31	04/12/19 14:15	1

Client Sample ID: TP-3 (0.5-1.0)

Lab Sample ID: 590-10699-18

Date Collected: 03/26/19 10:32

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 97.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	15000		2200		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Antimony	ND		110		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Arsenic	ND		56		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Barium	720		56		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Beryllium	ND		56		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Cadmium	ND		45		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Calcium	60000		4500		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Chromium	ND		56		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Cobalt	ND		56		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Copper	1000		180		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Iron	150000		4500		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Lead	5700		130		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Magnesium	7800		2200		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Manganese	6500		670		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Nickel	ND		56		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Potassium	3600		1100		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Selenium	ND		220		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Silver	ND		56		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Sodium	1100		1100		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-3 (0.5-1.0)

Date Collected: 03/26/19 10:32

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-18

Matrix: Solid

Percent Solids: 97.2

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND	^	110		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Vanadium	ND		56		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50
Zinc	23000		220		mg/Kg	☼	04/09/19 12:59	04/11/19 17:57	50

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:31	04/12/19 14:17	1

Client Sample ID: TP-3 (1.0-1.5)

Date Collected: 03/26/19 10:34

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-19

Matrix: Solid

Percent Solids: 96.0

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	4800		47		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Antimony	ND		2.3		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Arsenic	4.3		1.2		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Barium	48		1.2		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Beryllium	ND		1.2		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Cadmium	2.1		0.93		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Calcium	2400		93		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Chromium	15		1.2		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Cobalt	5.2		1.2		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Copper	68		3.7		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Iron	17000		93		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Lead	15		2.8		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Magnesium	2900		47		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Manganese	250		14		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Nickel	11		1.2		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Potassium	490		23		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Selenium	ND		4.7		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Silver	ND		1.2		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Sodium	77		23		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Thallium	ND	^	2.3		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Vanadium	34		1.2		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1
Zinc	360		4.7		mg/Kg	☼	04/09/19 12:59	04/11/19 10:51	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:31	04/12/19 14:24	1

Client Sample ID: TP-4 (0.0-0.5)

Date Collected: 03/26/19 08:37

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-25

Matrix: Solid

Percent Solids: 97.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	14000		390		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Antimony	30		19		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Arsenic	24		9.7		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Barium	1300		9.7		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-4 (0.0-0.5)

Lab Sample ID: 590-10699-25

Date Collected: 03/26/19 08:37

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 97.1

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		9.7		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Cadmium	ND		7.7		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Calcium	50000		770		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Chromium	88		9.7		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Cobalt	42		9.7		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Copper	1900		31		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Iron	150000		770		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Lead	2600		23		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Magnesium	6200		390		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Manganese	3100		120		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Nickel	18		9.7		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Potassium	2700		190		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Selenium	ND		39		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Silver	ND		9.7		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Sodium	1300		190		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Thallium	ND [^]		19		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Vanadium	38		9.7		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10
Zinc	13000		39		mg/Kg	☼	04/09/19 12:59	04/11/19 18:01	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg	☼	04/10/19 14:31	04/12/19 14:26	1

Client Sample ID: TP-4 (0.5-1.0)

Lab Sample ID: 590-10699-26

Date Collected: 03/26/19 08:39

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 97.4

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	3800		38		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Antimony	ND		1.9		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Arsenic	2.4		0.95		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Barium	35		0.95		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Beryllium	ND		0.95		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Cadmium	ND		0.76		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Calcium	1800		76		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Chromium	9.4		0.95		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Cobalt	4.7		0.95		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Copper	340		3.0		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Iron	8800		76		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Lead	5.8		2.3		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Magnesium	2300		38		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Manganese	160		11		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Nickel	10		0.95		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Potassium	480		19		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Selenium	ND		3.8		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Silver	ND		0.95		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Sodium	66		19		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Thallium	ND [^]		1.9		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1
Vanadium	16		0.95		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-4 (0.5-1.0)

Date Collected: 03/26/19 08:39

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-26

Matrix: Solid

Percent Solids: 97.4

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	49		3.8		mg/Kg	☼	04/09/19 12:59	04/11/19 10:59	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:31	04/12/19 14:29	1

Client Sample ID: TP-4 (3.5-4.0)

Date Collected: 03/26/19 08:51

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-32

Matrix: Solid

Percent Solids: 94.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	4900		41		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Antimony	4.9		2.0		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Arsenic	2.7		1.0		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Barium	110		1.0		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Beryllium	ND		1.0		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Cadmium	ND		0.81		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Calcium	4200		81		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Chromium	13		1.0		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Cobalt	6.1		1.0		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Copper	240		3.2		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Iron	15000		81		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Lead	12		2.4		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Magnesium	2600		41		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Manganese	290		12		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Nickel	9.8		1.0		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Potassium	590		20		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Selenium	ND		4.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Silver	ND		1.0		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Sodium	160		20		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Thallium	ND	^	2.0		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Vanadium	18		1.0		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1
Zinc	570		4.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:02	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:31	04/12/19 14:31	1

Client Sample ID: TP-5 (0.0-0.5)

Date Collected: 03/26/19 08:02

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-33

Matrix: Solid

Percent Solids: 96.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	15000		2200		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Antimony	ND		110		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Arsenic	ND		55		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Barium	890		55		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Beryllium	ND		55		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Cadmium	ND		44		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-5 (0.0-0.5)

Lab Sample ID: 590-10699-33

Date Collected: 03/26/19 08:02

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 96.1

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	64000		4400		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Chromium	57		55		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Cobalt	ND		55		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Copper	1300		180		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Iron	170000		4400		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Lead	4900		130		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Magnesium	8600		2200		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Manganese	6100		660		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Nickel	ND		55		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Potassium	4000		1100		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Selenium	ND		220		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Silver	ND		55		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Sodium	1500		1100		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Thallium	ND	^	110		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Vanadium	ND		55		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50
Zinc	25000		220		mg/Kg	☼	04/09/19 12:59	04/11/19 18:14	50

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	110		49		ug/Kg	☼	04/10/19 14:31	04/12/19 14:33	1

Client Sample ID: TP-5 (0.5-1.0)

Lab Sample ID: 590-10699-34

Date Collected: 03/26/19 08:04

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 90.0

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	6400		37		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Antimony	ND		1.8		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Arsenic	8.9		0.91		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Barium	76		0.91		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Beryllium	ND		4.6		mg/Kg	☼	04/09/19 12:59	04/17/19 11:28	5
Cadmium	0.96		0.73		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Calcium	3900		73		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Chromium	31		0.91		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Cobalt	9.7		0.91		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Copper	990		2.9		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Iron	28000		73		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Lead	130		2.2		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Magnesium	4300		37		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Manganese	310		11		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Nickel	25		0.91		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Potassium	610		18		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Selenium	ND		3.7		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Silver	ND		0.91		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Sodium	120		18		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Thallium	ND	^	1.8		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Vanadium	57		0.91		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1
Zinc	860		3.7		mg/Kg	☼	04/09/19 12:59	04/11/19 11:10	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-5 (0.5-1.0)

Date Collected: 03/26/19 08:04

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-34

Matrix: Solid

Percent Solids: 90.0

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		51		ug/Kg	☼	04/10/19 14:31	04/12/19 14:35	1

Client Sample ID: TP-5 (1.0-1.5)

Date Collected: 03/26/19 08:06

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-35

Matrix: Solid

Percent Solids: 94.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5300		45		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Antimony	ND		2.3		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Arsenic	5.9		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Barium	63		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Beryllium	ND		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Cadmium	ND		0.90		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Calcium	3600		90		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Chromium	16		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Cobalt	5.8		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Copper	100		3.6		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Iron	18000		90		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Lead	57		2.7		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Magnesium	3000		45		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Manganese	230		14		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Nickel	13		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Potassium	650		23		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Selenium	ND		4.5		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Silver	ND		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Sodium	120		23		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Thallium	ND [^]		2.3		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Vanadium	34		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1
Zinc	310		4.5		mg/Kg	☼	04/09/19 12:59	04/11/19 11:13	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:31	04/12/19 14:38	1

Client Sample ID: TP-6 (0.0-0.5)

Date Collected: 03/26/19 12:52

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-41

Matrix: Solid

Percent Solids: 100.0

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	10000		190		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Antimony	ND		9.3		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Arsenic	14		4.6		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Barium	360		4.6		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Beryllium	ND		4.6		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Cadmium	ND		3.7		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Calcium	22000		370		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Chromium	30		4.6		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Cobalt	15		4.6		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Copper	550		15		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-6 (0.0-0.5)

Lab Sample ID: 590-10699-41

Date Collected: 03/26/19 12:52

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 100.0

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	57000		370		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Lead	1100		11		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Magnesium	6500		190		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Manganese	1300		56		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Nickel	14		4.6		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Potassium	2400		93		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Selenium	ND		19		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Silver	ND		4.6		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Sodium	1100		93		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Thallium	ND	^	9.3		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Vanadium	53		4.6		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5
Zinc	4400	^	19		mg/Kg	☼	04/09/19 12:59	04/11/19 11:27	5

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	97		49		ug/Kg	☼	04/10/19 14:33	04/12/19 14:45	1

Client Sample ID: TP-6 (0.5-1.0)

Lab Sample ID: 590-10699-42

Date Collected: 03/26/19 12:54

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 87.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5900		44		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Antimony	ND		2.2		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Arsenic	12		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Barium	65		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Beryllium	ND		5.5		mg/Kg	☼	04/09/19 12:59	04/17/19 11:42	5
Cadmium	ND		0.88		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Calcium	2600		88		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Chromium	36		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Cobalt	9.6		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Copper	610		3.5		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Iron	32000		88		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Lead	38		2.6		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Magnesium	2800		44		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Manganese	210		13		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Nickel	17		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Potassium	570		22		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Selenium	ND		4.4		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Silver	ND		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Sodium	64		22		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Thallium	ND	^	2.2		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Vanadium	76		1.1		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1
Zinc	230	^	4.4		mg/Kg	☼	04/09/19 12:59	04/11/19 11:30	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	53		49		ug/Kg	☼	04/10/19 14:33	04/12/19 14:58	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-6 (2.0-2.5)

Lab Sample ID: 590-10699-45

Date Collected: 03/26/19 13:00

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 87.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5400		85		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Antimony	ND		4.3		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Arsenic	11		2.1		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Barium	54		2.1		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Beryllium	ND		5.3		mg/Kg	☼	04/09/19 12:59	04/17/19 11:46	5
Cadmium	ND		1.7		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Calcium	2900		170		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Chromium	43		2.1		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Cobalt	9.0		2.1		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Copper	53		6.8		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Iron	50000		170		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Lead	10		5.1		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Magnesium	2900		85		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Manganese	290		26		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Nickel	17		2.1		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Potassium	570		43		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Selenium	ND		8.5		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Silver	ND		2.1		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Sodium	84		43		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Thallium	ND ^		4.3		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Vanadium	110		2.1		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2
Zinc	44		8.5		mg/Kg	☼	04/09/19 12:59	04/11/19 18:18	2

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg	☼	04/10/19 14:33	04/12/19 15:01	1

Client Sample ID: TP-7 (0.0-0.5)

Lab Sample ID: 590-10699-49

Date Collected: 03/25/19 15:36

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 96.5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	14000		400		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Antimony	39		20		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Arsenic	28		10		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Barium	1300		10		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Beryllium	ND		10		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Cadmium	ND		8.0		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Calcium	50000		800		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Chromium	87		10		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Cobalt	42		10		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Copper	1800		32		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Iron	150000		800		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Lead	980		24		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Magnesium	5900		400		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Manganese	3100		120		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Nickel	17		10		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Potassium	2900		200		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Selenium	ND		40		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-7 (0.0-0.5)

Date Collected: 03/25/19 15:36

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-49

Matrix: Solid

Percent Solids: 96.5

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		10		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Sodium	1500		200		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Thallium	ND ^		20		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Vanadium	38		10		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10
Zinc	14000		40		mg/Kg	☼	04/09/19 12:59	04/11/19 18:21	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg	☼	04/10/19 14:33	04/12/19 15:03	1

Client Sample ID: TP-7 (0.5-1.0)

Date Collected: 03/25/19 15:38

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-50

Matrix: Solid

Percent Solids: 97.8

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	6100		38		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Antimony	6.4		1.9		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Arsenic	5.5		0.94		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Barium	180		0.94		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Beryllium	ND		4.7		mg/Kg	☼	04/09/19 12:59	04/17/19 11:49	5
Cadmium	7.3		0.75		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Calcium	7600		75		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Chromium	23		0.94		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Cobalt	8.9		0.94		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Copper	380		3.0		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Iron	26000		75		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Lead	70		2.3		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Magnesium	3200		38		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Manganese	600		11		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Nickel	13		0.94		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Potassium	810		19		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Selenium	ND		3.8		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Silver	ND		0.94		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Sodium	230		19		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Thallium	ND ^		1.9		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Vanadium	31		0.94		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1
Zinc	1400 ^		3.8		mg/Kg	☼	04/09/19 12:59	04/11/19 11:42	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:33	04/12/19 15:05	1

Client Sample ID: TP-9 (0.0-0.5)

Date Collected: 03/26/19 14:04

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-65

Matrix: Solid

Percent Solids: 97.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	15000		2000		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Antimony	ND		98		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-9 (0.0-0.5)

Lab Sample ID: 590-10699-65

Date Collected: 03/26/19 14:04

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 97.1

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		49		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Barium	400		49		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Beryllium	ND		49		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Cadmium	ND		39		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Calcium	110000		3900		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Chromium	ND		49		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Cobalt	ND		49		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Copper	390		160		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Iron	210000		3900		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Lead	8800		120		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Magnesium	9800		2000		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Manganese	19000		590		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Nickel	ND		49		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Potassium	4200		980		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Selenium	ND		200		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Silver	ND		49		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Sodium	1100		980		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Thallium	ND ^		98		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Vanadium	ND		49		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50
Zinc	37000		200		mg/Kg	☼	04/09/19 12:59	04/11/19 18:25	50

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg	☼	04/10/19 14:33	04/12/19 15:08	1

Client Sample ID: TP-9 (2.0-2.5)

Lab Sample ID: 590-10699-69

Date Collected: 03/26/19 14:12

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 97.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	14000		2100		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Antimony	ND	F1	110		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Arsenic	ND		54		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Barium	330	F1	54		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Beryllium	ND		54		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Cadmium	ND		43		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Calcium	100000		4300		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Chromium	ND		54		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Cobalt	ND		54		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Copper	370		170		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Iron	190000		4300		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Lead	7300		130		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Magnesium	9100	F1	2100		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Manganese	18000		640		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Nickel	ND		54		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Potassium	4100	F1	1100		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Selenium	ND		210		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Silver	ND		54		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Sodium	1100		1100		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-9 (2.0-2.5)

Date Collected: 03/26/19 14:12

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-69

Matrix: Solid
Percent Solids: 97.2

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND	^	110		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Vanadium	ND		54		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50
Zinc	33000		210		mg/Kg	☼	04/09/19 13:01	04/11/19 18:29	50

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		48		ug/Kg	☼	04/10/19 14:33	04/12/19 15:10	1

Client Sample ID: TP-10 (0.0-0.5)

Date Collected: 03/26/19 13:28

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-73

Matrix: Solid
Percent Solids: 99.9

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	8800		230		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Antimony	ND		11		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Arsenic	15		5.6		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Barium	520		5.6		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Beryllium	ND		5.6		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Cadmium	6.3		4.5		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Calcium	29000		450		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Chromium	28		5.6		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Cobalt	13		5.6		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Copper	850		18		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Iron	67000		450		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Lead	1500		14		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Magnesium	11000		230		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Manganese	2000		68		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Nickel	17		5.6		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Potassium	1400		110		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Selenium	ND		23		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Silver	7.9		5.6		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Sodium	340		110		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Thallium	ND	^	11		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Vanadium	34		5.6		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5
Zinc	6700	^	23		mg/Kg	☼	04/09/19 13:01	04/11/19 12:31	5

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	280		48		ug/Kg	☼	04/10/19 14:33	04/12/19 15:12	1

Client Sample ID: TP-10 (0.5-1.0)

Date Collected: 03/26/19 13:30

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-74

Matrix: Solid
Percent Solids: 93.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	13000		450		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Antimony	ND		22		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Arsenic	41		11		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Barium	260		11		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-10 (0.5-1.0)

Lab Sample ID: 590-10699-74

Date Collected: 03/26/19 13:30

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 93.2

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		11		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Cadmium	ND		8.9		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Calcium	45000		890		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Chromium	19		11		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Cobalt	23		11		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Copper	1300		36		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Iron	88000		890		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Lead	5600		27		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Magnesium	7700		450		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Manganese	4000		130		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Nickel	14		11		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Potassium	5000		220		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Selenium	ND		45		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Silver	15		11		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Sodium	1900		220		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Thallium	ND ^		22		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Vanadium	45		11		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10
Zinc	12000		45		mg/Kg	☼	04/09/19 13:01	04/11/19 18:47	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg	☼	04/10/19 14:33	04/12/19 15:19	1

Client Sample ID: TP-10 (1.0-1.5)

Lab Sample ID: 590-10699-75

Date Collected: 03/26/19 13:32

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 99.6

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	6400		40		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Antimony	ND		2.0		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Arsenic	6.2		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Barium	67		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Beryllium	ND		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Cadmium	ND		0.81		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Calcium	3400		81		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Chromium	22		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Cobalt	6.3		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Copper	22		3.2		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Iron	16000		81		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Lead	37		2.4		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Magnesium	3600		40		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Manganese	230		12		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Nickel	14		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Potassium	660		20		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Selenium	ND		4.0		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Silver	ND		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Sodium	120		20		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Thallium	ND ^		2.0		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1
Vanadium	30		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-10 (1.0-1.5)

Date Collected: 03/26/19 13:32

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-75

Matrix: Solid

Percent Solids: 99.6

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	220	^	4.0		mg/Kg	☼	04/09/19 13:01	04/11/19 12:48	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		47		ug/Kg	☼	04/10/19 14:33	04/12/19 15:21	1

Client Sample ID: TP-11 (0.5-1.0)

Date Collected: 03/25/19 14:59

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-82

Matrix: Solid

Percent Solids: 96.3

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	16000		390		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Antimony	ND		19		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Arsenic	43		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Barium	440		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Beryllium	ND		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Cadmium	ND		7.8		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Calcium	50000		780		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Chromium	34		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Cobalt	35		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Copper	1800		31		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Iron	120000		780		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Lead	4700		23		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Magnesium	9300		390		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Manganese	4000		120		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Nickel	13		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Potassium	5700		190		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Selenium	ND		39		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Silver	ND		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Sodium	2200		190		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Thallium	ND	^	19		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Vanadium	65		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10
Zinc	16000	^	39		mg/Kg	☼	04/09/19 13:01	04/11/19 19:02	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		48		ug/Kg	☼	04/10/19 14:33	04/12/19 15:24	1

Client Sample ID: TP-11 (3.5-4.0)

Date Collected: 03/25/19 15:11

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-88

Matrix: Solid

Percent Solids: 96.8

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	6500		77		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Antimony	4.3		3.9		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Arsenic	6.9		1.9		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Barium	120		1.9		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Beryllium	ND		1.9		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Cadmium	ND		1.5		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-11 (3.5-4.0)

Lab Sample ID: 590-10699-88

Date Collected: 03/25/19 15:11

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 96.8

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	8300		150		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Chromium	18		1.9		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Cobalt	9.0		1.9		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Copper	440		6.2		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Iron	29000		150		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Lead	640		4.6		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Magnesium	3900		77		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Manganese	670		23		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Nickel	13		1.9		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Potassium	1100		39		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Selenium	ND		7.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Silver	ND		1.9		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Sodium	340		39		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Thallium	ND	^	3.9		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Vanadium	27		1.9		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2
Zinc	2300	^	7.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:05	2

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg	☼	04/10/19 14:33	04/12/19 15:26	1

Client Sample ID: TP-12 (0.0-0.5)

Lab Sample ID: 590-10699-89

Date Collected: 03/25/19 11:55

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 98.5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	15000		1700		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Antimony	ND		84		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Arsenic	ND		42		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Barium	320		42		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Beryllium	ND		42		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Cadmium	ND		34		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Calcium	120000		3400		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Chromium	ND		42		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Cobalt	ND		42		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Copper	400		130		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Iron	200000		3400		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Lead	11000		100		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Magnesium	10000		1700		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Manganese	18000		500		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Nickel	ND		42		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Potassium	5000		840		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Selenium	ND		170		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Silver	ND		42		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Sodium	ND		840		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Thallium	ND	^	84		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Vanadium	ND		42		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50
Zinc	46000	^	170		mg/Kg	☼	04/09/19 13:01	04/11/19 19:09	50

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-12 (0.0-0.5)

Date Collected: 03/25/19 11:55

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-89

Matrix: Solid

Percent Solids: 98.5

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg	☼	04/10/19 14:33	04/12/19 15:28	1

Client Sample ID: TP-12 (1.0-1.5)

Date Collected: 03/25/19 11:59

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-91

Matrix: Solid

Percent Solids: 93.3

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	7200		410		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Antimony	ND		20		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Arsenic	10		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Barium	120		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Beryllium	ND		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Cadmium	12		8.2		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Calcium	14000		820		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Chromium	22		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Cobalt	10		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Copper	200		33		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Iron	39000		820		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Lead	1400		25		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Magnesium	4300		410		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Manganese	1800		120		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Nickel	21		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Potassium	1500		200		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Selenium	ND		41		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Silver	ND		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Sodium	340		200		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Thallium	ND	^	20		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Vanadium	44		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10
Zinc	3700	^	41		mg/Kg	☼	04/09/19 13:01	04/11/19 19:13	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg	☼	04/10/19 14:33	04/12/19 15:31	1

Client Sample ID: TP-13 (0.0-0.5)

Date Collected: 03/25/19 14:20

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-97

Matrix: Solid

Percent Solids: 94.7

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	16000		1900		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Antimony	ND		96		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Arsenic	ND		48		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Barium	770		48		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Beryllium	ND		48		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Cadmium	ND		39		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Calcium	52000		3900		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Chromium	53		48		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Cobalt	ND		48		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Copper	1100		150		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-13 (0.0-0.5)

Lab Sample ID: 590-10699-97

Date Collected: 03/25/19 14:20

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 94.7

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	170000		3900		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Lead	2900		120		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Magnesium	7400		1900		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Manganese	4500		580		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Nickel	ND		48		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Potassium	3300		960		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Selenium	ND		190		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Silver	ND		48		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Sodium	1100		960		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Thallium	ND	^	96		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Vanadium	ND		48		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50
Zinc	21000	^	190		mg/Kg	☼	04/09/19 13:01	04/11/19 19:16	50

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	97		49		ug/Kg	☼	04/10/19 14:33	04/12/19 15:33	1

Client Sample ID: TP-14 (0.0-0.5)

Lab Sample ID: 590-10699-117

Date Collected: 03/25/19 12:39

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 95.3

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	22000		1800		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Antimony	ND		91		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Arsenic	ND		46		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Barium	640		46		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Beryllium	ND		46		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Cadmium	ND		36		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Calcium	77000		3600		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Chromium	52		46		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Cobalt	ND		46		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Copper	1200		150		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Iron	160000		3600		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Lead	3900		110		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Magnesium	12000		1800		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Manganese	5000		550		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Nickel	ND		46		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Potassium	7900		910		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Selenium	ND		180		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Silver	ND		46		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Sodium	3700		910		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Thallium	ND	^	91		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Vanadium	76		46		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50
Zinc	19000	^	180		mg/Kg	☼	04/09/19 13:01	04/11/19 19:20	50

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:33	04/12/19 15:35	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-14 (1.0-1.5)

Lab Sample ID: 590-10699-119

Date Collected: 03/25/19 12:43

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 93.8

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	11000		200		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Antimony	ND		9.9		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Arsenic	19		5.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Barium	170		5.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Beryllium	ND		5.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Cadmium	ND		4.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Calcium	21000		400		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Chromium	22		5.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Cobalt	19		5.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Copper	470		16		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Iron	40000		400		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Lead	280		12		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Magnesium	6200		200		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Manganese	420		60		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Nickel	17		5.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Potassium	3800		99		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Selenium	ND		20		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Silver	ND		5.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Sodium	1900		99		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Thallium	ND	^	9.9		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Vanadium	61		5.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5
Zinc	670	^	20		mg/Kg	☼	04/09/19 13:01	04/11/19 13:14	5

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		48		ug/Kg	☼	04/10/19 14:33	04/12/19 15:38	1

Client Sample ID: TP-14 (1.5-2.0)

Lab Sample ID: 590-10699-120

Date Collected: 03/25/19 12:45

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 90.7

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5900		40		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Antimony	ND		2.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Arsenic	5.4		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Barium	85		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Beryllium	ND		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Cadmium	0.90		0.81		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Calcium	5000		81		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Chromium	25		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Cobalt	8.2		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Copper	110		3.2		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Iron	26000		81		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Lead	40		2.4		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Magnesium	3200		40		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Manganese	310		12		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Nickel	15		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Potassium	1200		20		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Selenium	ND		4.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-14 (1.5-2.0)

Date Collected: 03/25/19 12:45

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-120

Matrix: Solid
Percent Solids: 90.7

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Sodium	330		20		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Thallium	ND ^		2.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Vanadium	58		1.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1
Zinc	210 ^		4.0		mg/Kg	☼	04/09/19 13:01	04/11/19 13:18	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:33	04/12/19 15:40	1

Client Sample ID: TP-16 (0.0-0.5)

Date Collected: 03/25/19 13:11

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-133

Matrix: Solid
Percent Solids: 95.3

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	12000		390		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Antimony	32		20		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Arsenic	15		9.8		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Barium	1100		9.8		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Beryllium	ND		9.8		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Cadmium	ND		7.8		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Calcium	56000		780		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Chromium	79		9.8		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Cobalt	35		9.8		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Copper	1300		31		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Iron	130000		780		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Lead	320		23		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Magnesium	11000		390		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Manganese	2300		120		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Nickel	14		9.8		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Potassium	2500		200		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Selenium	ND		39		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Silver	ND		9.8		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Sodium	1200		200		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Thallium	ND ^		20		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Vanadium	36		9.8		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10
Zinc	10000 ^		39		mg/Kg	☼	04/09/19 13:01	04/11/19 19:24	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg	☼	04/10/19 14:33	04/12/19 15:47	1

Client Sample ID: TP-16 (0.5-1.0)

Date Collected: 03/25/19 13:13

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-134

Matrix: Solid
Percent Solids: 96.5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	14000		390		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Antimony	31		19		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-16 (0.5-1.0)

Lab Sample ID: 590-10699-134

Date Collected: 03/25/19 13:13

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 96.5

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	17		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Barium	1300		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Beryllium	ND		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Cadmium	ND		7.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Calcium	49000		770		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Chromium	94		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Cobalt	42		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Copper	1600		31		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Iron	150000		770		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Lead	350		23		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Magnesium	5600		390		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Manganese	2800		120		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Nickel	14		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Potassium	2800		190		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Selenium	ND		39		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Silver	ND		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Sodium	1300		190		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Thallium	ND	^	19		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Vanadium	38		9.7		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10
Zinc	12000	^	39		mg/Kg	☼	04/09/19 13:01	04/11/19 19:27	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg	☼	04/10/19 14:41	04/12/19 15:54	1

Client Sample ID: TP-16 (3.0-3.5)

Lab Sample ID: 590-10699-139

Date Collected: 03/25/19 13:23

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 97.4

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	41000		200		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Antimony	ND		9.9		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Arsenic	31		4.9		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Barium	690		4.9		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Beryllium	ND		9.9		mg/Kg	☼	04/09/19 13:01	04/17/19 11:53	10
Cadmium	ND		3.9		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Calcium	96000		390		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Chromium	43		4.9		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Cobalt	50		4.9		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Copper	1400		16		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Iron	110000		390		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Lead	1400		12		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Magnesium	22000		200		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Manganese	1300		59		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Nickel	11		4.9		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Potassium	20000		99		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Selenium	ND		20		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Silver	ND		4.9		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Sodium	11000		99		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-16 (3.0-3.5)

Date Collected: 03/25/19 13:23

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-139

Matrix: Solid
Percent Solids: 97.4

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND	^	9.9		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Vanadium	130		4.9		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5
Zinc	2000	^	20		mg/Kg	☼	04/09/19 13:01	04/11/19 13:38	5

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		48		ug/Kg	☼	04/10/19 14:41	04/12/19 16:03	1

Client Sample ID: TP-18 (0.0-0.5)

Date Collected: 03/26/19 15:04

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-149

Matrix: Solid
Percent Solids: 96.5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	13000		420		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Antimony	32		21		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Arsenic	17		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Barium	1200		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Beryllium	ND		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Cadmium	ND		8.4		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Calcium	41000		840		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Chromium	91		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Cobalt	41		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Copper	1500		33		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Iron	130000		840		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Lead	260		25		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Magnesium	5800		420		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Manganese	2600		130		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Nickel	17		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Potassium	2300		210		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Selenium	ND		42		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Silver	ND		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Sodium	1200		210		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Thallium	ND	^	21		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Vanadium	43		10		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10
Zinc	10000	^	42		mg/Kg	☼	04/09/19 13:01	04/11/19 19:31	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg	☼	04/10/19 14:41	04/12/19 16:06	1

Client Sample ID: TP-19 (0.0-0.5)

Date Collected: 03/26/19 15:53

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-157

Matrix: Solid
Percent Solids: 99.0

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	17000		370		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Antimony	ND		19		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Arsenic	14		9.3		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Barium	840		9.3		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-19 (0.0-0.5)

Lab Sample ID: 590-10699-157

Date Collected: 03/26/19 15:53

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 99.0

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		9.3		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Cadmium	ND		7.5		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Calcium	51000		750		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Chromium	46		9.3		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Cobalt	22		9.3		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Copper	840		30		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Iron	120000		750		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Lead	1600		22		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Magnesium	7800		370		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Manganese	3500		110		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Nickel	ND		9.3		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Potassium	4700		190		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Selenium	ND		37		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Silver	ND		9.3		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Sodium	2200		190		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Thallium	ND	^	19		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Vanadium	49		9.3		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10
Zinc	12000	^	37		mg/Kg	☼	04/09/19 13:01	04/11/19 19:35	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:41	04/12/19 16:08	1

Client Sample ID: TP-19 (0.5-1.0)

Lab Sample ID: 590-10699-158

Date Collected: 03/26/19 15:55

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 99.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	46000		210		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Antimony	ND		11		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Arsenic	45		5.3		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Barium	660		5.3		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Beryllium	ND		5.3		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Cadmium	ND		4.3		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Calcium	110000		430		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Chromium	52		5.3		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Cobalt	52		5.3		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Copper	1900		17		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Iron	110000		430		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Lead	56		13		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Magnesium	26000		210		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Manganese	640		64		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Nickel	12		5.3		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Potassium	21000		110		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Selenium	ND		21		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Silver	ND		5.3		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Sodium	12000		110		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Thallium	ND	^	11		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5
Vanadium	170		5.3		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-19 (0.5-1.0)

Date Collected: 03/26/19 15:55

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-158

Matrix: Solid

Percent Solids: 99.1

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	240	^	21		mg/Kg	☼	04/09/19 13:01	04/11/19 13:50	5

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:41	04/12/19 16:15	1

Client Sample ID: TP-19 (1.5-2.0)

Date Collected: 03/26/19 15:59

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-160

Matrix: Solid

Percent Solids: 96.6

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	8800		180		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Antimony	ND		8.8		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Arsenic	7.2		4.4		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Barium	150		4.4		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Beryllium	ND		4.4		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Cadmium	ND		3.5		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Calcium	19000		350		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Chromium	19		4.4		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Cobalt	8.7		4.4		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Copper	200		14		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Iron	29000		350		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Lead	170		11		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Magnesium	6600		180		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Manganese	520		53		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Nickel	15		4.4		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Potassium	2700		88		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Selenium	ND		18		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Silver	ND		4.4		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Sodium	1200		88		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Thallium	ND	^	8.8		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Vanadium	36		4.4		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5
Zinc	1100	^	18		mg/Kg	☼	04/09/19 13:01	04/11/19 13:53	5

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg	☼	04/10/19 14:41	04/12/19 16:17	1

Client Sample ID: TP-21 (0.5-1.0)

Date Collected: 03/27/19 08:37

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-174

Matrix: Solid

Percent Solids: 97.5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	13000		2000		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Antimony	ND	F1	100		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Arsenic	ND		50		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Barium	270		50		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Beryllium	ND		50		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Cadmium	ND		40		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-21 (0.5-1.0)

Lab Sample ID: 590-10699-174

Date Collected: 03/27/19 08:37

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 97.5

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	110000		4000		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Chromium	ND		50		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Cobalt	ND		50		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Copper	740		160		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Iron	200000		4000		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Lead	14000		120		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Magnesium	11000		2000		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Manganese	16000		610		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Nickel	ND		50		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Potassium	4800		1000		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Selenium	ND		200		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Silver	ND		50		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Sodium	ND		1000		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Thallium	ND ^		100		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Vanadium	ND		50		mg/Kg	☼	04/09/19 13:16	04/11/19 19:48	50
Zinc	38000		280		mg/Kg	☼	04/12/19 11:03	04/17/19 10:22	5

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:41	04/12/19 16:19	1

Client Sample ID: TP-21 (1.0-1.5)

Lab Sample ID: 590-10699-175

Date Collected: 03/27/19 08:39

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 97.6

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	9800		37		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Antimony	ND		1.9		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Arsenic	4.2		0.94		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Barium	100		0.94		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Beryllium	ND		0.94		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Cadmium	ND		0.75		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Calcium	4400		75		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Chromium	28		0.94		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Cobalt	7.7		0.94		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Copper	24		3.0		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Iron	20000		75		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Lead	110		2.2		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Magnesium	4900		37		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Manganese	410		11		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Nickel	18		0.94		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Potassium	1300		19		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Selenium	ND		3.7		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Silver	ND		0.94		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Sodium	150		19		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Thallium	ND ^		1.9		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Vanadium	38		0.94		mg/Kg	☼	04/09/19 13:16	04/11/19 14:35	1
Zinc	2100		57		mg/Kg	☼	04/12/19 11:03	04/18/19 10:51	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-21 (1.0-1.5)

Lab Sample ID: 590-10699-175

Date Collected: 03/27/19 08:39

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 97.6

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:41	04/12/19 16:22	1

Client Sample ID: TP-22 (0.0-0.5)

Lab Sample ID: 590-10699-181

Date Collected: 03/27/19 09:28

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 94.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	9100		150		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Antimony	15		7.6		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Arsenic	12		3.8		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Barium	650		3.8		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Beryllium	ND		7.6		mg/Kg	☼	04/09/19 13:16	04/17/19 11:57	10
Cadmium	ND		3.0		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Calcium	33000		300		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Chromium	49		3.8		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Cobalt	22		3.8		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Copper	790		12		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Iron	80000		300		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Lead	490		9.1		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Magnesium	8800		150		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Manganese	1600		46		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Nickel	12		3.8		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Potassium	1700		76		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Selenium	ND		15		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Silver	4.5		3.8		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Sodium	610		76		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Thallium	ND	^	7.6		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Vanadium	29		3.8		mg/Kg	☼	04/09/19 13:16	04/11/19 14:40	5
Zinc	8600		59		mg/Kg	☼	04/12/19 11:03	04/17/19 13:32	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	110		49		ug/Kg	☼	04/10/19 14:41	04/12/19 16:24	1

Client Sample ID: TP-22 (0.5-1.0)

Lab Sample ID: 590-10699-182

Date Collected: 03/27/19 09:30

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 92.8

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	17000		380		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Antimony	ND		19		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Arsenic	12		9.4		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Barium	780		9.4		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Beryllium	ND		9.4		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Cadmium	ND		7.5		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Calcium	49000		750		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Chromium	64		9.4		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Cobalt	26		9.4		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Copper	1000		30		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-22 (0.5-1.0)

Lab Sample ID: 590-10699-182

Date Collected: 03/27/19 09:30

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 92.8

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	150000		750		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Lead	500		23		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Magnesium	7200		380		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Manganese	2900		110		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Nickel	11		9.4		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Potassium	3600		190		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Selenium	ND		38		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Silver	ND		9.4		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Sodium	1500		190		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Thallium	ND ^		19		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Vanadium	45		9.4		mg/Kg	☼	04/09/19 13:16	04/17/19 12:01	10
Zinc	12000		60		mg/Kg	☼	04/12/19 11:03	04/17/19 13:36	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	3300		480		ug/Kg	☼	04/10/19 14:41	04/12/19 17:47	10

Client Sample ID: TP-22 (1.0-1.5)

Lab Sample ID: 590-10699-183

Date Collected: 03/27/19 09:32

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 96.8

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	18000		420		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Antimony	ND		21		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Arsenic	11		10		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Barium	580		10		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Beryllium	ND		10		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Cadmium	ND		8.4		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Calcium	47000		840		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Chromium	56		10		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Cobalt	20		10		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Copper	820		34		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Iron	150000		840		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Lead	290		25		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Magnesium	6800		420		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Manganese	2900		130		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Nickel	ND		10		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Potassium	3600		210		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Selenium	ND		42		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Silver	ND		10		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Sodium	1200		210		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Thallium	ND ^		21		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Vanadium	43		10		mg/Kg	☼	04/09/19 13:16	04/17/19 12:05	10
Zinc	14000		57		mg/Kg	☼	04/12/19 11:03	04/17/19 13:40	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg	☼	04/10/19 14:41	04/12/19 16:30	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-23 (0.0-0.5)

Lab Sample ID: 590-10699-189

Date Collected: 03/27/19 09:57

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 89.6

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	4600		43		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Antimony	5.9		2.2		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Arsenic	5.8		1.1		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Barium	330		1.1		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Beryllium	ND		1.1		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Cadmium	2.1		0.87		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Calcium	24000		87		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Chromium	20		1.1		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Cobalt	6.8		1.1		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Copper	180		3.5		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Iron	26000		87		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Lead	160		2.6		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Magnesium	12000		43		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Manganese	400		13		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Nickel	9.1		1.1		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Potassium	850		22		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Selenium	ND		4.3		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Silver	1.7		1.1		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Sodium	180		22		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Thallium	ND ^		2.2		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Vanadium	25		1.1		mg/Kg	☼	04/09/19 13:16	04/11/19 14:52	1
Zinc	2000		62		mg/Kg	☼	04/12/19 11:03	04/17/19 13:43	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	100		50		ug/Kg	☼	04/10/19 14:41	04/12/19 16:32	1

Client Sample ID: TP-25 (0.0-0.5)

Lab Sample ID: 590-10699-205

Date Collected: 03/27/19 11:10

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 79.9

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5900		52		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Antimony	7.2		2.6		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Arsenic	11		1.3		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Barium	360		1.3		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Beryllium	ND		13		mg/Kg	☼	04/09/19 13:16	04/17/19 12:09	10
Cadmium	2.4		1.0		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Calcium	19000		100		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Chromium	24		1.3		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Cobalt	8.1		1.3		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Copper	240		4.2		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Iron	31000		100		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Lead	360		3.1		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Magnesium	9000		52		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Manganese	420		16		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Nickel	12		1.3		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Potassium	1100		26		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Selenium	ND		5.2		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-25 (0.0-0.5)

Date Collected: 03/27/19 11:10

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-205

Matrix: Solid
 Percent Solids: 79.9

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	1.7		1.3		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Sodium	220		26		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Thallium	ND	^	2.6		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Vanadium	27		1.3		mg/Kg	☼	04/09/19 13:16	04/11/19 14:55	1
Zinc	2400		70		mg/Kg	☼	04/12/19 11:03	04/17/19 13:47	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	310		50		ug/Kg	☼	04/10/19 14:41	04/12/19 16:35	1

Client Sample ID: HS-1 (1.5-2.0)

Date Collected: 03/27/19 14:00

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-224

Matrix: Solid
 Percent Solids: 76.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	9700		250		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Antimony	ND		13		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Arsenic	18		6.4		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Barium	810		6.4		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Beryllium	ND		6.4		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Cadmium	5.8		5.1		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Calcium	33000		510		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Chromium	40		6.4		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Cobalt	14		6.4		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Copper	450		20		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Iron	86000		510		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Lead	800		15		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Magnesium	12000		250		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Manganese	1600		76		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Nickel	17		6.4		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Potassium	1700		130		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Selenium	ND		25		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Silver	ND		6.4		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Sodium	490		130		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Thallium	ND	^	13		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Vanadium	43		6.4		mg/Kg	☼	04/09/19 13:16	04/11/19 15:09	5
Zinc	6300		73		mg/Kg	☼	04/12/19 11:03	04/17/19 13:51	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	450		50		ug/Kg	☼	04/10/19 14:41	04/12/19 16:37	1

Client Sample ID: HS-2 (0.0-0.5)

Date Collected: 03/27/19 14:07

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-226

Matrix: Solid
 Percent Solids: 84.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5000		37		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Antimony	6.8		1.9		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: HS-2 (0.0-0.5)

Lab Sample ID: 590-10699-226

Date Collected: 03/27/19 14:07

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 84.2

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	8.3		0.93		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Barium	280		0.93		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Beryllium	ND		19		mg/Kg	☼	04/12/19 11:03	04/17/19 13:55	1
Cadmium	3.3		0.74		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Calcium	27000		74		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Chromium	18		0.93		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Cobalt	6.2		0.93		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Copper	130		3.0		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Iron	24000		74		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Lead	190		2.2		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Magnesium	15000		37		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Manganese	400		11		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Nickel	11		0.93		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Potassium	1000		19		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Selenium	ND		3.7		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Silver	1.1		0.93		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Sodium	160		19		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Thallium	ND ^		1.9		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Vanadium	25		0.93		mg/Kg	☼	04/09/19 13:16	04/11/19 15:13	1
Zinc	2200		74		mg/Kg	☼	04/12/19 11:03	04/17/19 13:55	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	110		49		ug/Kg	☼	04/10/19 14:41	04/12/19 16:44	1

Client Sample ID: HS-2 (0.5-1.0)

Lab Sample ID: 590-10699-227

Date Collected: 03/27/19 14:09

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 84.5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	7100		390		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Antimony	ND		19		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Arsenic	9.8		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Barium	430		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Beryllium	ND		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Cadmium	ND		7.8		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Calcium	23000		780		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Chromium	28		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Cobalt	11		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Copper	230		31		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Iron	37000		780		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Lead	320		23		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Magnesium	12000		390		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Manganese	560		120		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Nickel	14		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Potassium	1100		190		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Selenium	ND		39		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Silver	ND		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Sodium	220		190		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: HS-2 (0.5-1.0)

Date Collected: 03/27/19 14:09

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-227

Matrix: Solid

Percent Solids: 84.5

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND	^	19		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Vanadium	32		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:13	10
Zinc	2800		66		mg/Kg	☼	04/12/19 11:03	04/17/19 14:08	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	180		49		ug/Kg	☼	04/10/19 14:41	04/12/19 16:46	1

Client Sample ID: HS-2 (1.0-1.5)

Date Collected: 03/27/19 14:11

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-228

Matrix: Solid

Percent Solids: 88.5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	11000		390		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Antimony	ND		19		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Arsenic	43		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Barium	410		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Beryllium	ND		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Cadmium	ND		7.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Calcium	35000		770		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Chromium	28		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Cobalt	17		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Copper	640		31		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Iron	84000		770		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Lead	2700		23		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Magnesium	9900		390		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Manganese	2200		120		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Nickel	12		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Potassium	2200		190		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Selenium	ND		39		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Silver	ND		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Sodium	830		190		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Thallium	ND	^	19		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Vanadium	39		9.7		mg/Kg	☼	04/09/19 13:16	04/17/19 12:17	10
Zinc	15000		63		mg/Kg	☼	04/12/19 11:03	04/17/19 14:13	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	230		48		ug/Kg	☼	04/10/19 14:41	04/12/19 16:49	1

Client Sample ID: HS-3 (0.5-1.0)

Date Collected: 03/27/19 15:06

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-231

Matrix: Solid

Percent Solids: 90.8

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	8200		2000		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Antimony	ND		100		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Arsenic	ND		51		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Barium	370		51		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: HS-3 (0.5-1.0)

Lab Sample ID: 590-10699-231

Date Collected: 03/27/19 15:06

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 90.8

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		51		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Cadmium	ND		41		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Calcium	25000		4100		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Chromium	ND		51		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Cobalt	ND		51		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Copper	400		160		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Iron	51000		4100		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Lead	1300		120		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Magnesium	11000		2000		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Manganese	790		610		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Nickel	ND		51		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Potassium	1000		1000		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Selenium	ND		200		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Silver	ND		51		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Sodium	ND		1000		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Thallium	ND [^]		100		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Vanadium	ND		51		mg/Kg	☼	04/09/19 13:16	04/17/19 12:30	50
Zinc	6300		61		mg/Kg	☼	04/12/19 11:03	04/17/19 14:16	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	160		49		ug/Kg	☼	04/10/19 14:41	04/12/19 16:51	1

Client Sample ID: XRF-1

Lab Sample ID: 590-10699-233

Date Collected: 03/25/19 14:24

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 93.6

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	16000		2200		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Antimony	ND		110		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Arsenic	ND		55		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Barium	640		55		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Beryllium	ND		55		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Cadmium	ND		44		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Calcium	120000		4400		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Chromium	ND		55		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Cobalt	ND		55		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Copper	860		180		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Iron	190000		4400		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Lead	8200		130		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Magnesium	11000		2200		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Manganese	15000		660		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Nickel	ND		55		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Potassium	4100		1100		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Selenium	ND		220		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Silver	ND		55		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Sodium	ND		1100		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Thallium	ND [^]		110		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50
Vanadium	ND		55		mg/Kg	☼	04/09/19 13:16	04/17/19 14:57	50

Euofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: XRF-1
Date Collected: 03/25/19 14:24
Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-233
Matrix: Solid
Percent Solids: 93.6

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	38000		590		mg/Kg	☼	04/12/19 11:03	04/17/19 15:01	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:41	04/12/19 16:53	1

Client Sample ID: XRF-7
Date Collected: 03/25/19 15:40
Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-239
Matrix: Solid
Percent Solids: 97.3

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	7700		220		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Antimony	19		11		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Arsenic	10		5.5		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Barium	570		5.5		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Beryllium	ND		5.5		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Cadmium	ND		4.4		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Calcium	23000		440		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Chromium	46		5.5		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Cobalt	21		5.5		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Copper	840		18		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Iron	70000		440		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Lead	410		13		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Magnesium	4900		220		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Manganese	1300		66		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Nickel	13		5.5		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Potassium	1300		110		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Selenium	ND		22		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Silver	ND		5.5		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Sodium	520		110		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Thallium	ND	^	11		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Vanadium	32		5.5		mg/Kg	☼	04/09/19 13:16	04/11/19 15:31	5
Zinc	7900		57		mg/Kg	☼	04/12/19 11:03	04/17/19 14:24	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:49	04/12/19 17:00	1

Client Sample ID: XRF-11
Date Collected: 03/26/19 08:24
Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-243
Matrix: Solid
Percent Solids: 93.6

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	19000		430		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Antimony	ND		22		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Arsenic	24		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Barium	1100		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Beryllium	ND		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Cadmium	ND		8.6		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: XRF-11

Lab Sample ID: 590-10699-243

Date Collected: 03/26/19 08:24

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 93.6

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	59000		860		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Chromium	82		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Cobalt	35		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Copper	1500		34		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Iron	190000		860		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Lead	1600		26		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Magnesium	8200		430		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Manganese	4100		130		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Nickel	15		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Potassium	3400		220		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Selenium	ND		43		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Silver	ND		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Sodium	1300		220		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Thallium	ND ^		22		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Vanadium	50		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:38	10
Zinc	17000		53		mg/Kg	☼	04/12/19 11:03	04/17/19 14:28	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	100		49		ug/Kg	☼	04/10/19 14:49	04/12/19 17:14	1

Client Sample ID: XRF-24

Lab Sample ID: 590-10699-256

Date Collected: 03/26/19 11:04

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 96.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	15000		1900		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Antimony	ND		93		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Arsenic	67		46		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Barium	440		46		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Beryllium	ND		46		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Cadmium	ND		37		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Calcium	84000		3700		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Chromium	ND		46		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Cobalt	ND		46		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Copper	1600		150		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Iron	220000		3700		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Lead	15000		110		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Magnesium	10000		1900		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Manganese	11000		560		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Nickel	ND		46		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Potassium	4300		930		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Selenium	ND		190		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Silver	ND		46		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Sodium	ND		930		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Thallium	ND ^		93		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Vanadium	ND		46		mg/Kg	☼	04/09/19 13:16	04/17/19 12:42	50
Zinc	44000		580		mg/Kg	☼	04/12/19 11:03	04/17/19 15:05	10

Euofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: XRF-24

Date Collected: 03/26/19 11:04

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-256

Matrix: Solid

Percent Solids: 96.2

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	50		50		ug/Kg	☼	04/10/19 14:49	04/12/19 17:17	1

Client Sample ID: XRF-26

Date Collected: 03/26/19 11:41

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-258

Matrix: Solid

Percent Solids: 84.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	6100		450		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Antimony	ND		23		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Arsenic	11		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Barium	130		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Beryllium	ND		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Cadmium	ND		9.0		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Calcium	160000		900		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Chromium	25		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Cobalt	ND		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Copper	43		36		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Iron	12000		900		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Lead	190		27		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Magnesium	9300		450		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Manganese	240		140		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Nickel	28		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Potassium	1200		230		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Selenium	ND		45		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Silver	ND		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Sodium	ND		230		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Thallium	ND	^	23		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Vanadium	25		11		mg/Kg	☼	04/09/19 13:16	04/17/19 12:46	10
Zinc	180		66		mg/Kg	☼	04/12/19 11:03	04/17/19 14:36	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	74		49		ug/Kg	☼	04/10/19 14:49	04/12/19 17:19	1

Client Sample ID: XRF-49

Date Collected: 03/27/19 08:41

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-281

Matrix: Solid

Percent Solids: 99.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	21000		1800		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Antimony	ND		89		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Arsenic	58		44		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Barium	560		44		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Beryllium	ND		44		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Cadmium	ND		36		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Calcium	80000		3600		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Chromium	140		44		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Cobalt	52		44		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Copper	3000		140		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: XRF-49

Lab Sample ID: 590-10699-281

Date Collected: 03/27/19 08:41

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 99.1

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	250000		3600		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Lead	2100		110		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Magnesium	6800		1800		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Manganese	5200		530		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Nickel	ND		44		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Potassium	3600		890		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Selenium	ND		180		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Silver	ND		44		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Sodium	1700		890		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Thallium	ND ^		89		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Vanadium	44		44		mg/Kg	☼	04/09/19 13:16	04/17/19 12:50	50
Zinc	44000		630		mg/Kg	☼	04/12/19 11:03	04/17/19 15:09	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		47		ug/Kg	☼	04/10/19 14:49	04/12/19 17:21	1

Client Sample ID: XRF-50

Lab Sample ID: 590-10699-282

Date Collected: 03/27/19 08:55

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 99.0

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	21000		1900		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Antimony	ND		96		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Arsenic	48		48		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Barium	980		48		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Beryllium	ND		48		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Cadmium	ND		38		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Calcium	82000		3800		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Chromium	140		48		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Cobalt	56		48		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Copper	2900		150		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Iron	240000		3800		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Lead	1000		110		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Magnesium	7600		1900		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Manganese	4600		570		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Nickel	ND		48		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Potassium	3700		960		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Selenium	ND		190		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Silver	ND		48		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Sodium	1800		960		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Thallium	ND ^		96		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Vanadium	ND		48		mg/Kg	☼	04/09/19 13:16	04/17/19 12:54	50
Zinc	21000		50		mg/Kg	☼	04/12/19 11:03	04/17/19 14:43	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:49	04/12/19 17:24	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: XRF-63

Date Collected: 03/27/19 12:46

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-295

Matrix: Solid

Percent Solids: 99.8

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	19000		440		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Antimony	27	F1 F2	22		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Arsenic	31		11		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Barium	1500		11		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Beryllium	ND		11		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Cadmium	ND		8.7		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Calcium	67000		870		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Chromium	130		11		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Cobalt	56		11		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Copper	2400		35		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Iron	210000		870		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Lead	510		26		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Magnesium	6400		440		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Manganese	4100		130		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Nickel	19		11		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Potassium	3300		220		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Selenium	ND		44		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Silver	ND	F1	11		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Sodium	1700		220		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Thallium	ND	^	22		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Vanadium	45		11		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10
Zinc	18000		44		mg/Kg	☼	04/09/19 13:19	04/17/19 12:58	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:49	04/12/19 17:26	1

Client Sample ID: XRF-66

Date Collected: 03/27/19 13:05

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-298

Matrix: Solid

Percent Solids: 91.5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	4700		48		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Antimony	8.2		2.4		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Arsenic	6.7		1.2		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Barium	310		1.2		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Beryllium	ND		1.2		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Cadmium	3.4		0.97		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Calcium	31000		97		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Chromium	20		1.2		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Cobalt	8.4		1.2		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Copper	230		3.9		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Iron	28000		97		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Lead	200		2.9		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Magnesium	13000		48		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Manganese	520		15		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Nickel	8.8		1.2		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Potassium	860		24		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Selenium	ND		4.8		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: XRF-66

Lab Sample ID: 590-10699-298

Date Collected: 03/27/19 13:05

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 91.5

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.2		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Sodium	230		24		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Thallium	ND	^	2.4		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Vanadium	20		1.2		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1
Zinc	2100	^	4.8		mg/Kg	☼	04/09/19 13:19	04/11/19 16:39	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	220		49		ug/Kg	☼	04/10/19 14:49	04/12/19 17:28	1

Client Sample ID: Dup-1

Lab Sample ID: 590-10699-342

Date Collected: 03/26/19 08:00

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 95.3

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	15000		2000		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Antimony	ND		99		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Arsenic	ND		50		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Barium	340		50		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Beryllium	ND		50		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Cadmium	ND		40		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Calcium	98000		4000		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Chromium	ND		50		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Cobalt	ND		50		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Copper	390		160		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Iron	180000		4000		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Lead	6900		120		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Magnesium	9200		2000		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Manganese	17000		600		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Nickel	ND		50		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Potassium	3400		990		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Selenium	ND		200		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Silver	ND		50		mg/Kg	☼	04/09/19 13:19	04/18/19 10:47	50
Sodium	ND		990		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Thallium	ND	^	99		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Vanadium	ND		50		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50
Zinc	32000		200		mg/Kg	☼	04/09/19 13:19	04/17/19 13:28	50

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		49		ug/Kg	☼	04/10/19 14:49	04/12/19 17:31	1

Client Sample ID: Dup-2

Lab Sample ID: 590-10699-343

Date Collected: 03/26/19 08:30

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 95.5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	4400		43		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Antimony	ND		2.1		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: Dup-2
 Date Collected: 03/26/19 08:30
 Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-343
 Matrix: Solid
 Percent Solids: 95.5

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.3		1.1		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Barium	57		1.1		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Beryllium	ND		1.1		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Cadmium	2.4		0.86		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Calcium	2400		86		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Chromium	18		1.1		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Cobalt	4.9		1.1		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Copper	43		3.4		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Iron	17000		86		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Lead	11		2.6		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Magnesium	2900		43		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Manganese	210		13		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Nickel	12		1.1		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Potassium	460		21		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Selenium	ND		4.3		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Silver	ND		1.1		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Sodium	86		21		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Thallium	ND	^	2.1		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Vanadium	33		1.1		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1
Zinc	340	^	4.3		mg/Kg	☼	04/09/19 13:19	04/11/19 16:48	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		48		ug/Kg	☼	04/10/19 14:49	04/12/19 17:33	1

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 590-21685/2-A
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 21685

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		50		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Antimony	ND		2.5		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Arsenic	ND		1.3		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Barium	ND		1.3		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Beryllium	ND		1.3		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Cadmium	ND		1.0		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Calcium	ND		100		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Chromium	ND		1.3		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Cobalt	ND		1.3		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Copper	ND		4.0		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Iron	ND		100		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Lead	ND		3.0		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Magnesium	ND		50		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Manganese	ND		15		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Nickel	ND		1.3		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Potassium	ND		25		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Selenium	ND		5.0		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Silver	ND		1.3		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Sodium	ND		25		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Thallium	ND	^	2.5		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Vanadium	ND		1.3		mg/Kg		04/09/19 12:59	04/11/19 09:46	1
Zinc	ND		5.0		mg/Kg		04/09/19 12:59	04/11/19 09:46	1

Lab Sample ID: LCS 590-21685/1-A
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 21685

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	500	492		mg/Kg		98	80 - 120
Antimony	50.0	50.9		mg/Kg		102	80 - 120
Arsenic	100	95.4		mg/Kg		95	80 - 120
Barium	100	100		mg/Kg		100	80 - 120
Beryllium	50.0	51.8		mg/Kg		104	80 - 120
Cadmium	50.0	49.5		mg/Kg		99	80 - 120
Calcium	2500	2490		mg/Kg		100	80 - 120
Chromium	50.0	49.5		mg/Kg		99	80 - 120
Cobalt	50.0	50.9		mg/Kg		102	80 - 120
Copper	50.0	47.1		mg/Kg		94	80 - 120
Iron	500	523		mg/Kg		105	80 - 120
Lead	50.0	51.6		mg/Kg		103	80 - 120
Magnesium	2500	2420		mg/Kg		97	80 - 120
Manganese	50.0	51.8		mg/Kg		104	80 - 120
Nickel	50.0	51.4		mg/Kg		103	80 - 120
Potassium	2500	2240		mg/Kg		89	80 - 120
Selenium	100	99.5		mg/Kg		99	80 - 120
Silver	5.00	4.94		mg/Kg		99	80 - 120
Sodium	2500	2330		mg/Kg		93	80 - 120
Thallium	100	104	^	mg/Kg		104	80 - 120
Vanadium	50.0	47.9		mg/Kg		96	80 - 120

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 590-21685/1-A
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 21685

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	50.0	53.5		mg/Kg		107	80 - 120

Lab Sample ID: MB 590-21686/2-A
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 21686

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		50		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Antimony	ND		2.5		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Arsenic	ND		1.3		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Barium	ND		1.3		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Beryllium	ND		1.3		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Cadmium	ND		1.0		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Calcium	ND		100		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Chromium	ND		1.3		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Cobalt	ND		1.3		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Copper	ND		4.0		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Iron	ND		100		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Lead	ND		3.0		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Magnesium	ND		50		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Manganese	ND		15		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Nickel	ND		1.3		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Potassium	ND		25		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Selenium	ND		5.0		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Silver	ND		1.3		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Sodium	ND		25		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Thallium	ND	^	2.5		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Vanadium	ND		1.3		mg/Kg		04/09/19 13:01	04/11/19 12:06	1
Zinc	ND	^	5.0		mg/Kg		04/09/19 13:01	04/11/19 12:06	1

Lab Sample ID: LCS 590-21686/1-A
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 21686

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	500	480		mg/Kg		96	80 - 120
Antimony	50.0	53.3		mg/Kg		107	80 - 120
Arsenic	100	99.3		mg/Kg		99	80 - 120
Barium	100	103		mg/Kg		103	80 - 120
Beryllium	50.0	52.7		mg/Kg		105	80 - 120
Cadmium	50.0	50.9		mg/Kg		102	80 - 120
Calcium	2500	2430		mg/Kg		97	80 - 120
Chromium	50.0	51.1		mg/Kg		102	80 - 120
Cobalt	50.0	52.4		mg/Kg		105	80 - 120
Copper	50.0	48.1		mg/Kg		96	80 - 120
Iron	500	522		mg/Kg		104	80 - 120
Lead	50.0	53.2		mg/Kg		106	80 - 120
Magnesium	2500	2420		mg/Kg		97	80 - 120
Manganese	50.0	53.8		mg/Kg		108	80 - 120

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 590-21686/1-A
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 21686

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	50.0	53.2		mg/Kg		106	80 - 120
Potassium	2500	2280		mg/Kg		91	80 - 120
Selenium	100	104		mg/Kg		104	80 - 120
Silver	5.00	5.10		mg/Kg		102	80 - 120
Sodium	2500	2290		mg/Kg		91	80 - 120
Thallium	100	107	^	mg/Kg		107	80 - 120
Vanadium	50.0	49.2		mg/Kg		98	80 - 120
Zinc	50.0	55.9	^	mg/Kg		112	80 - 120

Lab Sample ID: 590-10699-69 MS
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: TP-9 (2.0-2.5)
Prep Type: Total/NA
Prep Batch: 21686

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	14000		481	13200	4	mg/Kg	☼	-169	75 - 125
Antimony	ND	F1	48.1	ND	F1	mg/Kg	☼	0	75 - 125
Arsenic	ND		96.2	96.4		mg/Kg	☼	100	75 - 125
Barium	330	F1	96.2	388	F1	mg/Kg	☼	59	75 - 125
Beryllium	ND		48.1	ND		mg/Kg	☼	88	75 - 125
Cadmium	ND		48.1	ND		mg/Kg	☼	96	75 - 125
Calcium	100000		2400	94700	4	mg/Kg	☼	-397	75 - 125
Chromium	ND		48.1	ND		mg/Kg	☼	93	75 - 125
Cobalt	ND		48.1	61.7		mg/Kg	☼	96	75 - 125
Copper	370		48.1	368	4	mg/Kg	☼	6	75 - 125
Iron	190000		481	170000	4	mg/Kg	☼	-4283	75 - 125
Lead	7300		48.1	6620	4	mg/Kg	☼	-1390	75 - 125
Magnesium	9100	F1	2400	10600	F1	mg/Kg	☼	61	75 - 125
Manganese	18000		48.1	15800	4	mg/Kg	☼	-3681	75 - 125
Nickel	ND		48.1	ND		mg/Kg	☼	101	75 - 125
Potassium	4100	F1	2400	5690	F1	mg/Kg	☼	67	75 - 125
Selenium	ND		96.2	ND		mg/Kg	☼	NC	75 - 125
Silver	ND		4.81	ND	4	mg/Kg	☼	-3	75 - 125
Sodium	1100		2400	3110		mg/Kg	☼	83	75 - 125
Thallium	ND	^	96.2	ND	^	mg/Kg	☼	109	75 - 125
Vanadium	ND		48.1	72.2		mg/Kg	☼	88	75 - 125
Zinc	33000		48.1	29900	4	mg/Kg	☼	-6257	75 - 125

Lab Sample ID: 590-10699-69 MSD
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: TP-9 (2.0-2.5)
Prep Type: Total/NA
Prep Batch: 21686

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Aluminum	14000		468	15100	4	mg/Kg	☼	222	75 - 125	13	20
Antimony	ND	F1	46.8	ND	F1	mg/Kg	☼	0	75 - 125	NC	20
Arsenic	ND		93.6	95.8		mg/Kg	☼	102	75 - 125	1	20
Barium	330	F1	93.6	425		mg/Kg	☼	100	75 - 125	9	20
Beryllium	ND		46.8	ND		mg/Kg	☼	94	75 - 125	4	20
Cadmium	ND		46.8	ND		mg/Kg	☼	99	75 - 125	1	20
Calcium	100000		2340	101000	4	mg/Kg	☼	-123	75 - 125	7	20

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 590-10699-69 MSD
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: TP-9 (2.0-2.5)
Prep Type: Total/NA
Prep Batch: 21686

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier		Result	Qualifier				Limits		Limit
Chromium	ND		46.8	59.9		mg/Kg	☼	102	75 - 125	5	20
Cobalt	ND		46.8	63.8		mg/Kg	☼	103	75 - 125	3	20
Copper	370		46.8	394	4	mg/Kg	☼	62	75 - 125	7	20
Iron	190000		46.8	183000	4	mg/Kg	☼	-1639	75 - 125	7	20
Lead	7300		46.8	7010	4	mg/Kg	☼	-597	75 - 125	6	20
Magnesium	9100	F1	2340	11600		mg/Kg	☼	106	75 - 125	9	20
Manganese	18000		46.8	16800	4	mg/Kg	☼	-1631	75 - 125	6	20
Nickel	ND		46.8	ND		mg/Kg	☼	107	75 - 125	4	20
Potassium	4100	F1	2340	6170		mg/Kg	☼	90	75 - 125	8	20
Selenium	ND		93.6	ND		mg/Kg	☼	NC	75 - 125	NC	20
Silver	ND		4.68	ND	4	mg/Kg	☼	41	75 - 125	9	20
Sodium	1100		2340	3280		mg/Kg	☼	93	75 - 125	6	20
Thallium	ND	^	93.6	ND	^	mg/Kg	☼	112	75 - 125	0	20
Vanadium	ND		46.8	84.1		mg/Kg	☼	115	75 - 125	15	20
Zinc	33000		46.8	31500	4	mg/Kg	☼	-3108	75 - 125	5	20

Lab Sample ID: 590-10699-69 DU
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: TP-9 (2.0-2.5)
Prep Type: Total/NA
Prep Batch: 21686

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD
	Result	Qualifier		Result				Qualifier
Aluminum	14000		13800		mg/Kg	☼	2	20
Antimony	ND	F1	ND		mg/Kg	☼	NC	20
Arsenic	ND		ND		mg/Kg	☼	NC	20
Barium	330	F1	319		mg/Kg	☼	4	20
Beryllium	ND		ND		mg/Kg	☼	NC	20
Cadmium	ND		ND		mg/Kg	☼	NC	20
Calcium	100000		98600		mg/Kg	☼	5	20
Chromium	ND		ND		mg/Kg	☼	NC	20
Cobalt	ND		ND		mg/Kg	☼	NC	20
Copper	370		359		mg/Kg	☼	2	20
Iron	190000		182000		mg/Kg	☼	5	20
Lead	7300		7150		mg/Kg	☼	2	20
Magnesium	9100	F1	9070		mg/Kg	☼	0.4	20
Manganese	18000		16600		mg/Kg	☼	6	20
Nickel	ND		ND		mg/Kg	☼	NC	20
Potassium	4100	F1	4030		mg/Kg	☼	1	20
Selenium	ND		ND		mg/Kg	☼	NC	20
Silver	ND		ND		mg/Kg	☼	NC	20
Sodium	1100		ND		mg/Kg	☼	NC	20
Thallium	ND	^	ND		mg/Kg	☼	NC	20
Vanadium	ND		ND		mg/Kg	☼	NC	20
Zinc	33000		31400		mg/Kg	☼	5	20

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 590-21687/2-A
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 21687

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		50		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Antimony	ND		2.5		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Arsenic	ND		1.3		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Barium	ND		1.3		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Beryllium	ND		1.3		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Cadmium	ND		1.0		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Calcium	ND		100		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Chromium	ND		1.3		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Cobalt	ND		1.3		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Copper	ND		4.0		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Iron	ND		100		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Lead	ND		3.0		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Magnesium	ND		50		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Manganese	ND		15		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Nickel	ND		1.3		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Potassium	ND		25		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Selenium	ND		5.0		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Silver	ND		1.3		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Sodium	ND		25		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Thallium	ND	^	2.5		mg/Kg		04/09/19 13:16	04/11/19 14:01	1
Vanadium	ND		1.3		mg/Kg		04/09/19 13:16	04/11/19 14:01	1

Lab Sample ID: LCS 590-21687/1-A
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 21687

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	500	481		mg/Kg		96	80 - 120
Antimony	50.0	52.5		mg/Kg		105	80 - 120
Arsenic	100	99.0		mg/Kg		99	80 - 120
Barium	100	103		mg/Kg		103	80 - 120
Beryllium	50.0	52.8		mg/Kg		106	80 - 120
Cadmium	50.0	50.8		mg/Kg		102	80 - 120
Calcium	2500	2490		mg/Kg		100	80 - 120
Chromium	50.0	50.6		mg/Kg		101	80 - 120
Cobalt	50.0	52.2		mg/Kg		104	80 - 120
Copper	50.0	48.1		mg/Kg		96	80 - 120
Iron	500	579		mg/Kg		116	80 - 120
Lead	50.0	55.3		mg/Kg		111	80 - 120
Magnesium	2500	2430		mg/Kg		97	80 - 120
Manganese	50.0	55.9		mg/Kg		112	80 - 120
Nickel	50.0	52.8		mg/Kg		106	80 - 120
Potassium	2500	2390		mg/Kg		96	80 - 120
Selenium	100	103		mg/Kg		103	80 - 120
Silver	5.00	5.11		mg/Kg		102	80 - 120
Sodium	2500	2380		mg/Kg		95	80 - 120
Thallium	100	106	^	mg/Kg		106	80 - 120
Vanadium	50.0	48.7		mg/Kg		97	80 - 120

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 590-10699-174 MS
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: TP-21 (0.5-1.0)
Prep Type: Total/NA
Prep Batch: 21687

Analyte	Sample	Sample Qualifier	Spike Added	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result			Result	Qualifier				
Aluminum	13000		508	13200	4	mg/Kg	☼	-3	75 - 125
Antimony	ND	F1	50.8	ND	F1	mg/Kg	☼	0	75 - 125
Arsenic	ND		102	123		mg/Kg	☼	95	75 - 125
Barium	270		102	345		mg/Kg	☼	75	75 - 125
Beryllium	ND		50.8	ND		mg/Kg	☼	88	75 - 125
Cadmium	ND		50.8	ND		mg/Kg	☼	96	75 - 125
Calcium	110000		2540	116000	4	mg/Kg	☼	409	75 - 125
Chromium	ND		50.8	ND		mg/Kg	☼	96	75 - 125
Cobalt	ND		50.8	76.0		mg/Kg	☼	99	75 - 125
Copper	740		50.8	821	4	mg/Kg	☼	165	75 - 125
Iron	200000		508	211000	4	mg/Kg	☼	2892	75 - 125
Lead	14000		50.8	14800	4	mg/Kg	☼	1868	75 - 125
Magnesium	11000		2540	13600	4	mg/Kg	☼	88	75 - 125
Manganese	16000		50.8	16600	4	mg/Kg	☼	2022	75 - 125
Nickel	ND		50.8	ND		mg/Kg	☼	100	75 - 125
Potassium	4800		2540	7100		mg/Kg	☼	92	75 - 125
Selenium	ND		102	ND		mg/Kg	☼	NC	75 - 125
Silver	ND		5.08	ND	4	mg/Kg	☼	105	75 - 125
Sodium	ND		2540	3030		mg/Kg	☼	92	75 - 125
Thallium	ND	^	102	ND	^	mg/Kg	☼	111	75 - 125
Vanadium	ND		50.8	78.7		mg/Kg	☼	96	75 - 125

Lab Sample ID: 590-10699-174 MSD
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: TP-21 (0.5-1.0)
Prep Type: Total/NA
Prep Batch: 21687

Analyte	Sample	Sample Qualifier	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
	Result			Result	Qualifier						
Aluminum	13000		484	13400	4	mg/Kg	☼	39	75 - 125	2	20
Antimony	ND	F1	48.4	ND	F1	mg/Kg	☼	0	75 - 125	NC	20
Arsenic	ND		96.7	120		mg/Kg	☼	98	75 - 125	2	20
Barium	270		96.7	360		mg/Kg	☼	94	75 - 125	4	20
Beryllium	ND		48.4	ND		mg/Kg	☼	88	75 - 125	4	20
Cadmium	ND		48.4	ND		mg/Kg	☼	98	75 - 125	3	20
Calcium	110000		2420	116000	4	mg/Kg	☼	446	75 - 125	0	20
Chromium	ND		48.4	ND		mg/Kg	☼	96	75 - 125	4	20
Cobalt	ND		48.4	72.2		mg/Kg	☼	96	75 - 125	5	20
Copper	740		48.4	770	4	mg/Kg	☼	67	75 - 125	6	20
Iron	200000		484	212000	4	mg/Kg	☼	3261	75 - 125	1	20
Lead	14000		48.4	15800	4	mg/Kg	☼	4105	75 - 125	7	20
Magnesium	11000		2420	13800	4	mg/Kg	☼	100	75 - 125	1	20
Manganese	16000		48.4	16600	4	mg/Kg	☼	2292	75 - 125	0	20
Nickel	ND		48.4	ND		mg/Kg	☼	100	75 - 125	5	20
Potassium	4800		2420	7010		mg/Kg	☼	93	75 - 125	1	20
Selenium	ND		96.7	ND		mg/Kg	☼	NC	75 - 125	NC	20
Silver	ND		4.84	ND	4	mg/Kg	☼	191	75 - 125	12	20
Sodium	ND		2420	2880		mg/Kg	☼	91	75 - 125	5	20
Thallium	ND	^	96.7	ND	^	mg/Kg	☼	109	75 - 125	7	20
Vanadium	ND		48.4	77.4		mg/Kg	☼	98	75 - 125	2	20

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 590-10699-174 DU
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: TP-21 (0.5-1.0)
Prep Type: Total/NA
Prep Batch: 21687

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Aluminum	13000		13500		mg/Kg	☼	3	20
Antimony	ND	F1	ND		mg/Kg	☼	NC	20
Arsenic	ND		ND		mg/Kg	☼	NC	20
Barium	270		277		mg/Kg	☼	3	20
Beryllium	ND		ND		mg/Kg	☼	NC	20
Cadmium	ND		ND		mg/Kg	☼	NC	20
Calcium	110000		115000		mg/Kg	☼	9	20
Chromium	ND		ND		mg/Kg	☼	NC	20
Cobalt	ND		ND		mg/Kg	☼	NC	20
Copper	740		793		mg/Kg	☼	7	20
Iron	200000		211000		mg/Kg	☼	7	20
Lead	14000		14200		mg/Kg	☼	3	20
Magnesium	11000		11500		mg/Kg	☼	1	20
Manganese	16000		16200		mg/Kg	☼	4	20
Nickel	ND		ND		mg/Kg	☼	NC	20
Potassium	4800		5000		mg/Kg	☼	5	20
Selenium	ND		ND		mg/Kg	☼	NC	20
Silver	ND		ND		mg/Kg	☼	NC	20
Sodium	ND		ND		mg/Kg	☼	NC	20
Thallium	ND	^	ND		mg/Kg	☼	NC	20
Vanadium	ND		ND		mg/Kg	☼	NC	20

Lab Sample ID: MB 590-21688/2-A
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 21688

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aluminum	ND		50		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Antimony	ND		2.5		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Arsenic	ND		1.3		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Barium	ND		1.3		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Beryllium	ND		1.3		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Cadmium	ND		1.0		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Calcium	ND		100		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Chromium	ND		1.3		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Cobalt	ND		1.3		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Copper	ND		4.0		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Iron	ND		100		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Lead	ND		3.0		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Magnesium	ND		50		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Manganese	ND		15		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Nickel	ND		1.3		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Potassium	ND		25		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Selenium	ND		5.0		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Silver	ND		1.3		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Sodium	ND		25		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Thallium	ND	^	2.5		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Vanadium	ND		1.3		mg/Kg		04/09/19 13:19	04/11/19 16:05	1
Zinc	ND	^	5.0		mg/Kg		04/09/19 13:19	04/11/19 16:05	1

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Method: 6010C - Metals (ICP)

Lab Sample ID: LCS 590-21688/1-A
Matrix: Solid
Analysis Batch: 21733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 21688

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	500	454		mg/Kg		91	80 - 120
Antimony	50.0	51.5		mg/Kg		103	80 - 120
Arsenic	100	96.6		mg/Kg		97	80 - 120
Barium	100	101		mg/Kg		101	80 - 120
Beryllium	50.0	52.5		mg/Kg		105	80 - 120
Cadmium	50.0	50.9		mg/Kg		102	80 - 120
Calcium	2500	2410		mg/Kg		97	80 - 120
Chromium	50.0	50.2		mg/Kg		100	80 - 120
Cobalt	50.0	52.1		mg/Kg		104	80 - 120
Copper	50.0	47.4		mg/Kg		95	80 - 120
Iron	500	521		mg/Kg		104	80 - 120
Lead	50.0	52.0		mg/Kg		104	80 - 120
Magnesium	2500	2330		mg/Kg		93	80 - 120
Manganese	50.0	52.1		mg/Kg		104	80 - 120
Nickel	50.0	52.0		mg/Kg		104	80 - 120
Potassium	2500	2380		mg/Kg		95	80 - 120
Selenium	100	101		mg/Kg		101	80 - 120
Silver	5.00	5.02		mg/Kg		100	80 - 120
Sodium	2500	2390		mg/Kg		95	80 - 120
Thallium	100	105	^	mg/Kg		105	80 - 120
Vanadium	50.0	48.2		mg/Kg		96	80 - 120
Zinc	50.0	54.6	^	mg/Kg		109	80 - 120

Lab Sample ID: 590-10699-295 MS
Matrix: Solid
Analysis Batch: 21815

Client Sample ID: XRF-63
Prep Type: Total/NA
Prep Batch: 21688

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	19000		501	21200	4	mg/Kg	☼	400	75 - 125
Antimony	27	F1 F2	50.1	45.3	F1	mg/Kg	☼	36	75 - 125
Arsenic	31		100	133		mg/Kg	☼	102	75 - 125
Barium	1500		100	2160	4	mg/Kg	☼	664	75 - 125
Beryllium	ND		50.1	42.1		mg/Kg	☼	84	75 - 125
Cadmium	ND		50.1	46.7		mg/Kg	☼	93	75 - 125
Calcium	67000		2510	76800	4	mg/Kg	☼	399	75 - 125
Chromium	130		50.1	191		mg/Kg	☼	122	75 - 125
Cobalt	56		50.1	107		mg/Kg	☼	102	75 - 125
Copper	2400		50.1	2730	4	mg/Kg	☼	673	75 - 125
Iron	210000		501	233000	4	mg/Kg	☼	5215	75 - 125
Lead	510		50.1	516	4	mg/Kg	☼	21	75 - 125
Magnesium	6400		2510	8820		mg/Kg	☼	95	75 - 125
Manganese	4100		50.1	4370	4	mg/Kg	☼	597	75 - 125
Nickel	19		50.1	73.0		mg/Kg	☼	108	75 - 125
Potassium	3300		2510	5990		mg/Kg	☼	106	75 - 125
Selenium	ND		100	91.9		mg/Kg	☼	92	75 - 125
Silver	ND	F1	5.01	ND	F1 ^	mg/Kg	☼	141	75 - 125
Sodium	1700		2510	4310		mg/Kg	☼	104	75 - 125
Thallium	ND	^	100	106	^	mg/Kg	☼	100	75 - 125
Vanadium	45		50.1	92.9		mg/Kg	☼	95	75 - 125

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 590-10699-295 MS
Matrix: Solid
Analysis Batch: 21815

Client Sample ID: XRF-63
Prep Type: Total/NA
Prep Batch: 21688

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	18000		50.1	18300	4	mg/Kg	☼	472	75 - 125

Lab Sample ID: 590-10699-295 MSD
Matrix: Solid
Analysis Batch: 21815

Client Sample ID: XRF-63
Prep Type: Total/NA
Prep Batch: 21688

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	19000		482	20900	4	mg/Kg	☼	346	75 - 125	2	20
Antimony	27	F1 F2	48.2	34.0	F1 F2	mg/Kg	☼	14	75 - 125	28	20
Arsenic	31		96.4	123		mg/Kg	☼	96	75 - 125	8	20
Barium	1500		96.4	2000	4	mg/Kg	☼	523	75 - 125	8	20
Beryllium	ND		48.2	43.2		mg/Kg	☼	90	75 - 125	3	20
Cadmium	ND		48.2	46.3		mg/Kg	☼	96	75 - 125	1	20
Calcium	67000		2410	75000	4	mg/Kg	☼	339	75 - 125	2	20
Chromium	130		48.2	189		mg/Kg	☼	123	75 - 125	1	20
Cobalt	56		48.2	109		mg/Kg	☼	110	75 - 125	2	20
Copper	2400		48.2	2600	4	mg/Kg	☼	434	75 - 125	5	20
Iron	210000		482	222000	4	mg/Kg	☼	3042	75 - 125	5	20
Lead	510		48.2	597	4	mg/Kg	☼	189	75 - 125	15	20
Magnesium	6400		2410	8930		mg/Kg	☼	104	75 - 125	1	20
Manganese	4100		48.2	4540	4	mg/Kg	☼	954	75 - 125	4	20
Nickel	19		48.2	70.9		mg/Kg	☼	109	75 - 125	3	20
Potassium	3300		2410	5650		mg/Kg	☼	97	75 - 125	6	20
Selenium	ND		96.4	80.0		mg/Kg	☼	83	75 - 125	14	20
Silver	ND	F1	4.82	ND	^	mg/Kg	☼	103	75 - 125	18	20
Sodium	1700		2410	3990		mg/Kg	☼	95	75 - 125	8	20
Thallium	ND	^	96.4	106	^	mg/Kg	☼	104	75 - 125	0	20
Vanadium	45		48.2	93.5		mg/Kg	☼	100	75 - 125	1	20
Zinc	18000		48.2	18800	4	mg/Kg	☼	1628	75 - 125	3	20

Lab Sample ID: 590-10699-295 DU
Matrix: Solid
Analysis Batch: 21815

Client Sample ID: XRF-63
Prep Type: Total/NA
Prep Batch: 21688

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	19000		20900		mg/Kg	☼	9	20
Antimony	27	F1 F2	28.5		mg/Kg	☼	4	20
Arsenic	31		29.3		mg/Kg	☼	5	20
Barium	1500		2050	F3	mg/Kg	☼	31	20
Beryllium	ND		ND		mg/Kg	☼	NC	20
Cadmium	ND		ND		mg/Kg	☼	NC	20
Calcium	67000		74500		mg/Kg	☼	11	20
Chromium	130		146		mg/Kg	☼	12	20
Cobalt	56		60.6		mg/Kg	☼	8	20
Copper	2400		2720		mg/Kg	☼	13	20
Iron	210000		229000		mg/Kg	☼	10	20
Lead	510		527		mg/Kg	☼	4	20
Magnesium	6400		6370		mg/Kg	☼	1	20
Manganese	4100		4640		mg/Kg	☼	13	20

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 590-10699-295 DU
Matrix: Solid
Analysis Batch: 21815

Client Sample ID: XRF-63
Prep Type: Total/NA
Prep Batch: 21688

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Nickel	19		20.8		mg/Kg	☼	11	20
Potassium	3300		3850		mg/Kg	☼	15	20
Selenium	ND		ND		mg/Kg	☼	NC	20
Silver	ND	F1	ND		mg/Kg	☼	NC	20
Sodium	1700		2020		mg/Kg	☼	17	20
Thallium	ND	^	ND		mg/Kg	☼	NC	20
Vanadium	45		47.9		mg/Kg	☼	6	20
Zinc	18000		19300		mg/Kg	☼	6	20

Lab Sample ID: MB 590-21735/2-A
Matrix: Solid
Analysis Batch: 21802

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 21735

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Zinc	ND		5.0		mg/Kg		04/12/19 11:03	04/17/19 09:46	1

Lab Sample ID: LCS 590-21735/1-A
Matrix: Solid
Analysis Batch: 21802

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 21735

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Zinc	50.0	55.3		mg/Kg		111	80 - 120

Lab Sample ID: 590-10699-174 MS
Matrix: Solid
Analysis Batch: 21802

Client Sample ID: TP-21 (0.5-1.0)
Prep Type: Total/NA
Prep Batch: 21735

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
Zinc	38000		570	44800	4	mg/Kg	☼	1174	75 - 125

Lab Sample ID: 590-10699-174 MSD
Matrix: Solid
Analysis Batch: 21802

Client Sample ID: TP-21 (0.5-1.0)
Prep Type: Total/NA
Prep Batch: 21735

Analyte	Sample	Sample	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec. Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Zinc	38000		570	46200	4	mg/Kg	☼	1417	75 - 125	3	20

Lab Sample ID: 590-10699-174 DU
Matrix: Solid
Analysis Batch: 21802

Client Sample ID: TP-21 (0.5-1.0)
Prep Type: Total/NA
Prep Batch: 21735

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Thallium	ND	^	ND		mg/Kg	☼	NC	20
Zinc	38000		42100		mg/Kg	☼	10	20

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 590-21702/9-A
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 21702

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg		04/10/19 14:31	04/12/19 13:59	1

Lab Sample ID: LCS 590-21702/8-A
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 21702

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	200	203		ug/Kg		102	80 - 120

Lab Sample ID: 590-10699-1 MS
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: TP-1 (0.0-0.5)
Prep Type: Total/NA
Prep Batch: 21702

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	ND		204	238		ug/Kg	☼	103	80 - 120

Lab Sample ID: 590-10699-1 MSD
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: TP-1 (0.0-0.5)
Prep Type: Total/NA
Prep Batch: 21702

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Hg	ND		204	234		ug/Kg	☼	101	80 - 120	2	20

Lab Sample ID: 590-10699-1 DU
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: TP-1 (0.0-0.5)
Prep Type: Total/NA
Prep Batch: 21702

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Hg	ND			ND		ug/Kg	☼			NC	20

Lab Sample ID: MB 590-21703/2-A
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 21703

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg		04/10/19 14:33	04/12/19 14:42	1

Lab Sample ID: LCS 590-21703/1-A
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 21703

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	200	213		ug/Kg		107	80 - 120

Lab Sample ID: 590-10699-41 MS
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: TP-6 (0.0-0.5)
Prep Type: Total/NA
Prep Batch: 21703

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	97		192	299		ug/Kg	☼	105	80 - 120

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Method: 7471B - Mercury (CVAA)

Lab Sample ID: 590-10699-41 MSD
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: TP-6 (0.0-0.5)
Prep Type: Total/NA
Prep Batch: 21703

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hg	97		192	311		ug/Kg	☼	111	80 - 120	4	20

Lab Sample ID: 590-10699-41 DU
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: TP-6 (0.0-0.5)
Prep Type: Total/NA
Prep Batch: 21703

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Hg	97		94.4		ug/Kg	☼	3	20

Lab Sample ID: MB 590-21704/2-A
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 21704

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg		04/10/19 14:41	04/12/19 15:52	1

Lab Sample ID: LCS 590-21704/1-A
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 21704

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	200	217		ug/Kg		109	80 - 120

Lab Sample ID: 590-10699-134 MS
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: TP-16 (0.5-1.0)
Prep Type: Total/NA
Prep Batch: 21704

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	ND		199	236		ug/Kg	☼	103	80 - 120

Lab Sample ID: 590-10699-134 MSD
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: TP-16 (0.5-1.0)
Prep Type: Total/NA
Prep Batch: 21704

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hg	ND		199	235		ug/Kg	☼	102	80 - 120	0	20

Lab Sample ID: 590-10699-134 DU
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: TP-16 (0.5-1.0)
Prep Type: Total/NA
Prep Batch: 21704

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Hg	ND		ND		ug/Kg	☼	NC	20

Lab Sample ID: MB 590-21705/2-A
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 21705

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		50		ug/Kg		04/10/19 14:49	04/12/19 16:58	1

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Method: 7471B - Mercury (CVAA)

Lab Sample ID: LCS 590-21705/1-A
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 21705

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	200	221		ug/Kg		111	80 - 120

Lab Sample ID: 590-10699-239 MS
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: XRF-7
Prep Type: Total/NA
Prep Batch: 21705

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	ND		198	232		ug/Kg	☼	113	80 - 120

Lab Sample ID: 590-10699-239 MSD
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: XRF-7
Prep Type: Total/NA
Prep Batch: 21705

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hg	ND		198	226		ug/Kg	☼	110	80 - 120	3	20

Lab Sample ID: 590-10699-239 DU
Matrix: Solid
Analysis Batch: 21750

Client Sample ID: XRF-7
Prep Type: Total/NA
Prep Batch: 21705

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Hg	ND		ND		ug/Kg	☼	NC	20

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-1 (0.0-0.5)

Date Collected: 03/26/19 09:12

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-1 (0.0-0.5)

Date Collected: 03/26/19 09:12

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-1

Matrix: Solid

Percent Solids: 96.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.29 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21733	04/11/19 17:53	JSP	TAL SPK
Total/NA	Prep	7471B			0.51 g	50 mL	21702	04/10/19 14:31	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 14:01	JSP	TAL SPK

Client Sample ID: TP-1 (0.5-1.0)

Date Collected: 03/26/19 09:14

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-1 (0.5-1.0)

Date Collected: 03/26/19 09:14

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-2

Matrix: Solid

Percent Solids: 96.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.17 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21733	04/11/19 10:14	JSP	TAL SPK
Total/NA	Prep	7471B			0.51 g	50 mL	21702	04/10/19 14:31	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 14:10	JSP	TAL SPK

Client Sample ID: TP-1 (3.5-4.0)

Date Collected: 03/26/19 09:26

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-8

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-1 (3.5-4.0)

Date Collected: 03/26/19 09:26

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-8

Matrix: Solid

Percent Solids: 95.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.24 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 10:40	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21702	04/10/19 14:31	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 14:13	JSP	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-3 (0.0-0.5)

Date Collected: 03/26/19 10:30

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-17

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-3 (0.0-0.5)

Date Collected: 03/26/19 10:30

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-17

Matrix: Solid

Percent Solids: 89.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.32 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21733	04/11/19 10:44	JSP	TAL SPK
Total/NA	Prep	7471B			0.56 g	50 mL	21702	04/10/19 14:31	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 14:15	JSP	TAL SPK

Client Sample ID: TP-3 (0.5-1.0)

Date Collected: 03/26/19 10:32

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-18

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-3 (0.5-1.0)

Date Collected: 03/26/19 10:32

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-18

Matrix: Solid

Percent Solids: 97.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.15 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		50			21733	04/11/19 17:57	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21702	04/10/19 14:31	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 14:17	JSP	TAL SPK

Client Sample ID: TP-3 (1.0-1.5)

Date Collected: 03/26/19 10:34

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-19

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-3 (1.0-1.5)

Date Collected: 03/26/19 10:34

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-19

Matrix: Solid

Percent Solids: 96.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.12 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 10:51	JSP	TAL SPK
Total/NA	Prep	7471B			0.53 g	50 mL	21702	04/10/19 14:31	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 14:24	JSP	TAL SPK

Eurofins TestAmerica, Spokane

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-4 (0.0-0.5)

Lab Sample ID: 590-10699-25

Date Collected: 03/26/19 08:37

Matrix: Solid

Date Received: 03/29/19 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-4 (0.0-0.5)

Lab Sample ID: 590-10699-25

Date Collected: 03/26/19 08:37

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 97.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.33 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21733	04/11/19 18:01	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21702	04/10/19 14:31	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 14:26	JSP	TAL SPK

Client Sample ID: TP-4 (0.5-1.0)

Lab Sample ID: 590-10699-26

Date Collected: 03/26/19 08:39

Matrix: Solid

Date Received: 03/29/19 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-4 (0.5-1.0)

Lab Sample ID: 590-10699-26

Date Collected: 03/26/19 08:39

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 97.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.35 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 10:59	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21702	04/10/19 14:31	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 14:29	JSP	TAL SPK

Client Sample ID: TP-4 (3.5-4.0)

Lab Sample ID: 590-10699-32

Date Collected: 03/26/19 08:51

Matrix: Solid

Date Received: 03/29/19 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-4 (3.5-4.0)

Lab Sample ID: 590-10699-32

Date Collected: 03/26/19 08:51

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 94.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.31 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 11:02	JSP	TAL SPK
Total/NA	Prep	7471B			0.54 g	50 mL	21702	04/10/19 14:31	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 14:31	JSP	TAL SPK

Eurofins TestAmerica, Spokane

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-5 (0.0-0.5)

Date Collected: 03/26/19 08:02

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-33

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-5 (0.0-0.5)

Date Collected: 03/26/19 08:02

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-33

Matrix: Solid

Percent Solids: 96.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.18 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		50			21733	04/11/19 18:14	JSP	TAL SPK
Total/NA	Prep	7471B			0.53 g	50 mL	21702	04/10/19 14:31	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 14:33	JSP	TAL SPK

Client Sample ID: TP-5 (0.5-1.0)

Date Collected: 03/26/19 08:04

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-34

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-5 (0.5-1.0)

Date Collected: 03/26/19 08:04

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-34

Matrix: Solid

Percent Solids: 90.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.52 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 11:10	JSP	TAL SPK
Total/NA	Prep	3050B			1.52 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21815	04/17/19 11:28	JSP	TAL SPK
Total/NA	Prep	7471B			0.55 g	50 mL	21702	04/10/19 14:31	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 14:35	JSP	TAL SPK

Client Sample ID: TP-5 (1.0-1.5)

Date Collected: 03/26/19 08:06

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-35

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-5 (1.0-1.5)

Date Collected: 03/26/19 08:06

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-35

Matrix: Solid

Percent Solids: 94.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.18 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 11:13	JSP	TAL SPK

Eurofins TestAmerica, Spokane

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-5 (1.0-1.5)

Lab Sample ID: 590-10699-35

Date Collected: 03/26/19 08:06

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 94.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471B			0.54 g	50 mL	21702	04/10/19 14:31	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 14:38	JSP	TAL SPK

Client Sample ID: TP-6 (0.0-0.5)

Lab Sample ID: 590-10699-41

Date Collected: 03/26/19 12:52

Matrix: Solid

Date Received: 03/29/19 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-6 (0.0-0.5)

Lab Sample ID: 590-10699-41

Date Collected: 03/26/19 12:52

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 100.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.35 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21733	04/11/19 11:27	JSP	TAL SPK
Total/NA	Prep	7471B			0.51 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 14:45	JSP	TAL SPK

Client Sample ID: TP-6 (0.5-1.0)

Lab Sample ID: 590-10699-42

Date Collected: 03/26/19 12:54

Matrix: Solid

Date Received: 03/29/19 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-6 (0.5-1.0)

Lab Sample ID: 590-10699-42

Date Collected: 03/26/19 12:54

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 87.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.31 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 11:30	JSP	TAL SPK
Total/NA	Prep	3050B			1.31 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21815	04/17/19 11:42	JSP	TAL SPK
Total/NA	Prep	7471B			0.58 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 14:58	JSP	TAL SPK

Client Sample ID: TP-6 (2.0-2.5)

Lab Sample ID: 590-10699-45

Date Collected: 03/26/19 13:00

Matrix: Solid

Date Received: 03/29/19 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-6 (2.0-2.5)

Lab Sample ID: 590-10699-45

Date Collected: 03/26/19 13:00

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 87.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.35 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		2			21733	04/11/19 18:18	JSP	TAL SPK
Total/NA	Prep	3050B			1.35 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21815	04/17/19 11:46	JSP	TAL SPK
Total/NA	Prep	7471B			0.58 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:01	JSP	TAL SPK

Client Sample ID: TP-7 (0.0-0.5)

Lab Sample ID: 590-10699-49

Date Collected: 03/25/19 15:36

Matrix: Solid

Date Received: 03/29/19 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-7 (0.0-0.5)

Lab Sample ID: 590-10699-49

Date Collected: 03/25/19 15:36

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 96.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.29 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21733	04/11/19 18:21	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:03	JSP	TAL SPK

Client Sample ID: TP-7 (0.5-1.0)

Lab Sample ID: 590-10699-50

Date Collected: 03/25/19 15:38

Matrix: Solid

Date Received: 03/29/19 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-7 (0.5-1.0)

Lab Sample ID: 590-10699-50

Date Collected: 03/25/19 15:38

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 97.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.36 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 11:42	JSP	TAL SPK
Total/NA	Prep	3050B			1.36 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21815	04/17/19 11:49	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:05	JSP	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-9 (0.0-0.5)

Date Collected: 03/26/19 14:04

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-65

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-9 (0.0-0.5)

Date Collected: 03/26/19 14:04

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-65

Matrix: Solid

Percent Solids: 97.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.32 g	50 mL	21685	04/09/19 12:59	JSP	TAL SPK
Total/NA	Analysis	6010C		50			21733	04/11/19 18:25	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:08	JSP	TAL SPK

Client Sample ID: TP-9 (2.0-2.5)

Date Collected: 03/26/19 14:12

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-69

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21646	04/05/19 14:58	SJK	TAL SPK

Client Sample ID: TP-9 (2.0-2.5)

Date Collected: 03/26/19 14:12

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-69

Matrix: Solid

Percent Solids: 97.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.20 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		50			21733	04/11/19 18:29	JSP	TAL SPK
Total/NA	Prep	7471B			0.54 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:10	JSP	TAL SPK

Client Sample ID: TP-10 (0.0-0.5)

Date Collected: 03/26/19 13:28

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-73

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-10 (0.0-0.5)

Date Collected: 03/26/19 13:28

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-73

Matrix: Solid

Percent Solids: 99.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.11 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21733	04/11/19 12:31	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:12	JSP	TAL SPK

Eurofins TestAmerica, Spokane

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-10 (0.5-1.0)

Lab Sample ID: 590-10699-74

Date Collected: 03/26/19 13:30

Matrix: Solid

Date Received: 03/29/19 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-10 (0.5-1.0)

Lab Sample ID: 590-10699-74

Date Collected: 03/26/19 13:30

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 93.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.20 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21733	04/11/19 18:47	JSP	TAL SPK
Total/NA	Prep	7471B			0.54 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:19	JSP	TAL SPK

Client Sample ID: TP-10 (1.0-1.5)

Lab Sample ID: 590-10699-75

Date Collected: 03/26/19 13:32

Matrix: Solid

Date Received: 03/29/19 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-10 (1.0-1.5)

Lab Sample ID: 590-10699-75

Date Collected: 03/26/19 13:32

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 99.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.24 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 12:48	JSP	TAL SPK
Total/NA	Prep	7471B			0.53 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:21	JSP	TAL SPK

Client Sample ID: TP-11 (0.5-1.0)

Lab Sample ID: 590-10699-82

Date Collected: 03/25/19 14:59

Matrix: Solid

Date Received: 03/29/19 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-11 (0.5-1.0)

Lab Sample ID: 590-10699-82

Date Collected: 03/25/19 14:59

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 96.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.34 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21733	04/11/19 19:02	JSP	TAL SPK
Total/NA	Prep	7471B			0.54 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:24	JSP	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-11 (3.5-4.0)

Lab Sample ID: 590-10699-88

Date Collected: 03/25/19 15:11

Matrix: Solid

Date Received: 03/29/19 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21706	04/10/19 15:51	SJK	TAL SPK

Client Sample ID: TP-11 (3.5-4.0)

Lab Sample ID: 590-10699-88

Date Collected: 03/25/19 15:11

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 96.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.34 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		2			21733	04/11/19 19:05	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:26	JSP	TAL SPK

Client Sample ID: TP-12 (0.0-0.5)

Lab Sample ID: 590-10699-89

Date Collected: 03/25/19 11:55

Matrix: Solid

Date Received: 03/29/19 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-12 (0.0-0.5)

Lab Sample ID: 590-10699-89

Date Collected: 03/25/19 11:55

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 98.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.51 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		50			21733	04/11/19 19:09	JSP	TAL SPK
Total/NA	Prep	7471B			0.51 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:28	JSP	TAL SPK

Client Sample ID: TP-12 (1.0-1.5)

Lab Sample ID: 590-10699-91

Date Collected: 03/25/19 11:59

Matrix: Solid

Date Received: 03/29/19 13:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-12 (1.0-1.5)

Lab Sample ID: 590-10699-91

Date Collected: 03/25/19 11:59

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 93.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.31 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21733	04/11/19 19:13	JSP	TAL SPK
Total/NA	Prep	7471B			0.54 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:31	JSP	TAL SPK

Eurofins TestAmerica, Spokane

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-13 (0.0-0.5)

Date Collected: 03/25/19 14:20

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-97

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-13 (0.0-0.5)

Date Collected: 03/25/19 14:20

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-97

Matrix: Solid

Percent Solids: 94.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.37 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		50			21733	04/11/19 19:16	JSP	TAL SPK
Total/NA	Prep	7471B			0.54 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:33	JSP	TAL SPK

Client Sample ID: TP-14 (0.0-0.5)

Date Collected: 03/25/19 12:39

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-117

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-14 (0.0-0.5)

Date Collected: 03/25/19 12:39

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-117

Matrix: Solid

Percent Solids: 95.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.44 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		50			21733	04/11/19 19:20	JSP	TAL SPK
Total/NA	Prep	7471B			0.54 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:35	JSP	TAL SPK

Client Sample ID: TP-14 (1.0-1.5)

Date Collected: 03/25/19 12:43

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-119

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-14 (1.0-1.5)

Date Collected: 03/25/19 12:43

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-119

Matrix: Solid

Percent Solids: 93.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.34 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21733	04/11/19 13:14	JSP	TAL SPK
Total/NA	Prep	7471B			0.55 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:38	JSP	TAL SPK

Eurofins TestAmerica, Spokane

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-14 (1.5-2.0)

Date Collected: 03/25/19 12:45

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-120

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-14 (1.5-2.0)

Date Collected: 03/25/19 12:45

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-120

Matrix: Solid

Percent Solids: 90.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.37 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 13:18	JSP	TAL SPK
Total/NA	Prep	7471B			0.56 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:40	JSP	TAL SPK

Client Sample ID: TP-16 (0.0-0.5)

Date Collected: 03/25/19 13:11

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-133

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-16 (0.0-0.5)

Date Collected: 03/25/19 13:11

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-133

Matrix: Solid

Percent Solids: 95.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.34 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21733	04/11/19 19:24	JSP	TAL SPK
Total/NA	Prep	7471B			0.53 g	50 mL	21703	04/10/19 14:33	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:47	JSP	TAL SPK

Client Sample ID: TP-16 (0.5-1.0)

Date Collected: 03/25/19 13:13

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-134

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-16 (0.5-1.0)

Date Collected: 03/25/19 13:13

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-134

Matrix: Solid

Percent Solids: 96.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.34 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21733	04/11/19 19:27	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 15:54	JSP	TAL SPK

Eurofins TestAmerica, Spokane

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-16 (3.0-3.5)

Date Collected: 03/25/19 13:23

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-139

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-16 (3.0-3.5)

Date Collected: 03/25/19 13:23

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-139

Matrix: Solid

Percent Solids: 97.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.30 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21733	04/11/19 13:38	JSP	TAL SPK
Total/NA	Prep	3050B			1.30 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21815	04/17/19 11:53	JSP	TAL SPK
Total/NA	Prep	7471B			0.54 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:03	JSP	TAL SPK

Client Sample ID: TP-18 (0.0-0.5)

Date Collected: 03/26/19 15:04

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-149

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-18 (0.0-0.5)

Date Collected: 03/26/19 15:04

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-149

Matrix: Solid

Percent Solids: 96.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.24 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21733	04/11/19 19:31	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:06	JSP	TAL SPK

Client Sample ID: TP-19 (0.0-0.5)

Date Collected: 03/26/19 15:53

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-157

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-19 (0.0-0.5)

Date Collected: 03/26/19 15:53

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-157

Matrix: Solid

Percent Solids: 99.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.35 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21733	04/11/19 19:35	JSP	TAL SPK

Eurofins TestAmerica, Spokane

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-19 (0.0-0.5)

Date Collected: 03/26/19 15:53

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-157

Matrix: Solid

Percent Solids: 99.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471B			0.52 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:08	JSP	TAL SPK

Client Sample ID: TP-19 (0.5-1.0)

Date Collected: 03/26/19 15:55

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-158

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-19 (0.5-1.0)

Date Collected: 03/26/19 15:55

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-158

Matrix: Solid

Percent Solids: 99.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.18 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21733	04/11/19 13:50	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:15	JSP	TAL SPK

Client Sample ID: TP-19 (1.5-2.0)

Date Collected: 03/26/19 15:59

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-160

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-19 (1.5-2.0)

Date Collected: 03/26/19 15:59

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-160

Matrix: Solid

Percent Solids: 96.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.47 g	50 mL	21686	04/09/19 13:01	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21733	04/11/19 13:53	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:17	JSP	TAL SPK

Client Sample ID: TP-21 (0.5-1.0)

Date Collected: 03/27/19 08:37

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-174

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-21 (0.5-1.0)

Date Collected: 03/27/19 08:37

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-174

Matrix: Solid

Percent Solids: 97.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.27 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		50			21733	04/11/19 19:48	JSP	TAL SPK
Total/NA	Prep	3050B			0.09 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21802	04/17/19 10:22	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:19	JSP	TAL SPK

Client Sample ID: TP-21 (1.0-1.5)

Date Collected: 03/27/19 08:39

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-175

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: TP-21 (1.0-1.5)

Date Collected: 03/27/19 08:39

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-175

Matrix: Solid

Percent Solids: 97.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.37 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 14:35	JSP	TAL SPK
Total/NA	Prep	3050B			0.09 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21827	04/18/19 10:51	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:22	JSP	TAL SPK

Client Sample ID: TP-22 (0.0-0.5)

Date Collected: 03/27/19 09:28

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-181

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21706	04/10/19 15:51	SJK	TAL SPK

Client Sample ID: TP-22 (0.0-0.5)

Date Collected: 03/27/19 09:28

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-181

Matrix: Solid

Percent Solids: 94.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.75 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21733	04/11/19 14:40	JSP	TAL SPK
Total/NA	Prep	3050B			1.75 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21815	04/17/19 11:57	JSP	TAL SPK
Total/NA	Prep	3050B			0.09 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21815	04/17/19 13:32	JSP	TAL SPK
Total/NA	Prep	7471B			0.54 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:24	JSP	TAL SPK

Eurofins TestAmerica, Spokane

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-22 (0.5-1.0)

Date Collected: 03/27/19 09:30

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-182

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21706	04/10/19 15:51	SJK	TAL SPK

Client Sample ID: TP-22 (0.5-1.0)

Date Collected: 03/27/19 09:30

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-182

Matrix: Solid

Percent Solids: 92.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.43 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21815	04/17/19 12:01	JSP	TAL SPK
Total/NA	Prep	3050B			0.09 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21815	04/17/19 13:36	JSP	TAL SPK
Total/NA	Prep	7471B			0.56 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		10			21750	04/12/19 17:47	JSP	TAL SPK

Client Sample ID: TP-22 (1.0-1.5)

Date Collected: 03/27/19 09:32

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-183

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21706	04/10/19 15:51	SJK	TAL SPK

Client Sample ID: TP-22 (1.0-1.5)

Date Collected: 03/27/19 09:32

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-183

Matrix: Solid

Percent Solids: 96.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.23 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21815	04/17/19 12:05	JSP	TAL SPK
Total/NA	Prep	3050B			0.09 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21815	04/17/19 13:40	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:30	JSP	TAL SPK

Client Sample ID: TP-23 (0.0-0.5)

Date Collected: 03/27/19 09:57

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-189

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: TP-23 (0.0-0.5)

Date Collected: 03/27/19 09:57

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-189

Matrix: Solid

Percent Solids: 89.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.29 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 14:52	JSP	TAL SPK
Total/NA	Prep	3050B			0.09 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21815	04/17/19 13:43	JSP	TAL SPK
Total/NA	Prep	7471B			0.56 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:32	JSP	TAL SPK

Client Sample ID: TP-25 (0.0-0.5)

Date Collected: 03/27/19 11:10

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-205

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:40	SJK	TAL SPK

Client Sample ID: TP-25 (0.0-0.5)

Date Collected: 03/27/19 11:10

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-205

Matrix: Solid

Percent Solids: 79.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.20 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 14:55	JSP	TAL SPK
Total/NA	Prep	3050B			1.20 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21815	04/17/19 12:09	JSP	TAL SPK
Total/NA	Prep	3050B			0.09 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21815	04/17/19 13:47	JSP	TAL SPK
Total/NA	Prep	7471B			0.63 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:35	JSP	TAL SPK

Client Sample ID: HS-1 (1.5-2.0)

Date Collected: 03/27/19 14:00

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-224

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:40	SJK	TAL SPK

Client Sample ID: HS-1 (1.5-2.0)

Date Collected: 03/27/19 14:00

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-224

Matrix: Solid

Percent Solids: 76.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.29 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21733	04/11/19 15:09	JSP	TAL SPK
Total/NA	Prep	3050B			0.09 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21815	04/17/19 13:51	JSP	TAL SPK
Total/NA	Prep	7471B			0.66 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:37	JSP	TAL SPK

Eurofins TestAmerica, Spokane

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: HS-2 (0.0-0.5)

Date Collected: 03/27/19 14:07

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-226

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:40	SJK	TAL SPK

Client Sample ID: HS-2 (0.0-0.5)

Date Collected: 03/27/19 14:07

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-226

Matrix: Solid

Percent Solids: 84.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.60 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 15:13	JSP	TAL SPK
Total/NA	Prep	3050B			0.08 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21815	04/17/19 13:55	JSP	TAL SPK
Total/NA	Prep	7471B			0.60 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:44	JSP	TAL SPK

Client Sample ID: HS-2 (0.5-1.0)

Date Collected: 03/27/19 14:09

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-227

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:40	SJK	TAL SPK

Client Sample ID: HS-2 (0.5-1.0)

Date Collected: 03/27/19 14:09

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-227

Matrix: Solid

Percent Solids: 84.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.52 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21815	04/17/19 12:13	JSP	TAL SPK
Total/NA	Prep	3050B			0.09 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21815	04/17/19 14:08	JSP	TAL SPK
Total/NA	Prep	7471B			0.60 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:46	JSP	TAL SPK

Client Sample ID: HS-2 (1.0-1.5)

Date Collected: 03/27/19 14:11

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-228

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:40	SJK	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: HS-2 (1.0-1.5)

Date Collected: 03/27/19 14:11

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-228

Matrix: Solid

Percent Solids: 88.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.46 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21815	04/17/19 12:17	JSP	TAL SPK
Total/NA	Prep	3050B			0.09 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21815	04/17/19 14:13	JSP	TAL SPK
Total/NA	Prep	7471B			0.59 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:49	JSP	TAL SPK

Client Sample ID: HS-3 (0.5-1.0)

Date Collected: 03/27/19 15:06

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-231

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:48	SJK	TAL SPK

Client Sample ID: HS-3 (0.5-1.0)

Date Collected: 03/27/19 15:06

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-231

Matrix: Solid

Percent Solids: 90.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.35 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		50			21815	04/17/19 12:30	JSP	TAL SPK
Total/NA	Prep	3050B			0.09 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21815	04/17/19 14:16	JSP	TAL SPK
Total/NA	Prep	7471B			0.56 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:51	JSP	TAL SPK

Client Sample ID: XRF-1

Date Collected: 03/25/19 14:24

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-233

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: XRF-1

Date Collected: 03/25/19 14:24

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-233

Matrix: Solid

Percent Solids: 93.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.21 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		50			21815	04/17/19 14:57	JSP	TAL SPK
Total/NA	Prep	3050B			0.09 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21815	04/17/19 15:01	JSP	TAL SPK
Total/NA	Prep	7471B			0.55 g	50 mL	21704	04/10/19 14:41	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 16:53	JSP	TAL SPK

Eurofins TestAmerica, Spokane

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: XRF-7
Date Collected: 03/25/19 15:40
Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-239
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: XRF-7
Date Collected: 03/25/19 15:40
Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-239
Matrix: Solid
Percent Solids: 97.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.16 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		5			21733	04/11/19 15:31	JSP	TAL SPK
Total/NA	Prep	3050B			0.09 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21815	04/17/19 14:24	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21705	04/10/19 14:49	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 17:00	JSP	TAL SPK

Client Sample ID: XRF-11
Date Collected: 03/26/19 08:24
Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-243
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: XRF-11
Date Collected: 03/26/19 08:24
Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-243
Matrix: Solid
Percent Solids: 93.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.24 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21815	04/17/19 12:38	JSP	TAL SPK
Total/NA	Prep	3050B			0.10 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21815	04/17/19 14:28	JSP	TAL SPK
Total/NA	Prep	7471B			0.54 g	50 mL	21705	04/10/19 14:49	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 17:14	JSP	TAL SPK

Client Sample ID: XRF-24
Date Collected: 03/26/19 11:04
Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-256
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: XRF-24

Date Collected: 03/26/19 11:04

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-256

Matrix: Solid

Percent Solids: 96.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.40 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		50			21815	04/17/19 12:42	JSP	TAL SPK
Total/NA	Prep	3050B			0.09 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21815	04/17/19 15:05	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21705	04/10/19 14:49	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 17:17	JSP	TAL SPK

Client Sample ID: XRF-26

Date Collected: 03/26/19 11:41

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-258

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: XRF-26

Date Collected: 03/26/19 11:41

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-258

Matrix: Solid

Percent Solids: 84.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.32 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21815	04/17/19 12:46	JSP	TAL SPK
Total/NA	Prep	3050B			0.09 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21815	04/17/19 14:36	JSP	TAL SPK
Total/NA	Prep	7471B			0.61 g	50 mL	21705	04/10/19 14:49	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 17:19	JSP	TAL SPK

Client Sample ID: XRF-49

Date Collected: 03/27/19 08:41

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-281

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21706	04/10/19 15:51	SJK	TAL SPK

Client Sample ID: XRF-49

Date Collected: 03/27/19 08:41

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-281

Matrix: Solid

Percent Solids: 99.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.42 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		50			21815	04/17/19 12:50	JSP	TAL SPK
Total/NA	Prep	3050B			0.08 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21815	04/17/19 15:09	JSP	TAL SPK
Total/NA	Prep	7471B			0.54 g	50 mL	21705	04/10/19 14:49	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 17:21	JSP	TAL SPK

Eurofins TestAmerica, Spokane

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: XRF-50

Date Collected: 03/27/19 08:55

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-282

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21706	04/10/19 15:51	SJK	TAL SPK

Client Sample ID: XRF-50

Date Collected: 03/27/19 08:55

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-282

Matrix: Solid

Percent Solids: 99.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.32 g	50 mL	21687	04/09/19 13:16	JSP	TAL SPK
Total/NA	Analysis	6010C		50			21815	04/17/19 12:54	JSP	TAL SPK
Total/NA	Prep	3050B			0.10 g	50 mL	21735	04/12/19 11:03	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21815	04/17/19 14:43	JSP	TAL SPK
Total/NA	Prep	7471B			0.52 g	50 mL	21705	04/10/19 14:49	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 17:24	JSP	TAL SPK

Client Sample ID: XRF-63

Date Collected: 03/27/19 12:46

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-295

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21706	04/10/19 15:51	SJK	TAL SPK

Client Sample ID: XRF-63

Date Collected: 03/27/19 12:46

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-295

Matrix: Solid

Percent Solids: 99.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.15 g	50 mL	21688	04/09/19 13:19	JSP	TAL SPK
Total/NA	Analysis	6010C		10			21815	04/17/19 12:58	JSP	TAL SPK
Total/NA	Prep	7471B			0.51 g	50 mL	21705	04/10/19 14:49	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 17:26	JSP	TAL SPK

Client Sample ID: XRF-66

Date Collected: 03/27/19 13:05

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-298

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21706	04/10/19 15:51	SJK	TAL SPK

Client Sample ID: XRF-66

Date Collected: 03/27/19 13:05

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-298

Matrix: Solid

Percent Solids: 91.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.13 g	50 mL	21688	04/09/19 13:19	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 16:39	JSP	TAL SPK

Eurofins TestAmerica, Spokane

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Client Sample ID: XRF-66

Date Collected: 03/27/19 13:05

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-298

Matrix: Solid

Percent Solids: 91.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471B			0.56 g	50 mL	21705	04/10/19 14:49	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 17:28	JSP	TAL SPK

Client Sample ID: Dup-1

Date Collected: 03/26/19 08:00

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-342

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: Dup-1

Date Collected: 03/26/19 08:00

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-342

Matrix: Solid

Percent Solids: 95.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.32 g	50 mL	21688	04/09/19 13:19	JSP	TAL SPK
Total/NA	Analysis	6010C		50			21815	04/17/19 13:28	JSP	TAL SPK
Total/NA	Prep	3050B			1.32 g	50 mL	21688	04/09/19 13:19	JSP	TAL SPK
Total/NA	Analysis	6010C		50			21827	04/18/19 10:47	JSP	TAL SPK
Total/NA	Prep	7471B			0.54 g	50 mL	21705	04/10/19 14:49	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 17:31	JSP	TAL SPK

Client Sample ID: Dup-2

Date Collected: 03/26/19 08:30

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-343

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			21679	04/09/19 08:39	SJK	TAL SPK

Client Sample ID: Dup-2

Date Collected: 03/26/19 08:30

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-343

Matrix: Solid

Percent Solids: 95.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.22 g	50 mL	21688	04/09/19 13:19	JSP	TAL SPK
Total/NA	Analysis	6010C		1			21733	04/11/19 16:48	JSP	TAL SPK
Total/NA	Prep	7471B			0.54 g	50 mL	21705	04/10/19 14:49	JSP	TAL SPK
Total/NA	Analysis	7471B		1			21750	04/12/19 17:33	JSP	TAL SPK

Laboratory References:

TAL SPK = Eurofins TestAmerica, Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Laboratory: Eurofins TestAmerica, Spokane

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-025	12-07-19
Oregon	NELAP	10	4137	12-07-19
Washington	State Program	10	C569	01-06-20

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Method Summary

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL SPK
7471B	Mercury (CVAA)	SW846	TAL SPK
Moisture	Percent Moisture	EPA	TAL SPK
3050B	Preparation, Metals	SW846	TAL SPK
7471B	Preparation, Mercury	SW846	TAL SPK

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SPK = Eurofins TestAmerica, Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200



TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		of 28 COCs	
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS									
(509) 363-3125		TAT if different from Below _____									
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks									
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 1 week									
Site: Northport Waterfront		<input type="checkbox"/> 2 days									
P O # 0504-160-00		<input type="checkbox"/> 1 day									
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:				
TP-1 (0.0-0.5)		3/26/19	0912	G	Soil	1					
TP-1 (0.5-1.0)			0914	G	Soil	1					
TP-1 (1.0-1.5)			0916	G	Soil	1					
TP-1 (1.5-2.0)			0918	G	Soil	1					
TP-1 (2.0-2.5)			0920	G	Soil	1					
TP-1 (2.5-3.0)			0922	G	Soil	1					
TP-1 (3.0-3.5)			0924	G	Soil	1					
TP-1 (3.5-4.0)			0926	G	Soil	1					
TP-2 (0.0-0.5)			0955	G	Soil	1					
TP-2 (0.5-1.0)			0957	G	Soil	1					
TP-2 (1.0-1.5)			0959	G	Soil	1					
TP-2 (1.5-2.0)			1001	G	Soil	1					
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months					
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:		
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: <i>3/21/19-12:59</i>		Received by: <i>Madhu 01006</i>		Company: <i>TA SPO</i>		Date/Time: <i>3/20/19 1259</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:	



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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date: Carrier:		COC No: 2 of 28 COCs	
		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals
TP-2 (2.0-2.5)		3/26/19	1003	G	Soil	1	X		
TP-2 (2.5-3.0)			1005	G	Soil	1	X		
TP-2 (3.0-3.5)			1007	G	Soil	1	X		
TP-2 (3.5-4.0)			1009	G	Soil	1	X		
TP-3 (0.0-0.5)			1030	G	Soil	1	X		
TP-3 (0.5-1.0)			1032	G	Soil	1	X		
TP-3 (1.0-1.5)			1034	G	Soil	1	X		
TP-3 (1.5-2.0)			1031	G	Soil	1	X		
TP-3 (2.0-2.5)			1038	G	Soil	1	X		
TP-3 (2.5-3.0)			1040	G	Soil	1	X		
TP-3 (3.0-3.5)			1042	G	Soil	1	X		
TP-3 (3.5-4.0)			1044	G	Soil	1	X		
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: 3/29/19-13:00		Received by: <i>Marica O'Bole</i>		Company: <i>TA-SR</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date: Carrier:		COC No: 5 of 28 COCs	
		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	TAL Metals
TP-4 (0.0-0.5)		3/26/19	0837	G	Soil	1		X	
TP-4 (0.5-1.0)			0839	G	Soil	1		X	
TP-4 (1.0-1.5)			0841	G	Soil	1		X	
TP-4 (1.5-2.0)			0843	G	Soil	1		X	
TP-4 (2.0-2.5)			0845	G	Soil	1		X	
TP-4 (2.5-3.0)			0847	G	Soil	1		X	
TP-4 (3.0-3.5)			0849	G	Soil	1		X	
TP-4 (3.5-4.0)			0851	G	Soil	1		X	
TP-5 (0.0-0.5)			0802	G	Soil	1		X	
TP-5 (0.5-1.0)			0804	G	Soil	1		X	
TP-5 (1.0-1.5)			0806	G	Soil	1		X	
TP-5 (1.5-2.0)			0808	G	Soil	1		X	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by: [Signature]		Company: GEI		Date/Time: 3/29/19-1300		Received by: Maria Ordoz		Company: TA-SDP	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date:		COC No: 7 of 28 COCs	
Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day								Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00									
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	TAL Metals
TP-5 (2.0-2.5)		3/26/19	0810	G	Soil	1		X	
TP-5 (2.5-3.0)			0812	G	Soil	1		X	
TP-5 (3.0-3.5)			0814	G	Soil	1		X	
TP-5 (3.5-4.0)			0816	G	Soil	1		X	
TP-6 (0.0-0.5)			1252	G	Soil	1		X	
TP-6 (0.5-1.0)			1254	G	Soil	1		X	
TP-6 (1.0-1.5)			1256	G	Soil	1		X	
TP-6 (1.5-2.0)			1258	G	Soil	1		X	
TP-6 (2.0-2.5)			1300	G	Soil	1		X	
TP-6 (2.5-3.0)			1302	G	Soil	1		X	
TP-6 (3.0-3.5)			1304	G	Soil	1		X	
TP-6 (3.5-4.0)			1306	G	Soil	1		X	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: 3/29/19-1300		Received by: <i>Maribel OToole</i>		Company: <i>TA S10</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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Chain of Custody Record



TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date:		COC No: 5 of 28 COCs	
		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Sampler: For Lab Use Only: Walk-in Client: Lab Sampling:	
								Job / SDG No.:	
								Sample Specific Notes:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals
TP-7(0.0-0.5)		3/25/19	1536	G	Soil	1		X	
TP-7(0.5-1.0)			1538	G	Soil	1		X	
TP-7(1.0-1.5)			1540	G	Soil	1		X	
TP-7(1.5-2.0)			1542	G	Soil	1		X	
TP-7(2.0-2.5)			1544	G	Soil	1		X	
TP-7(2.5-3.0)			1546	G	Soil	1		X	
TP-7(3.0-3.5)			1548	G	Soil	1		X	
TP-7(3.5-4.0)			1550	G	Soil	1		X	
TP-8(0.0-0.5)			1617	G	Soil	1		X	
TP-8(0.5-1.0)			1619	G	Soil	1		X	
TP-8(1.0-1.5)			1621	G	Soil	1		X	
TP-8(1.5-2.0)			1623	G	Soil	1		X	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: <i>3/29/19-1300</i>		Received by: <i>Maria O'Boole</i>		Company: <i>TA SDP</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		of 28 COCs	
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.: Sample Specific Notes:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____									
(509) 363-3125		<input checked="" type="checkbox"/> 2 weeks									
(509) 747-2250		<input type="checkbox"/> 1 week									
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 2 days									
Site: Northport Waterfront		<input type="checkbox"/> 1 day									
P O # 0504-160-00											
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.					
TP-8 (2.0-2.5)		3/15/19	1625	G	Soil	1	X				
TP-8 (2.5-3.0)			1627	G	Soil	1	X				
TP-8 (3.0-3.5)			1629	G	Soil	1	X				
TP-8 (3.5-4.0)			1631	G	Soil	1	X				
TP-9 (0.0-0.5)		3/26/19	1404	G	Soil	1	X				
TP-9 (0.5-1.0)			1406	G	Soil	1	X				
TP-9 (1.0-1.5)			1408	G	Soil	1	X				
TP-9 (1.5-2.0)			1410	G	Soil	1	X				
TP-9 (2.0-2.5)			1412	G	Soil	1	X				
TP-9 (2.5-3.0)			1414	G	Soil	1	X				
TP-9 (3.0-3.5)			1416	G	Soil	1	X				
TP-9 (3.5-4.0)			1418	G	Soil	1	X				
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other											
Possible Hazard Identification:							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.											
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.											
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:		
Relinquished by:		Company:			Date/Time: 3/29/19-13:00		Received by: Maria Toledo		Company: TASP		Date/Time: 3/29/19 13:00
Relinquished by:		Company:			Date/Time:		Received by:		Company:		Date/Time:
Relinquished by:		Company:			Date/Time:		Received in Laboratory by:		Company:		Date/Time:

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TestAmerica Spokane

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Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:			COC No:		
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:			7 of 28 COCs		
523 E Second Ave		Analysis Turnaround Time											
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day											
(509) 363-3125		Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals											
(509) 747-2250													
Project Name: Northport Waterfront Remedial Investigation													
Site: Northport Waterfront													
P O # 0504-160-00		For Lab Use Only: Walk-in Client: _____ Lab Sampling: _____ Job / SDG No.: _____											
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:						
TP-10(0.0-0.5)		3/26/19	1328	G	Soil	1							
TP-10(0.5-1.0)			1330	G	Soil	1							
TP-10(1.0-1.5)			1332	G	Soil	1							
TP-10(1.5-2.0)			1334	G	Soil	1							
TP-10(2.0-2.5)			1336	G	Soil	1							
TP-10(2.5-3.0)			1338	G	Soil	1							
TP-10(3.0-3.5)			1340	G	Soil	1							
TP-10(3.5-4.0)			1342	G	Soil	1							
TP-11(0.0-0.5)		3/25/19	1457	G	Soil	1							
TP-11(0.5-1.0)			1459	G	Soil	1							
TP-11(1.0-1.5)			1501	G	Soil	1							
TP-11(1.5-2.0)			1503	G	Soil	1							
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other													
Possible Hazard Identification:												Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.													
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown												<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.													
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No				Custody Seal No.:				Cooler Temp. (°C): Obs'd:				Therm ID No.:	
Relinquished by: <i>[Signature]</i>				Company: <i>GEI</i>				Date/Time: <i>3/29/19-1300</i>				Received by: <i>MARICA OTOOLE</i>	
												Company: <i>TA SPO</i>	
Relinquished by:				Company:				Date/Time:				Date/Time: <i>3/29/19 13:00</i>	
Relinquished by:				Company:				Date/Time:				Date/Time:	
Relinquished by:				Company:				Date/Time:				Date/Time:	

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TestAmerica Spokane

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Chain of Custody Record



TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:			COC No:		
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:			8 of 18 COCs		
523 E Second Ave		Analysis Turnaround Time											
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day											
(509) 363-3125		Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals											
(509) 747-2250													
Project Name: Northport Waterfront Remedial Investigation													
Site: Northport Waterfront													
P O # 0504-160-00		For Lab Use Only: Walk-in Client: _____ Lab Sampling: _____ Job / SDG No.: _____											
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:						
TP-11 (2.0-2.5)		3/25/19	1505	G	Soil	1							
TP-11 (2.5-3.0)			1507	G	Soil	1							
TP-11 (3.0-3.5)			1509	G	Soil	1							
TP-11 (3.5-4.0)			1511	G	Soil	1							
TP-12 (0.0-0.5)			1155	G	Soil	1							
TP-12 (0.5-1.0)			1157	G	Soil	1							
TP-12 (1.0-1.5)			1159	G	Soil	1							
TP-12 (1.5-2.0)			1201	G	Soil	1							
TP-12 (2.0-2.5)			1203	G	Soil	1							
TP-12 (2.5-3.0)			1205	G	Soil	1							
TP-12 (3.0-3.5)			1207	G	Soil	1							
TP-12 (3.5-4.0)			1209	G	Soil	1							
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other													
Possible Hazard Identification:							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months						
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown													
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.													
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Custody Seal No.:				Cooler Temp. (°C): Obs'd: _____		Corr'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>				Company: <i>GET</i>		Date/Time: <i>3/26/19-13:00</i>		Received by: <i>Maria Croole</i>		Company: <i>TASPO</i>		Date/Time: <i>3/29/19 13:00</i>	
Relinquished by:				Company:		Date/Time:		Received by:		Company:		Date/Time:	
Relinquished by:				Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:	

TestAmerica Spokane

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Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:			COC No:		
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:			9 of 28 COCs		
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N)			Perform MS/MSD (Y/N)			TAL Metals		
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day											
(509) 363-3125													
(509) 747-2250													
Project Name: Northport Waterfront Remedial Investigation											Sampler:		
Site: Northport Waterfront											For Lab Use Only:		
P O # 0504-160-00											Walk-in Client:		
											Lab Sampling:		
											Job / SDG No.:		
											Sample Specific Notes:		
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	TAL Metals				
TP-13 (0.0-0.5)		3/25/19	1420	G	Soil	1			X				
TP-13 (0.5-1.0)			1422	G	Soil	1			X				
TP-13 (1.0-1.5)			1424	G	Soil	1			X				
TP-13 (1.5-2.0)			1426	G	Soil	1			X				
TP-13 (2.0-2.5)			1428	G	Soil	1			X				
TP-13 (2.5-3.0)			1430	G	Soil	1			X				
TP-13 (3.0-3.5)			1432	G	Soil	1			X				
TP-13 (3.5-4.0)			1434	G	Soil	1			X				
TP-14 (0.0-0.5)			1239	G	Soil	1			X				
TP-14 (0.5-1.0)			1241	G	Soil	1			X				
TP-14 (1.0-1.5)			1243	G	Soil	1			X				
TP-14 (1.5-2.0)			1245	G	Soil	1			X				
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other													
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown								<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months					
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.													
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No				Custody Seal No.:				Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>				Company: <i>GET</i>				Date/Time: <i>3/29/19-1300</i>		Received by: <i>Marica Stode</i>		Company: <i>TASPO</i>	
Date/Time: _____				Date/Time: _____				Date/Time: _____		Date/Time: _____		Date/Time: <i>3/29/19 13:00</i>	
Relinquished by: _____				Company: _____				Date/Time: _____		Received in Laboratory by: _____		Company: _____	
Date/Time: _____				Date/Time: _____				Date/Time: _____		Date/Time: _____		Date/Time: _____	

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Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date: Carrier:		COC No: 10 of 18 COCs	
		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals
TP-14 (2.0-2.5)		3/25/19	1247	G	Soil	1		X	
TP-14 (2.5-3.0)			1249	G	Soil	1		X	
TP-14 (3.0-3.5)			1251	G	Soil	1		X	
TP-14 (3.5-4.0)			1253	G	Soil	1		X	
TP-15 (0.0-0.5)			1342	G	Soil	1		X	
TP-15 (0.5-1.0)			1344	G	Soil	1		X	
TP-15 (1.0-1.5)			1346	G	Soil	1		X	
TP-15 (1.5-2.0)			1348	G	Soil	1		X	
TP-15 (2.0-2.5)			1350	G	Soil	1		X	
TP-15 (2.5-3.0)			1352	G	Soil	1		X	
TP-15 (3.0-3.5)			1354	G	Soil	1		X	
TP-15 (3.5-4.0)			1356	G	Soil	1		X	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____	
Relinquished by: <i>[Signature]</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19-1:00</i>		Received by: <i>Marla OToole</i>		Company: <i>TASPO</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:			COC No:		
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:			11 of 25 COCs		
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals						Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:		
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS											
(509) 363-3125		TAT if different from Below _____											
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks											
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 1 week											
Site: Northport Waterfront		<input type="checkbox"/> 2 days											
P O # 0504-160-00		<input type="checkbox"/> 1 day											
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:						
TP-16 (0.0-0.5)		3/25/19	1311	G	Soil	1							
TP-16 (0.5-1.0)			1313	G	Soil	1							
TP-16 (1.0-1.5)			1315	G	Soil	1							
TP-16 (1.5-2.0)			1317	G	Soil	1							
TP-16 (2.0-2.5)			1319	G	Soil	1							
TP-16 (2.5-3.0)			1321	G	Soil	1							
TP-16 (3.0-3.5)			1323	G	Soil	1							
TP-16 (3.5-4.0)			1325	G	Soil	1							
TP-17 (0.0-0.5)		3/26/19	1122	G	Soil	1							
TP-17 (0.5-1.0)			1124	G	Soil	1							
TP-17 (1.0-1.5)			1126	G	Soil	1							
TP-17 (1.5-2.0)			1128	G	Soil	1							
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other													
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months						
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.													
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____			Corr'd: _____			Therm ID No.: _____		
Relinquished by: <i>[Signature]</i>		Company: <i>GEI</i>			Date/Time: <i>3/29/19 13:00</i>			Received by: <i>Maria O'Neil</i>			Company: <i>TASPO</i>		
Relinquished by:		Company:			Date/Time:			Received by:			Date/Time:		
Relinquished by:		Company:			Date/Time:			Received in Laboratory by:			Date/Time:		

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Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:		
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		12 of 28 COCs		
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:		
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS										
(509) 363-3125		TAT if different from Below _____										
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day										
Project Name: Northport Waterfront Remedial Investigation		Sample Date			Sample Time			Sample Type (C=Comp, G=Grab)			Sample Specific Notes:	
Site: Northport Waterfront												
P O # 0504-160-00												
TP-17 (2.0-2.5)		3/26/19			1130			G			Soil 1	
TP-17 (2.5-3.0)					1132			G			Soil 1	
TP-17 (3.0-3.5)					1134			G			Soil 1	
TP-17 (3.5-4.0)					1136			G			Soil 1	
TP-18 (0.0-0.5)					1504			G			Soil 1	
TP-18 (0.5-1.0)					1506			G			Soil 1	
TP-18 (1.0-1.5)					1508			G			Soil 1	
TP-18 (1.5-2.0)					1510			G			Soil 1	
TP-18 (2.0-2.5)					1512			G			Soil 1	
TP-18 (2.5-3.0)					1514			G			Soil 1	
TP-18 (3.0-3.5)					1516			G			Soil 1	
TP-18 (3.5-4.0)					1518			G			Soil 1	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other												
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months							
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.												
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd:			Corr'd:		Therm ID No.:		
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>			Date/Time: <i>3/29/19-1300</i>			Received by: <i>Maria Orosko</i>		Company: <i>TA SPU</i>		
Relinquished by:		Company:			Date/Time:			Received by:		Company:		
Relinquished by:		Company:			Date/Time:			Received in Laboratory by:		Company:		

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TestAmerica Spokane

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Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee		Date:		COC No:										
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:		Carrier:		13 of 28 COCs										
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:										
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS																	
(509) 363-3125		TAT if different from Below _____																	
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks																	
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 1 week																	
Site: Northport Waterfront		<input type="checkbox"/> 2 days			Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.		Sample Specific Notes:		
P O # 0504-160-00		<input type="checkbox"/> 1 day																	
TP-19 (0.0-0.5)		3/26/19		1553		G		Soil		1									
TP-19 (0.5-1.0)				1555		G		Soil		1									
TP-19 (1.0-1.5)				1557		G		Soil		1									
TP-19 (1.5-2.0)				1559		G		Soil		1									
TP-19 (2.0-2.5)				1601		G		Soil		1									
TP-19 (2.5-3.0)				1603		G		Soil		1									
TP-19 (3.0-3.5)				1605		G		Soil		1									
TP-19 (3.5-4.0)				1607		G		Soil		1									
TP-20 (0.0-0.5)		3/27/19		0803		G		Soil		1									
TP-20 (0.5-1.0)				0805		G		Soil		1									
TP-20 (1.0-1.5)				0807		G		Soil		1									
TP-20 (1.5-2.0)				0809		G		Soil		1									
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other																			
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.																			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown																			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																			
<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months																			
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.																			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No				Custody Seal No.:				Cooler Temp. (°C): Obs'd: _____ Corr'd: _____				Therm ID No.:							
Relinquished by: <i>[Signature]</i>				Company: <i>GPI</i>				Date/Time: <i>3/29/19-1300</i>				Received by: <i>MARGA OTOOLE</i>							
												Company: <i>TA-SPU</i>							
												Date/Time: <i>3/29/19 13:00</i>							
Relinquished by:				Company:				Date/Time:				Received in Laboratory by:							
												Company:							
												Date/Time:							

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TestAmerica Spokane

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Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:			COC No:			
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:			14 of 28 COCs			
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y / N) Perform MS / MSD (Y / N) TAL Metals						Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.: Sample Specific Notes:			
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____												
(509) 363-3125		<input checked="" type="checkbox"/> 2 weeks												
(509) 747-2250		<input type="checkbox"/> 1 week												
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 2 days												
Site: Northport Waterfront		<input type="checkbox"/> 1 day												
P O # 0504-160-00														
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.								
TP-20 (2.0-2.5)		3/29/19	0811	G	Soil	1	X							
TP-20 (2.5-3.0)			0813	G	Soil	1	X							
TP-20 (3.0-3.5)			0815	G	Soil	1	X							
TP-20 (3.5-4.0)			0817	G	Soil	1	X							
TP-21 (0.0-0.5)			0835	G	Soil	1	X							
TP-21 (0.5-1.0)			0837	G	Soil	1	X							
TP-21 (1.0-1.5)			0839	G	Soil	1	X							
TP-21 (1.5-2.0)			0841	G	Soil	1	X							
TP-21 (2.0-2.5)			0843	G	Soil	1	X							
TP-21 (2.5-3.0)			0845	G	Soil	1	X							
TP-21 (3.0-3.5)			0847	G	Soil	1	X							
TP-21 (3.5-4.0)			0849	G	Soil	1	X							
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other														
Possible Hazard Identification:							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months							
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown														
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.														
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____			Corr'd: _____			Therm ID No.: _____		
Relinquished by: <i>[Signature]</i>			Company: <i>GET</i>			Date/Time: <i>3/29/19 1300</i>			Received by:			Company: _____		
Relinquished by:			Company:			Date/Time:			Received by:			Company: _____		
Relinquished by:			Company:			Date/Time:			Received in Laboratory by:			Company: _____		

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



4/19/2019

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:		
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		15 of 28 COCs		
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:		
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS										
(509) 363-3125		TAT if different from Below _____										
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day										
Project Name: Northport Waterfront Remedial Investigation												
Site: Northport Waterfront												
P O # 0504-160-00												
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.						Sample Specific Notes:
TP-22 (0.0-0.5)		3/27/19	0928	G	Soil	1	X					
TP-22 (0.5-1.0)			0930	G	Soil	1	X					
TP-22 (1.0-1.5)			0932	G	Soil	1	X					
TP-22 (1.5-2.0)			0934	G	Soil	1	X					
TP-22 (2.0-2.5)			0936	G	Soil	1	X					
TP-22 (2.5-3.0)			0938	G	Soil	1	X					
TP-22 (3.0-3.5)			0940	G	Soil	1	X					
TP-22 (3.5-4.0)			0942	G	Soil	1	X					
TP-23 (0.0-0.5)			0957	G	Soil	1	X					
TP-23 (0.5-1.0)			0959	G	Soil	1	X					
TP-23 (1.0-1.5)			1001	G	Soil	1	X					
TP-23 (1.5-2.0)			1003	G	Soil	1	X					
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other												
Possible Hazard Identification:							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.												
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months					
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.												
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____			
Relinquished by:		Company: GET			Date/Time: 3/28/19-1300		Received by: Maria O'Toole		Company: TA SPO		Date/Time: 3/29/19 13:00	
Relinquished by:		Company:			Date/Time:		Received by:		Company:		Date/Time:	
Relinquished by:		Company:			Date/Time:		Received in Laboratory by:		Company:		Date/Time:	

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date:		COC No: 16 of 18 COCs	
		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals
TP-23 (2.0-2.5)		3/27/19	1005	G	Soil	1	X		
TP-23 (2.5-3.0)			1007	G	Soil	1	X		
TP-23 (3.0-3.5)			1009	G	Soil	1	X		
TP-23 (3.5-4.0)			1011	G	Soil	1	X		
TP-24 (0.0-0.5)			1030	G	Soil	1	X		
TP-24 (0.5-1.0)			1032	G	Soil	1	X		
TP-24 (1.0-1.5)			1034	G	Soil	1	X		
TP-24 (1.5-2.0)			1036	G	Soil	1	X		
TP-24 (2.0-2.5)			1038	G	Soil	1	X		
TP-24 (2.5-3.0)			1040	G	Soil	1	X		
TP-24 (3.0-3.5)			1042	G	Soil	1	X		
TP-24 (3.5-4.0)			1044	G	Soil	1	X		
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19-1300</i>		Received by: <i>Maria Ordoñez</i>		Company: <i>TASPO</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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TestAmerica Spokane

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Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date: Carrier:		COC No: 17 of 22 COCs	
		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals
TP-25 (0.0-0.5)		3/27/19	1110	G	Soil	1			X
TP-25 (0.5-1.0)			1112	G	Soil	1			X
TP-25 (1.0-1.5)			1114	G	Soil	1			X
TP-25 (1.5-2.0)			1116	G	Soil	1			X
TP-25 (2.0-2.5)			1118	G	Soil	1			X
TP-25 (2.5-3.0)			1120	G	Soil	1			X
TP-25 (3.0-3.5)			1122	G	Soil	1			X
TP-25 (3.5-4.0)			1124	G	Soil	1			X
TP-26 (0.0-0.5)			1232	G	Soil	1			X
TP-26 (0.5-1.0)			1234	G	Soil	1			X
TP-26 (1.0-1.5)			1236	G	Soil	1			X
TP-26 (1.5-2.0)			1237	G	Soil	1			X
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____	
Relinquished by:		Company:		Date/Time: 3/28/19-13:00		Received by:		Company: T+SPJ	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee		Date:		COC No: 18 of 27 COCs	
Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Lab Contact:		Carrier:		Sampler:		For Lab Use Only: Walk-in Client: Lab Sampling:	
Project Name: Northport Waterfront Remedial Investigation		Site: Northport Waterfront		P O # 0504-160-00		Job / SDG No.:		Sample Specific Notes:	
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y / N)	TAL Metals	
TP-26 (2.0-2.5)	3/27/19	1240	G	Soil	1			X	
TP-26 (2.5-3.0)		1242	G	Soil	1			X	
TP-26 (3.0-3.5)		1244	G	Soil	1			X	
TP-26 (3.5-4.0)		1246	G	Soil	1			X	
HS-1 (0.0-0.5)		1554	G	Soil	1			X	
HS-1 (0.5-1.0)		1556	G	Soil	1			X	
HS-1 (1.0-1.5)		1558	G	Soil	1			X	
HS-1 (1.5-2.0)		1400	G	Soil	1			X	
HS-1 (2.0-2.5)		1402	G	Soil	1			X	
HS-2 (0.0-0.5)		1407	G	Soil	1			X	
HS-2 HS-2 (0.5-1.0)		1409	G	Soil	1			X	
HS-2 (1.0-1.5)		1411	G	Soil	1			X	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months			
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: <i>3/28/19-1300</i>		Received by: <i>Marta Stool</i>		Company: <i>TA SPU</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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TestAmerica Spokane

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Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:						
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		19 of 28 COCs						
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:						
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS														
(509) 363-3125		TAT if different from Below _____														
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks														
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 1 week														
Site: Northport Waterfront		<input type="checkbox"/> 2 days			Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.	
P O # 0504-160-00		<input type="checkbox"/> 1 day					Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.	
HS-2 (1.5-2.0)		3/27/19		1413		G		Soil		1		X				
HS-3 (0.0-0.5)		↓		1504		G		Soil		1		X				
HS-3 (0.5-1.0)		↓		1506		G		Soil		1		X				
HS-3 (1.0-1.5)		↓		1508		G		Soil		1		X				
XRF-1		3/25/19		1424		G		Soil		1		X				
XRF-2		↓		1430		G		Soil		1		X				
XRF-3		↓		1488		G		Soil		1		X				
XRF-4		↓		1500		G		Soil		1		X				
XRF-5		↓		1510		G		Soil		1		X				
XRF-6		↓		1532		G		Soil		1		X				
XRF-7		↓		1540		G		Soil		1		X				
XRF-9		↓		1615-1627		G		Soil		1		X				
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other																
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)											
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months											
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.																
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____			Corr'd: _____		Therm ID No.:					
Relinquished by: <i>[Signature]</i>			Company: <i>GET</i>			Date/Time: 3/29/19-13:00			Received by: Maria O'roole		Company: TA SPO					
Relinquished by:			Company:			Date/Time:			Received by:		Company:					
Relinquished by:			Company:			Date/Time:			Received in Laboratory by:		Company:					

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Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date: Carrier:		COC No: 20 of 28 COCs	
		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals
XRF-10		3/26/19	0808	G	Soil	1	X		
XRF-11			0824	G	Soil	1	X		
XRF-12			0857	G	Soil	1	X		
XRF-13			0903	G	Soil	1	X		
XRF-14			0910	G	Soil	1	X		
XRF-15			0921	G	Soil	1	X		
XRF-16			0933	G	Soil	1	X		
XRF-17			0945	G	Soil	1	X		
XRF-18			0952	G	Soil	1	X		
XRF-19			1009	G	Soil	1	X		
XRF-20			1017	G	Soil	1	X		
XRF-21			1028	G	Soil	1	X		
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____	
Relinquished by: <i>[Signature]</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19-13:00</i>		Received by: <i>Maria OTOOL</i>		Company: <i>TA SA</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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Page 102 of 140

TestAmerica Spokane

11922 E 1st Avenue

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Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:		
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		21 of 18 COCs		
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.: Sample Specific Notes:		
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____										
(509) 363-3125		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day										
(509) 747-2250												
Project Name: Northport Waterfront Remedial Investigation												
Site: Northport Waterfront												
P O # 0504-160-00												
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.						
XRF-22		3/26/19	1036	G	Soil	1		X				
XRF-23			1056	G	Soil	1		X				
XRF-24			1104	G	Soil	1		X				
XRF-25			1136	G	Soil	1		X				
XRF-26			1141	G	Soil	1		X				
XRF-27			1148	G	Soil	1		X				
XRF-28			1156	G	Soil	1		X				
XRF-29			1256	G	Soil	1		X				
XRF-30			1303	G	Soil	1		X				
XRF-31			1312	G	Soil	1		X				
XRF-32			1322	G	Soil	1		X				
XRF-33			1341	G	Soil	1		X				
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other												
Possible Hazard Identification:							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.												
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months					
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.												
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:			
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>			Date/Time: <i>3/29/19-1300</i>		Received by: <i>Maria OToole</i>		Company: <i>TA SPO</i>		Date/Time: <i>3/28/19 13:00</i>	
Relinquished by:		Company:			Date/Time:		Received by:		Company:		Date/Time:	
Relinquished by:		Company:			Date/Time:		Received in Laboratory by:		Company:		Date/Time:	

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TestAmerica Spokane

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Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan				Site Contact: Joshua Lee				Date:				COC No:																							
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125				Lab Contact:				Carrier:				22 of 28 COCs																							
523 E Second Ave		Analysis Turnaround Time				Filtered Sample (Y/N)				Perform MS / MSD (Y/N)				TAL Metals																							
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____																																			
(509) 363-3125		<input checked="" type="checkbox"/> 2 weeks																																			
(509) 747-2250		<input type="checkbox"/> 1 week																																			
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 2 days																																			
Site: Northport Waterfront		<input type="checkbox"/> 1 day				Sample Identification				Sample Date				Sample Time				Sample Type (C=Comp, G=Grab)				Matrix				# of Cont.				Sample Specific Notes:							
P O # 0504-160-00						XRF-34				3/26/19				1349				G				Soil				1											
						XRF-35								1354				G				Soil				1											
						XRF-36								1400				G				Soil				1											
						XRF-37								1414				G				Soil				1											
						XRF-38								1421				G				Soil				1											
						XRF-39								1448				G				Soil				1											
						XRF-40								1500				G				Soil				1											
						XRF-41								1507				G				Soil				1											
						XRF-42								1518				G				Soil				1											
						XRF-43								1532				G				Soil				1											
						XRF-44								1541				G				Soil				1											
						XRF-45								3/27/19				0759				G				Soil				1							
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other																																					
Possible Hazard Identification:												Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																									
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.																																					
<input type="checkbox"/> Non-Hazardous <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown												<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months																									
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.																																					
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No						Custody Seal No.:						Cooler Temp. (°C): Obs'd: _____ Corr'd: _____						Therm ID No.:																			
Relinquished by: <i>[Signature]</i>						Company: <i>GEI</i>						Date/Time: <i>3/29/19-1300</i>						Received by: <i>Maria OTOOLE</i>						Company: <i>TA SPO</i>						Date/Time: <i>3/29/19 13:00</i>							
Relinquished by:						Company:						Date/Time:						Received by:						Company:						Date/Time:							
Relinquished by:						Company:						Date/Time:						Received in Laboratory by:						Company:						Date/Time:							

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
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Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan				Site Contact: Joshua Lee				Date:				COC No:									
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125				Lab Contact:				Carrier:				23 of 28 COCs									
523 E Second Ave		Analysis Turnaround Time																					
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day																					
(509) 363-3125		Filtered Sample (Y/N) Perform MS / MSD (Y / N) TAL Metals																					
(509) 747-2250																							
Project Name: Northport Waterfront Remedial Investigation																							
Site: Northport Waterfront																							
P O # 0504-160-00		Sample Identification Sample Date Sample Time Sample Type (C=Comp, G=Grab) Matrix # of Cont. Sample Specific Notes:																					
XRF-46		3/27/19		0811		G	Soil	1	X														
XRF-47				0822		G	Soil	1	X														
XRF-48				0830		G	Soil	1	X														
XRF-49				0841		G	Soil	1	X														
XRF-50				0855		G	Soil	1	X														
XRF-51				0905		G	Soil	1	X														
XRF-52				0914		G	Soil	1	X														
XRF-53				0933		G	Soil	1	X														
XRF-54				0943		G	Soil	1	X														
XRF-55				0955		G	Soil	1	X														
XRF-56				1032		G	Soil	1	X														
XRF-57				1037		G	Soil	1	X														
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other																							
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.										Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)													
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown										<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months													
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.																							
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No				Custody Seal No.:				Cooler Temp. (°C): Obs'd:				Therm ID No.:											
Relinquished by: [Signature]				Company: GEI				Date/Time: 3/29/19-1300				Received by: Maria OTOOLE											
Relinquished by:				Company:				Date/Time:				Received by:											
Relinquished by:				Company:				Date/Time:				Received in Laboratory by:											

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Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:						
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		25 of 28 COCs						
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:						
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS														
(509) 363-3125		TAT if different from Below _____														
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks														
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 1 week														
Site: Northport Waterfront		<input type="checkbox"/> 2 days			Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.	
P O # 0504-160-00		<input type="checkbox"/> 1 day					Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.	
XRF-70		3/29/19		0824		G		Soil		1		X				
XRF-71				0833		G		Soil		1		X				
XRF-72				0836		G		Soil		1		X				
XRF-73				0843		G		Soil		1		X				
XRF-74				0847		G		Soil		1		X				
XRF-75				0854		G		Soil		1		X				
XRF-76				0855		G		Soil		1		X				
XRF-77				0902		G		Soil		1		X				
XRF-78				0918		G		Soil		1		X				
XRF-79				0920		G		Soil		1		X				
XRF-80				0923		G		Soil		1		X				
XRF-81				0927		G		Soil		1		X				
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other																
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)											
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months											
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.																
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No.:			Cooler Temp. (°C): Obs'd:			Corr'd:		Therm ID No.:					
Relinquished by: [Signature]			Company: GEL			Date/Time: 3/29/19-1300			Received by: Maria OTOOLE		Company: TASP					
Relinquished by:			Company:			Date/Time:			Received by:		Company:					
Relinquished by:			Company:			Date/Time:			Received in Laboratory by:		Company:					

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		76 of 19 COCs	
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals					Sampler:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS								For Lab Use Only:	
(509) 363-3125		TAT if different from Below _____								Walk-in Client:	
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day								Lab Sampling:	
Project Name: Northport Waterfront Remedial Investigation										Job / SDG No.:	
Site: Northport Waterfront											
P O # 0504-160-00											
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.					Sample Specific Notes:
XRF-82		3/28/19	0944	G	Soil	1		X			
XRF-83			0946	G	Soil	1		X			
XRF-84			0946	G	Soil	1		X			
XRF-85			0951	G	Soil	1		X			
XRF-86			0955	G	Soil	1		X			
XRF-87			1003	G	Soil	1		X			
XRF-88			1014	G	Soil	1		X			
XRF-89			1025	G	Soil	1		X			
XRF-90			1026	G	Soil	1		X			
XRF-91			1049	G	Soil	1		X			
XRF-92			1053	G	Soil	1		X			
XRF-93			1059	G	Soil	1		X			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:		
Relinquished by: <i>[Signature]</i>		Company: GEI			Date/Time: 3/29/19-1300		Received by: Maria OToole		Company: TASP		Date/Time: 3/29/19 13:00
Relinquished by:		Company:			Date/Time:		Received by:		Company:		Date/Time:
Relinquished by:		Company:			Date/Time:		Received in Laboratory by:		Company:		Date/Time:

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6.6 2.0
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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
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Chain of Custody Record



4/19/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:								
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		27 of 27 COCs								
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:								
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS																
(509) 363-3125		TAT if different from Below _____																
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks																
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 1 week																
Site: Northport Waterfront		<input type="checkbox"/> 2 days			Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.		Sample Specific Notes:	
P O # 0504-160-00		<input type="checkbox"/> 1 day																
XRF-94		3/28/19		1110		G		Soil		1				X				
XRF-95				1113		G		Soil		1				X				
XRF-96				1128		G		Soil		1				X				
XRF-97				1132		G		Soil		1				X				
XRF-98				1135		G		Soil		1				X				
XRF-99				1140		G		Soil		1				X				
XRF-100				1144		G		Soil		1				X				
XRF-101				1152		G		Soil		1				X				
XRF-102				1330		G		Soil		1				X				
XRF-103				1332		G		Soil		1				X				
XRF-104				1339		G		Soil		1				X				
XRF-105		V		1341		G		Soil		1				X				
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other																		
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.										Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)								
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown										<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months								
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.																		
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____			Corr'd: _____			Therm ID No.:						
Relinquished by: <i>[Signature]</i>			Company: <i>GET</i>			Date/Time: <i>3/29/19-1300</i>			Received by: <i>Marica OTOOLE</i>			Company: <i>TA SPO</i>						
Relinquished by:			Company:			Date/Time:			Received by:			Date/Time:						
Relinquished by:			Company:			Date/Time:			Received in Laboratory by:			Date/Time:						

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Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		1 of 28 COCs	
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Filtered Sample (Y/N)		Perform MS/MSD (Y/N)		Sampler: For Lab Use Only: Walk-in Client: Lab Sampling:	
								Job / SDG No.:	

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Notes
TP-1 (0.0-0.5)	3/26/19	0912	G	Soil	1			X TAL METALS
TP-1 (0.5-1.0)		0914	G	Soil	1			X
TP-1 (1.0-1.5)		0916	G	Soil	1			
TP-1 (1.5-2.0)		0918	G	Soil	1			
TP-1 (2.0-2.5)		0920	G	Soil	1			
TP-1 (2.5-3.0)		0922	G	Soil	1			
TP-1 (3.0-3.5)		0924	G	Soil	1			
TP-1 (3.5-4.0)		0926	G	Soil	1			X
TP-2 (0.0-0.5)		0955	G	Soil	1			
TP-2 (0.5-1.0)		0957	G	Soil	1			
TP-2 (1.0-1.5)		0959	G	Soil	1			
TP-2 (1.5-2.0)		1001	G	Soil	1			

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.

Custody Seals Intact: Yes No

Relinquished by:	Company: GET	Date/Time: 3/27/19 13:00	Received by: Madia Oloog	Company: ASPO	Date/Time: 3/28/19 12:59
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Revised COC Received 4/13/19 PA

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Chain of Custody Record

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Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00	Project Manager: Scott Lathan Tel/Fax: (509) 363-3125 Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	Site Contact: Joshua Lee Lab Contact:	Date: Carrier:	COC No: 2 of 28 COCs Sampler: For Lab Use Only: Walk-In Client: Lab Sampling: Job / SDG No.:
--	---	--	---------------------------------	--

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Other	Sample Specific Notes:
TP-2 (2.0-2.5)	3/26/19	1003	G	Soil	1				
TP-2 (2.5-3.0)		1005	G	Soil	1				
TP-2 (3.0-3.5)		1007	G	Soil	1				
TP-2 (3.5-4.0)		1009	G	Soil	1				
TP-3 (0.0-0.5)		1030	G	Soil	1				
TP-3 (0.5-1.0)		1032	G	Soil	1				
TP-3 (1.0-1.5)		1034	G	Soil	1				
TP-3 (1.5-2.0)		1031	G	Soil	1				
TP-3 (2.0-2.5)		1033	G	Soil	1				
TP-3 (2.5-3.0)		1040	G	Soil	1				
TP-3 (3.0-3.5)		1042	G	Soil	1				
TP-3 (3.5-4.0)		1044	G	Soil	1				

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.

Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:
Relinquished by: <i>[Signature]</i>	Company: <i>GET</i>	Date/Time: 3/29/19 13:00	Received by: <i>Marica O'Boole</i>	Company: <i>TA-SD</i>
Relinquished by:	Company:	Date/Time:	Received by:	Company:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		3 of 28 COCs	
		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N)		TAL Metals		Sampler:	
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						For Lab Use Only: Walk-In Client: Lab Sampling:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:		
TP-4 (0.0-0.5)		3/24/19	0837	G	Soil	1	X		
TP-4 (0.5-1.0)			0839	G	Soil	1	X		
TP-4 (1.0-1.5)			0841	G	Soil	1			
TP-4 (1.5-2.0)			0843	G	Soil	1			
TP-4 (2.0-2.5)			0845	G	Soil	1			
TP-4 (2.5-3.0)			0847	G	Soil	1			
TP-4 (3.0-3.5)			0849	G	Soil	1			
TP-4 (3.5-4.0)			0851	G	Soil	1	X		
TP-5 (0.0-0.5)			0802	G	Soil	1	X		
TP-5 (0.5-1.0)			0804	G	Soil	1	X		
TP-5 (1.0-1.5)			0806	G	Soil	1	X		
TP-5 (1.5-2.0)			0808	G	Soil	1	X		
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C):		Obs'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: 3/29/19-13:00		Received by: <i>Marta Ornel</i>		Company: <i>TA SD</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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Chain of Custody Record

TestAmerica
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Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:		
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		5 of 28 COCs		
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Filtered Sample (Y/N) Perform MS / MSD (Y/N)		For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:		Sampler: Sample Specific Notes:		
Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Sample Specific Notes:		
TP-7(0.0-0.5)	3/25/19	1536	G	Soil	1					
TP-7(0.5-1.0)		1538	G	Soil	1					
TP-7(1.0-1.5)		1540	G	Soil	1					
TP-7(1.5-2.0)		1542	G	Soil	1					
TP-7(2.0-2.5)		1544	G	Soil	1					
TP-7(2.5-3.0)		1546	G	Soil	1					
TP-7(3.0-3.5)		1548	G	Soil	1					
TP-7(3.5-4.0)		1550	G	Soil	1					
TP-8(0.0-0.5)		1617	G	Soil	1					
TP-8(0.5-1.0)		1619	G	Soil	1					
TP-8(1.0-1.5)		1621	G	Soil	1					
TP-8(1.5-2.0)		1623	G	Soil	1					
Preservation Used: 1- Ice, 2- HCl, 3- H2SO4, 4- HNO3, 5- NaOH, 6- Other						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.						<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.										
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:		
Relinquished by: <i>[Signature]</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19-13:00</i>		Received by: <i>Maria OToole</i>		Company: <i>TA SDO</i>		Date/Time: <i>3/29/19 13:00</i>
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:

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Chain of Custody Record

TestAmerica
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Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		2 of 28 COCs	
		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N)				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Sample Identification		Sample Date	Sample Time	Sample Type (C-Comp, GeGrab)	Matrix	# of Cont.	Sample Specific Notes:		
TP-8 (2.0-2.5)		3/25/19	1625	G	Soil	1			
TP-8 (2.5-3.0)			1627	G	Soil	1			
TP-8 (3.0-3.5)			1629	G	Soil	1			
TP-8 (3.5-4.0)		v	1631	G	Soil	1			
TP-9 (0.0-0.5)		3/26/19	1404	G	Soil	1	X		
TP-9 (0.5-1.0)			1406	G	Soil	1			
TP-9 (1.0-1.5)			1408	G	Soil	1			
TP-9 (1.5-2.0)			1410	G	Soil	1			
TP-9 (2.0-2.5)			1412	G	Soil	1	X		
TP-9 (2.5-3.0)			1414	G	Soil	1			
TP-9 (3.0-3.5)			1416	G	Soil	1			
TP-9 (3.5-4.0)		v	1418	G	Soil	1	X		
Preservation Used: 1-Ice, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intagt: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:	
Relinquished by:		Company: GEI		Date/Time: 3/29/19-1300		Received by: Maria OTOOLE		Company: TASP0	
Relinquished by:		Company:		Date/Time:		Received by:		Date/Time:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Date/Time:	

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:		Carrier:		7 of 28 COCs	
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS								
(509) 363-3125		TAT if different from Below _____								
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day								
Project Name: Northport Waterfront Remedial Investigation										
Site: Northport Waterfront										
P O # 0504-160-00										
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.			Sample Specific Notes:	
TP-10(0.0-0.5)		3/26/19	1328	G	Soil	1				
TP-10(0.5-1.0)			1330	G	Soil	1				
TP-10(1.0-1.5)			1332	G	Soil	1				
TP-10(1.5-2.0)			1334	G	Soil	1				
TP-10(2.0-2.5)			1336	G	Soil	1				
TP-10(2.5-3.0)			1338	G	Soil	1				
TP-10(3.0-3.5)			1340	G	Soil	1				
TP-10(3.5-4.0)			1342	G	Soil	1				
TP-11(0.0-0.5)		3/25/19	1457	G	Soil	1				
TP-11(0.5-1.0)			1459	G	Soil	1				
TP-11(1.0-1.5)			1501	G	Soil	1				
TP-11(1.5-2.0)			1503	G	Soil	1				
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other										
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months			
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.										
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GI</i>			Date/Time: <i>3/29/19-1300</i>		Received by: <i>Maria OTOOLE</i>		Company: <i>TA SPO</i>	
Relinquished by:		Company:			Date/Time:		Received by:		Company:	
Relinquished by:		Company:			Date/Time:		Received in Laboratory by:		Company:	

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee		Date:		COC No:		
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125			Lab Contact:		Carrier:		8 of 28 COCs		
		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y/N)				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:		
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day									
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.			Sample Specific Notes:		
TP-11 (2.0-2.5)		3/25/19	1505	G	Soil	1					
TP-11 (2.5-3.0)			1507	G	Soil	1					
TP-11 (3.0-3.5)			1509	G	Soil	1					
TP-11 (3.5-4.0)			1511	G	Soil	1	X				
TP-12 (0.0-0.5)			1155	G	Soil	1	X				
TP-12 (0.5-1.0)			1157	G	Soil	1					
TP-12 (1.0-1.5)			1159	G	Soil	1	X				
TP-12 (1.5-2.0)			1201	G	Soil	1					
TP-12 (2.0-2.5)			1203	G	Soil	1					
TP-12 (2.5-3.0)			1205	G	Soil	1					
TP-12 (3.0-3.5)			1207	G	Soil	1					
TP-12 (3.5-4.0)			1209	G	Soil	1					
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.											
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:		
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>			Date/Time: <i>3/29/19 13:00</i>		Received by: <i>Maria Grode</i>		Company: <i>TASPO</i>		
Relinquished by:		Company:			Date/Time:		Received by:		Company:		
Relinquished by:		Company:			Date/Time:		Received in Laboratory by:		Company:		

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		9 of 28 COCs	
523 E Second Ave		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS / MSD (Y/N)		TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Sampler: For Lab Use Only: Walk-in Client: _____ Lab Sampling: _____ Job / SDG No.: _____ Sample Specific Notes: _____	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS							
(509) 363-3125		TAT if different from Below _____							
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Project Name: Northport Waterfront Remedial Investigation		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		# of Cont.	
Site: Northport Waterfront									
P O # 0504-160-00									
Sample Identification									
TP-13 (0.0-0.5)		3/25/19		1420		G Soil		1	
TP-13 (0.5-1.0)				1422		G Soil		1	
TP-13 (1.0-1.5)				1424		G Soil		1	
TP-13 (1.5-2.0)				1426		G Soil		1	
TP-13 (2.0-2.5)				1428		G Soil		1	
TP-13 (2.5-3.0)				1430		G Soil		1	
TP-13 (3.0-3.5)				1432		G Soil		1	
TP-13 (3.5-4.0)				1434		G Soil		1	
TP-14 (0.0-0.5)				1239		G Soil		1	
TP-14 (0.5-1.0)				1241		G Soil		1	
TP-14 (1.0-1.5)				1243		G Soil		1	
TP-14 (1.5-2.0)				1245		G Soil		1	
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Ome									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Cor'd: _____		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: <i>3/29/19 13:00</i>		Received by: <i>Maria Stode</i>		Company: <i>TASPO</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
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Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		10 of 28 COCs	
		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals				Sampler:	
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS						For Lab Use Only:	
		TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Walk-in Client: Lab Sampling:	
								Job / SDG No.:	
								Sample Specific Notes:	
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.				
TP-14 (2.0-2.5)	3/25/19	1247	G	Soil	1				
TP-14 (2.5-3.0)		1249	G	Soil	1				
TP-14 (3.0-3.5)		1251	G	Soil	1				
TP-14 (3.5-4.0)		1253	G	Soil	1				
TP-15 (0.0-0.5)		1342	G	Soil	1				
TP-15 (0.5-1.0)		1344	G	Soil	1				
TP-15 (1.0-1.5)		1346	G	Soil	1				
TP-15 (1.5-2.0)		1348	G	Soil	1				
TP-15 (2.0-2.5)		1350	G	Soil	1				
TP-15 (2.5-3.0)		1352	G	Soil	1				
TP-15 (3.0-3.5)		1354	G	Soil	1				
TP-15 (3.5-4.0)		1356	G	Soil	1				
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months			
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____ Cor'd: _____		Therm ID No.:			
Relinquished by: <i>Scott Lathan</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19-13:00</i>		Received by: <i>Maria OToole</i>		Company: <i>TASPO</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		11 of 28 COCs	
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Sampler:		For Lab Use Only: Walk-in Client: Lab Sampling:		Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:
TP-16 (0.0-0.5)		3/25/19	1311	G	Soil	1			
TP-16 (0.5-1.0)			1313	G	Soil	1			
TP-16 (1.0-1.5)			1315	G	Soil	1			
TP-16 (1.5-2.0)			1317	G	Soil	1			
TP-16 (2.0-2.5)			1319	G	Soil	1			
TP-16 (2.5-3.0)			1321	G	Soil	1			
TP-16 (3.0-3.5)			1323	G	Soil	1			
TP-16 (3.5-4.0)			1325	G	Soil	1			
TP-17 (0.0-0.5)		3/26/19	1122	G	Soil	1			
TP-17 (0.5-1.0)			1124	G	Soil	1			
TP-17 (1.0-1.5)			1126	G	Soil	1			
TP-17 (1.5-2.0)			1128	G	Soil	1			
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: GET		Date/Time: 3/29/19 13:00		Received by: Maria O'Neal		Company: TASP	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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TestAmerica Spokane
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Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:		
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		12 of 28 COCs		
		Analysis Turnaround Time						Sampler:		
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS						For Lab Use Only:		
		TAT if different from Below _____						Walk-In Client:		
		<input checked="" type="checkbox"/> 2 weeks						Lab Sampling:		
		<input type="checkbox"/> 1 week						Job / SDG No.:		
		<input type="checkbox"/> 2 days								
		<input type="checkbox"/> 1 day								
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:	
TP-17 (0.0-2.5)		3/24/19	1130	G	Soil	1				
TP-17 (2.5-3.0)			1132	G	Soil	1				
TP-17 (3.0-3.5)			1134	G	Soil	1				
TP-17 (3.5-4.0)			1136	G	Soil	1				
TP-18 (0.0-0.5)			1504	G	Soil	1			X	
TP-18 (0.5-1.0)			1506	G	Soil	1				
TP-18 (1.0-1.5)			1508	G	Soil	1				
TP-18 (1.5-2.0)			1510	G	Soil	1				
TP-18 (2.0-2.5)			1512	G	Soil	1				
TP-18 (2.5-3.0)			1514	G	Soil	1				
TP-18 (3.0-3.5)			1516	G	Soil	1				
TP-18 (3.5-4.0)			1518	G	Soil	1				
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown										
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.										
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____		
Relinquished by: <i>[Signature]</i>		Company: <i>GFI</i>		Date/Time: 3/29/19-1300		Received by: <i>Maria O'Leary</i>		Company: <i>TA SPU</i>		
Relinquished by:		Company:		Date/Time:		Received by:		Company:		
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		

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Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		13 of 28 COCs	
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT If different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Filtered Sample (Y/N)		Perform MS/MSD (Y/N)		Sampler:	
								For Lab Use Only: Walk-In Client: Lab Sampling:	
								Job / SDG No.:	
								Sample Specific Notes:	
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)		
TP-19 (0.0-0.5)	3/26/19	1553	G	Soil	1			X	
TP-19 (0.5-1.0)		1555	G	Soil	1			X	
TP-19 (1.0-1.5)		1557	G	Soil	1			X	
TP-19 (1.5-2.0)		1559	G	Soil	1			X	
TP-19 (2.0-2.5)		1601	G	Soil	1				
TP-19 (2.5-3.0)		1603	G	Soil	1				
TP-19 (3.0-3.5)		1605	G	Soil	1				
TP-19 (3.5-4.0)	↓	1607	G	Soil	1				
TP-20 (0.0-0.5)	3/27/19	0803	G	Soil	1			X	
TP-20 (0.5-1.0)		0805	G	Soil	1				
TP-20 (1.0-1.5)		0807	G	Soil	1				
TP-20 (1.5-2.0)	↓	0809	G	Soil	1				
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GEI</i>		Date/Time: 3/29/19-1300		Received by: <i>Maha Oloole</i>		Company: <i>TA-SPU</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		14 of 18 COCs	
		Analysis Turnaround Time		Filled Sample (Y/N) Perform MS / MSD (Y/N)				Sampler: For Lab Use Only: Walk-In Client: Lab Sampling:	
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:		
TP-20(2.0-2.5)		3/27/19	0811	G	Soil	1			
TP-20(2.5-3.0)			0813	G	Soil	1			
TP-20(3.0-3.5)			0815	G	Soil	1			
TP-20(3.5-4.0)		↓	0817	G	Soil	1			
TP-21(0.0-0.5)			0835	G	Soil	1			
TP-21(0.5-1.0)			0837	G	Soil	1			
TP-21(1.0-1.5)			0839	G	Soil	1			
TP-21(1.5-2.0)			0841	G	Soil	1			
TP-21(2.0-2.5)			0843	G	Soil	1			
TP-21(2.5-3.0)			0845	G	Soil	1			
TP-21(3.0-3.5)			0847	G	Soil	1			
TP-21(3.5-4.0)		↓	0849	G	Soil	1			
Preservation Used: 1- Ice, 2- HCl, 3- H2SO4, 4- HNO3, 5- NaOH, 6- Other:		Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months							
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: <i>3/27/19 1:30</i>		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:			
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		16 of 18 COCs			
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Filtered Sample (Y/N) Perform MS/MSD (Y/N)		TAT Metals TAL Metals		Sampler: For Lab Use Only: Walk-In Client: Lab Sampling:		Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (Co-Comp, Ge-Grab)	Matrix	# of Cont.	Sample Specific Notes:				
TP-23 (2.0-2.5)		3/27/19	1005	G	Soil	1					
TP-23 (2.5-3.0)			1007	G	Soil	1					
TP-23 (3.0-3.5)			1009	G	Soil	1					
TP-23 (3.5-4.0)			1011	G	Soil	1					
TP-24 (0.0-0.5)			1030	G	Soil	1					
TP-24 (0.5-1.0)			1032	G	Soil	1					
TP-24 (1.0-1.5)			1034	G	Soil	1					
TP-24 (1.5-2.0)			1036	G	Soil	1					
TP-24 (2.0-2.5)			1038	G	Soil	1					
TP-24 (2.5-3.0)			1040	G	Soil	1					
TP-24 (3.0-3.5)			1042	G	Soil	1					
TP-24 (3.5-4.0)		↓	1044	G	Soil	1					
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months						
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Cor'd:		Therm ID No.:			
Relinquished by: <i>[Signature]</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19 13:00</i>		Received by: <i>Maria Omodeo</i>		Company: <i>TASPO</i>			
Relinquished by:		Company:		Date/Time:		Received by:		Company:			
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:			

TestAmerica Spokane
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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		18 of 27 COCs	
		Analysis Turnaround Time		Filtered Sample (Y/N)		Perform MS / MSD (Y/N)		Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:		
TP-26 (2.0-2.5)		3/27/19	1240	G	Soil	1			
TP-26 (2.5-3.0)			1242	G	Soil	1			
TP-26 (3.0-3.5)			1244	G	Soil	1			
TP-26 (3.5-4.0)			1246	G	Soil	1			
HS-1 (0.0-0.5)			1554	G	Soil	1			
HS-1 (0.5-1.0)			1556	G	Soil	1			
HS-1 (1.0-1.5)			1558	G	Soil	1			
HS-1 (1.5-2.0)			1400	G	Soil	1	X		
HS-1 (2.0-2.5)			1402	G	Soil	1			
HS-2 (0.0-0.5)			1407	G	Soil	1	X		
HS-2 (0.5-1.0)			1409	G	Soil	1	X		
HS-2 (1.0-1.5)			1411	G	Soil	1	X		
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____	
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: 3/29/19-1700		Received by: <i>Wanda Stool</i>		Company: <i>TA SPU</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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TestAmerica Spokane

11922 E 1st Avenue

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Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Tel/Fax: (509) 363-3125			Lab Contact:		Carrier:		19 of 29 COCs	
Analysis Turnaround Time		Analysis Turnaround Time			Filtered Sample (Y/N)		Perform MS/MSD (Y/N)		SAMPLER: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS								
TAT if different from Below		TAT if different from Below								
Project Name: Northport Waterfront Remedial Investigation		<input checked="" type="checkbox"/> 2 weeks			TAL METALS		X		Sample Specific Notes:	
Site: Northport Waterfront		<input type="checkbox"/> 1 week								
P O # 0504-160-00		<input type="checkbox"/> 2 days								
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.				
HS-2 (1.5-2.0)		3/27/19	1413	G	Soil	1				
HS-3 (0.0-0.5)			1504	G	Soil	1				
HS-3 (0.5-1.0)			1506	G	Soil	1				
HS-3 (1.0-1.5)			1508	G	Soil	1				
XRF-1		3/25/19	1424	G	Soil	1				
XRF-2			1430	G	Soil	1				
XRF-3			1439	G	Soil	1				
XRF-4			1500	G	Soil	1				
XRF-5			1510	G	Soil	1				
XRF-6			1532	G	Soil	1				
XRF-7			1540	G	Soil	1				
XRF-9			1615	G	Soil	1				
XRF-9			1627	G	Soil	1				
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other										
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.										
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____ Cor'd: _____		Therm ID No.:			
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: <i>3/29/19-1300</i>		Received by: <i>Maria Orozco</i>		Company: <i>TA SPO</i>		Date/Time: <i>3/29/19 13:00</i>
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		20 of 18 COCs	
		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS / MSD (Y/N)		TAL Metals		Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Sample Identification		Sample Date	Sample Time	Sample Type (S=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:		
XRF-10		3/26/19	0808	G	Soil	1			
XRF-11			0824	G	Soil	1			
XRF-12			0857	G	Soil	1			
XRF-13			0903	G	Soil	1			
XRF-14			0910	G	Soil	1			
XRF-15			0921	G	Soil	1			
XRF-16			0933	G	Soil	1			
XRF-17			0945	G	Soil	1			
XRF-18			0952	G	Soil	1			
XRF-19			1009	G	Soil	1			
XRF-20			1017	G	Soil	1			
XRF-21			1027	G	Soil	1			
Preservation Used: 1=Ice; 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Cor'd:		Therm ID No.:	
Relinquished by: <i>Scott Lathan</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19 13:00</i>		Received by: <i>Maria Ortole</i>		Company: <i>TA Sp</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		21 of 18 COCs	
523 E Second Ave		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____							
(509) 363-3125		<input checked="" type="checkbox"/> 2 weeks							
(509) 747-2250		<input type="checkbox"/> 1 week							
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 2 days							
Site: Northport Waterfront		<input type="checkbox"/> 1 day						Job / SDG No.:	
P O # 0504-160-00								Sample Specific Notes:	
Sample Identification		Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.			
XRF-22		3/26/19	1036	G	Soil	1			
XRF-23			1056	G	Soil	1			
XRF-24			1104	G	Soil	1	X		
XRF-25			1136	G	Soil	1			
XRF-26			1141	G	Soil	1	X		
XRF-27			1148	G	Soil	1			
XRF-28			1156	G	Soil	1			
XRF-29			1256	G	Soil	1			
XRF-30			1303	G	Soil	1			
XRF-31			1312	G	Soil	1			
XRF-32			1322	G	Soil	1			
XRF-33			1341	G	Soil	1			
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:	
Relinquished by: <i>Mad F. Scott</i>		Company: <i>GET</i>		Date/Time: <i>3/29/19-1300</i>		Received by: <i>Maria OTOOLE</i>		Company: <i>TA SPO</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00	Project Manager: Scott Lathan Tel/Fax: (509) 363-3125	Site Contact: Joshua Lee Lab Contact:	Date: Carrier:	COC No: 22 of 28 COCs Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:
Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:
XRF-34	3/26/19	1349	G	Soil	1			
XRF-35		1354	G	Soil	1			
XRF-36		1400	G	Soil	1			
XRF-37		1414	G	Soil	1			
XRF-38		1421	G	Soil	1			
XRF-39		1448	G	Soil	1			
XRF-40		1500	G	Soil	1			
XRF-41		1507	G	Soil	1			
XRF-42		1518	G	Soil	1			
XRF-43		1532	G	Soil	1			
XRF-44		1541	G	Soil	1			
XRF-45	3/27/19	0759	G	Soil	1			

Preservation Used: Ice, HCl, H2SO4, HNO3, NaOH, Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.

Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: _____ Corr'd: _____	Therm ID No.:
Relinquished by: <i>[Signature]</i>	Company: <i>GEI</i>	Date/Time: <i>3/29/19 13:00</i>	Received by: <i>Maria OTOOLE</i>
Relinquished by:	Company:	Date/Time:	Received by:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:

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TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
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Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		23 of 24 COCs	
523 E Second Ave		Analysis Turnaround Time							
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS		<input checked="" type="checkbox"/> WORKING DAYS		Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals			
(509) 363-3125		TAT if different from Below _____							
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks		<input type="checkbox"/> 1 week					
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 2 days		<input type="checkbox"/> 1 day					
Site: Northport Waterfront		<input type="checkbox"/>		<input type="checkbox"/>		Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:			
P O # 0504-160-00		<input type="checkbox"/>		<input type="checkbox"/>					
Sample Identification		Sample Date	Sample Time	Sample Type (Ca-Comp, G-Grab)	Matrix	# of Cont.	Sample Specific Notes:		
XRF-46		3/27/19	0811	G	Soil	1			
XRF-47			0822	G	Soil	1			
XRF-48			0830	G	Soil	1			
XRF-49			0841	G	Soil	1			
XRF-50			0855	G	Soil	1			
XRF-51			0905	G	Soil	1			
XRF-52			0914	G	Soil	1			
XRF-53			0933	G	Soil	1			
XRF-54			0943	G	Soil	1			
XRF-55			0955	G	Soil	1			
XRF-56			1032	G	Soil	1			
XRF-57			1037	G	Soil	1			
Preservation Used: <input type="checkbox"/> HCl <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> HNO ₃ <input type="checkbox"/> NaOH <input type="checkbox"/> Other:									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GEL</i>		Date/Time: <i>3/29/19-1300</i>		Received by: <i>Maria OTOOLE</i>		Company: <i>TA SPO</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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6.6 0.6

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee		Date:		COC No:		
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Tel/Fax: (509) 363-3125			Lab Contact:		Carrier:		49 of 28 COCs		
Analysis Turnaround Time		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS		Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL metals TAL metals TAL metals						Sampler:	
TAT if different from Below _____		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day								For Lab Use Only:	
Project Name: Northport Waterfront Remedial Investigation										Walk-in Client:	
Site: Northport Waterfront										Lab Sampling:	
P O # 0504-160-00										Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:				
XRF-58	3/27/19	1047 1058	G	Soil	1						
XRF-59		1058 1113	G	Soil	1						
XRF-60		1113 1224	G	Soil	1						
XRF-61		1124 1225	G	Soil	1						
XRF-62		1225 1246	G	Soil	1						
XRF-63		1246 1251	G	Soil	1	X					
XRF-64		1251	G	Soil	1						
XRF-65		1259	G	Soil	1						
XRF-66		1305	G	Soil	1	X					
XRF-67	3/28/19	0811	G	Soil	1						
XRF-68		0814	G	Soil	1						
XRF-69		0822	G	Soil	1						
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months					
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:		
Relinquished by: <i>[Signature]</i>		Company: GEI		Date/Time: 3/29/19-1300		Received by: Maria OTOOLE		Company: TASPQ		Date/Time: 3/29/19 13:00	
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:	

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00	Project Manager: Scott Lathan Tel/Fax: (509) 363-3125	Site Contact: Joshua Lee Lab Contact:	Date: Carrier:	COC No: 25 of 28 COCs
Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day			For Lab Use Only: Walk-in Client: _____ Lab Sampling: _____ Job / SDG No.: _____	

Sample Identification	Sample Date	Sample Time	Sample Type (CaComp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals	Sample Specific Notes:
XRF-70	3/28/19	0824	G	Soil	1				
XRF-71		0833	G	Soil	1				
XRF-72		0836	G	Soil	1				
XRF-73		0843	G	Soil	1				
XRF-74		0847	G	Soil	1				
XRF-75		0854	G	Soil	1				
XRF-76		0855	G	Soil	1				
XRF-77		0902	G	Soil	1				
XRF-78		0918	G	Soil	1				
XRF-79		0920	G	Soil	1				
XRF-80		0923	G	Soil	1				
XRF-81		0927	G	Soil	1				

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: _____ Cor'd: _____	Therm ID No.:
Relinquished by: <i>[Signature]</i>	Company: <i>GFI</i>	Date/Time: <i>3/29/19 13:00</i>	Received by: <i>Maria O'Roole</i>
Relinquished by:	Company:	Date/Time:	Received by:
Relinquished by:	Company:	Date/Time:	Received In Laboratory by:

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TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		76 of 18 COCs	
523 E Second Ave		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals TAL Metals				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS							
(509) 363-3125		TAT if different from Below _____							
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Project Name: Northport Waterfront Remedial Investigation									
Site: Northport Waterfront									
P O # 0504-160-00									
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:			
XRF-82	3/28/19	0942	G	Soil	1				
XRF-83		0946	G	Soil	1				
XRF-84		0948	G	Soil	1				
XRF-85		0951	G	Soil	1				
XRF-86		0955	G	Soil	1				
XRF-87		1003	G	Soil	1				
XRF-88		1014	G	Soil	1				
XRF-89		1025	G	Soil	1				
XRF-90		1026	G	Soil	1				
XRF-91		1049	G	Soil	1				
XRF-92		1053	G	Soil	1				
XRF-93		1059	G	Soil	1				
Preservation Used: 1- Ice, 2- HCl, 3- H2SO4, 4- HNO3, 5- NaOH, 6- Other						Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months			
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GTI</i>		Date/Time: <i>3/29/19-1300</i>		Received by: <i>Maria O'Keefe</i>		Company: <i>TASPO</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Date/Time:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Date/Time:	

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TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record



Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date: Carrier:		COC No: 27 of 27 COCs				
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Filtered Sample (Y/N) Perform MS / MSD (Y/N)		TAL Metals		Sampler: For Lab Use Only: Walk-in Client: Lab Sampling:				
Sample Identification		Sample Date	Sample Time					Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Job / SDG No.:	
XRF-94		3/28/19	1110					G	Soil	1	Sample Specific Notes:	
XRF-95			1113					G	Soil	1		
XRF-96			1128					G	Soil	1		
XRF-97			1132					G	Soil	1		
XRF-98			1135					G	Soil	1		
XRF-99			1140					G	Soil	1		
XRF-100			1144					G	Soil	1		
XRF-101			1152					G	Soil	1		
XRF-102			1330	G	Soil	1						
XRF-103			1332	G	Soil	1						
XRF-104			1339	G	Soil	1						
XRF-105		V	1341	G	Soil	1						
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months										
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.												
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:				
Relinquished by:		Company: GET		Date/Time: 3/29/19-1300		Received by: Maria OTOU		Company: TA SPO				
Relinquished by:		Company:		Date/Time:		Received by:		Date/Time: 3/29/19 13:00				
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Date/Time:				

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TestAmerica Spokane

11922 E 1st Avenue
 Spokane, WA 99206-5302
 phone 509.924.9200 fax 509.924.9290

Chain of Custody Record

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250	Project Manager: Scott Lathan Tel/Fax: (509) 363-3125	Site Contact: Joshua Lee Date:	Carrier:	COC No: 28 of 28 COCs
Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	Lab Contact:	Sampler:	For Lab Use Only: Walk-in Client: Lab Sampling:	Job / SDG No.:
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals	Sample Specific Notes
XRF-106	3/28/19	1346	G	Soil	1				
XRF-107		1347	G	Soil	1				
XRF-108		1353	G	Soil	1				
XRF-109		1356	G	Soil	1				
XRF-8	3/25/19	1615	G	Soil	1				
Dep-1	3/26/19	0700	G	Soil	1			X	
Dep-2	3/26/19	0830	G	Soil	1			X	
			G	Soil	1				
			G	Soil	1				
			G	Soil	1				
			G	Soil	1				
			G	Soil	1				

Possible Hazard Identification:
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: 3.1	Corrd: 3.4	Therm ID No.: T1000
Relinquished by: <i>[Signature]</i>	Company: GET	Date/Time: 3/29/19 13:00	Received by: Maria O'Boole	Company: TASP
Relinquished by: <i>[Signature]</i>	Company: GET	Date/Time: 3/29/19 16:15	Received by: <i>[Signature]</i>	Company: TASP
Relinquished by: <i>[Signature]</i>	Company: GET	Date/Time: 3/29/19 16:15	Received in Laboratory by: <i>[Signature]</i>	Company: TASP

Chain of Custody Record

Spokane, WA 99206-5302
 phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Date:		COC No: 28 of 28 COCs	
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Lab Contact: Carrier:		Sampler: For Lab Use Only: Walk-in Client: Lab Sampling:	
				Job / SDG No.:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	TAL Metals
XRF-106	3/28/19	1346	G	Soil	1			
XRF-107		1347	G	Soil	1			
XRF-108		1353	G	Soil	1			
XRF-109		1356	G	Soil	1			
XRF-8	3/25/19	1615	G	Soil	1			
Dup-1	3/26/19	0800	G	Soil	1		X	
Dup-2	3/26/19	0830	G	Soil	1		X	
			G	Soil	1			
			G	Soil	1			
			G	Soil	1			
			G	Soil	1			
			G	Soil	1			
			G	Soil	1			

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Custody Seals Intact: Yes No

Relinquished by: <i>[Signature]</i>	Company: <i>GET</i>	Date/Time: <i>3/29/19 13:00</i>	Received by: <i>Maria Stool</i>	Company: <i>TASPO</i>	Date/Time: <i>3/29/19 13:00</i>
Relinquished by: <i>[Signature]</i>	Company: <i>GET</i>	Date/Time: <i>4/2/19 1615</i>	Received by: <i>[Signature]</i>	Company: <i>TASPO</i>	Date/Time: <i>4/2/19 1615</i>

Cooler Temp. (°C): Obs'd: *3.1* Corr'd: *3.9* Therm ID No.: *F8000*

Revised COC. RA

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-10699-1

Login Number: 10699
List Number: 1
Creator: O'Toole, Maria C

List Source: Eurofins TestAmerica, Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Not listed on COC
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.



ANALYTICAL REPORT

Eurofins TestAmerica, Spokane
11922 East 1st Ave
Spokane, WA 99206
Tel: (509)924-9200

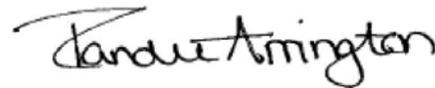
Laboratory Job ID: 590-10699-2

Client Project/Site: Northport Waterfront Remedial Investigat

For:

GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

Attn: Scott Lathen



Authorized for release by:
7/15/2019 2:22:25 PM

Randee Arrington, Project Manager II
(509)924-9200
randee.arrington@testamericainc.com

LINKS

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Job ID: 590-10699-2

Laboratory: Eurofins TestAmerica, Spokane

Narrative

Receipt

The samples were received on 3/29/2019 1:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 2.0° C, 2.9° C, 3.7° C, 6.6° C and 8.8° C.

Receipt Exceptions

The following samples were activated for 6010C/7471B TAL Metals by the client on 07/02/2019: HS-3 (0.0-0.5) (590-10699-230), XRF-41 (590-10699-273), XRF-96 (590-10699-328), XRF-99 (590-10699-331) and XRF-100 (590-10699-332).

The following samples were activated for 6010C As, Cr, Cu, Pb & Zn by the client on 07/02/2019: TP-18 (3.5-4.0) (590-10699-156), TP-22 (0.5-1.0) (590-10699-182), TP-22 (3.5-4.0) (590-10699-188), TP-23 (0.0-0.5) (590-10699-189), XRF-59 (590-10699-291) and XRF-60 (590-10699-292).

Metals

Method 6010C: The low level continuing calibration verification (CCVL) associated with batch 590-22936 recovered above the upper control limit for Copper, Lead and Zinc. The samples associated with this CCV were either >10x or non-detects for the affected analytes; therefore, the data have been reported.

Method 6010C: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for preparation batch 590-22964 and analytical batch 590-23001 was outside control limits. Sample non-homogeneity are suspected because the associated laboratory control sample (LCS) precision was within acceptance limits.

Method 7471B: The following samples were prepared outside of preparation holding time due to samples being activated out of hold : HS-3 (0.0-0.5) (590-10699-230), XRF-41 (590-10699-273), XRF-96 (590-10699-328), XRF-99 (590-10699-331) and XRF-100 (590-10699-332).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
590-10699-156	TP-18 (3.5-4.0)	Solid	03/26/19 15:18	03/29/19 13:00	
590-10699-182	TP-22 (0.5-1.0)	Solid	03/27/19 09:30	03/29/19 13:00	
590-10699-188	TP-22 (3.5-4.0)	Solid	03/27/19 09:42	03/29/19 13:00	
590-10699-189	TP-23 (0.0-0.5)	Solid	03/27/19 09:57	03/29/19 13:00	
590-10699-230	HS-3 (0.0-0.5)	Solid	03/27/19 15:04	03/29/19 13:00	
590-10699-273	XRF-41	Solid	03/26/19 15:07	03/29/19 13:00	
590-10699-291	XRF-59	Solid	03/27/19 10:58	03/29/19 13:00	
590-10699-292	XRF-60	Solid	03/27/19 11:13	03/29/19 13:00	
590-10699-328	XRF-96	Solid	03/28/19 11:28	03/29/19 13:00	
590-10699-331	XRF-99	Solid	03/28/19 11:40	03/29/19 13:00	
590-10699-332	XRF-100	Solid	03/28/19 11:44	03/29/19 13:00	

Definitions/Glossary

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Qualifiers

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Client Sample ID: TP-18 (3.5-4.0)

Date Collected: 03/26/19 15:18
 Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-156

Matrix: Solid
 Percent Solids: 96.0

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	8.5		2.3		mg/Kg	☼	07/08/19 09:28	07/09/19 13:01	2
Chromium	38		2.3		mg/Kg	☼	07/08/19 09:28	07/09/19 13:01	2
Copper	480	^	7.4		mg/Kg	☼	07/08/19 09:28	07/09/19 13:01	2
Lead	160	^	5.5		mg/Kg	☼	07/08/19 09:28	07/09/19 13:01	2
Zinc	3600	^	9.2		mg/Kg	☼	07/08/19 09:28	07/09/19 13:01	2

Client Sample ID: TP-22 (0.5-1.0)

Date Collected: 03/27/19 09:30
 Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-182

Matrix: Solid
 Percent Solids: 91.7

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		12		mg/Kg	☼	07/08/19 09:28	07/08/19 18:15	10
Chromium	50		12		mg/Kg	☼	07/08/19 09:28	07/08/19 18:15	10
Copper	800		38		mg/Kg	☼	07/08/19 09:28	07/08/19 18:15	10
Lead	370		28		mg/Kg	☼	07/08/19 09:28	07/08/19 18:15	10
Zinc	8900		47		mg/Kg	☼	07/08/19 09:28	07/08/19 18:15	10

Client Sample ID: TP-22 (3.5-4.0)

Date Collected: 03/27/19 09:42
 Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-188

Matrix: Solid
 Percent Solids: 83.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	58		48		mg/Kg	☼	07/08/19 09:28	07/08/19 18:19	50
Chromium	ND		48		mg/Kg	☼	07/08/19 09:28	07/08/19 18:19	50
Copper	1600		160		mg/Kg	☼	07/08/19 09:28	07/08/19 18:19	50
Lead	13000		120		mg/Kg	☼	07/08/19 09:28	07/08/19 18:19	50
Zinc	30000		190		mg/Kg	☼	07/08/19 09:28	07/08/19 18:19	50

Client Sample ID: TP-23 (0.0-0.5)

Date Collected: 03/27/19 09:57
 Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-189

Matrix: Solid
 Percent Solids: 87.8

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.5		1.2		mg/Kg	☼	07/08/19 09:28	07/08/19 18:23	1
Chromium	20		1.2		mg/Kg	☼	07/08/19 09:28	07/08/19 18:23	1
Copper	170		3.8		mg/Kg	☼	07/08/19 09:28	07/08/19 18:23	1
Lead	130		2.8		mg/Kg	☼	07/08/19 09:28	07/08/19 18:23	1
Zinc	1500		4.7		mg/Kg	☼	07/08/19 09:28	07/08/19 18:23	1

Client Sample ID: HS-3 (0.0-0.5)

Date Collected: 03/27/19 15:04
 Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-230

Matrix: Solid
 Percent Solids: 92.6

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	4700		48		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Antimony	4.3		2.4		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Arsenic	7.4		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1

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Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Client Sample ID: HS-3 (0.0-0.5)

Lab Sample ID: 590-10699-230

Date Collected: 03/27/19 15:04

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 92.6

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	270	F1	1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Beryllium	ND		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Cadmium	4.0		0.96		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Calcium	37000		96		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Chromium	18		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Cobalt	6.5		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Copper	140	F2 F1	3.9		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Iron	25000		96		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Lead	170		2.9		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Magnesium	18000		48		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Manganese	410		14		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Nickel	11		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Potassium	830		24		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Selenium	ND		4.8		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Silver	1.3		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Sodium	180		24		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Thallium	ND		2.4		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Vanadium	23		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1
Zinc	1700		4.8		mg/Kg	☼	07/10/19 16:05	07/12/19 17:16	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	70	H	50		ug/Kg	☼	07/08/19 10:47	07/08/19 15:56	1

Client Sample ID: XRF-41

Lab Sample ID: 590-10699-273

Date Collected: 03/26/19 15:07

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 96.3

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	9700		440		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Antimony	23		22		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Arsenic	11		11		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Barium	880		11		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Beryllium	ND		11		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Cadmium	ND		8.9		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Calcium	33000		890		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Chromium	61		11		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Cobalt	27		11		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Copper	1100		36		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Iron	100000		890		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Lead	290		27		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Magnesium	4900		440		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Manganese	2000		130		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Nickel	11		11		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Potassium	1800		220		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Selenium	ND		44		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Silver	ND		11		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Sodium	790		220		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Thallium	ND		22		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10

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Client Sample Results

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Client Sample ID: XRF-41

Date Collected: 03/26/19 15:07

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-273

Matrix: Solid

Percent Solids: 96.3

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	31		11		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10
Zinc	9000		44		mg/Kg	☼	07/08/19 09:28	07/08/19 18:12	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND	H	48		ug/Kg	☼	07/08/19 10:47	07/08/19 15:47	1

Client Sample ID: XRF-59

Date Collected: 03/27/19 10:58

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-291

Matrix: Solid

Percent Solids: 96.5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	13		6.0		mg/Kg	☼	07/10/19 16:05	07/15/19 11:06	5
Chromium	63		6.0		mg/Kg	☼	07/10/19 16:05	07/15/19 11:06	5
Copper	1000		19		mg/Kg	☼	07/10/19 16:05	07/15/19 11:06	5
Lead	190		14		mg/Kg	☼	07/10/19 16:05	07/15/19 11:06	5
Zinc	6100		24		mg/Kg	☼	07/10/19 16:05	07/15/19 11:06	5

Client Sample ID: XRF-60

Date Collected: 03/27/19 11:13

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-292

Matrix: Solid

Percent Solids: 97.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	10		6.0		mg/Kg	☼	07/10/19 16:05	07/15/19 11:10	5
Chromium	51		6.0		mg/Kg	☼	07/10/19 16:05	07/15/19 11:10	5
Copper	770		19		mg/Kg	☼	07/10/19 16:05	07/15/19 11:10	5
Lead	380		14		mg/Kg	☼	07/10/19 16:05	07/15/19 11:10	5
Zinc	6200		24		mg/Kg	☼	07/10/19 16:05	07/15/19 11:10	5

Client Sample ID: XRF-96

Date Collected: 03/28/19 11:28

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-328

Matrix: Solid

Percent Solids: 76.8

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5000		48		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Antimony	ND		2.4		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Arsenic	7.7		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Barium	280		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Beryllium	ND		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Cadmium	5.3		0.96		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Calcium	38000		96		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Chromium	16		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Cobalt	5.7		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Copper	77		3.9		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Iron	22000		96		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Lead	200		2.9		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Magnesium	20000		48		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Manganese	340		14		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1

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Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Client Sample ID: XRF-96

Lab Sample ID: 590-10699-328

Date Collected: 03/28/19 11:28

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 76.8

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	13		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Potassium	940		24		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Selenium	ND		4.8		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Silver	ND		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Sodium	150		24		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Thallium	ND		2.4		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Vanadium	24		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1
Zinc	1400		4.8		mg/Kg	☼	07/10/19 16:05	07/12/19 17:53	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	270	H	49		ug/Kg	☼	07/08/19 10:47	07/08/19 15:59	1

Client Sample ID: XRF-99

Lab Sample ID: 590-10699-331

Date Collected: 03/28/19 11:40

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 89.5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	4700		49		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Antimony	3.6		2.5		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Arsenic	5.7		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Barium	290		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Beryllium	ND		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Cadmium	4.6		0.99		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Calcium	37000		99		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Chromium	15		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Cobalt	5.3		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Copper	95		4.0		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Iron	20000		99		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Lead	190		3.0		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Magnesium	19000		49		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Manganese	350		15		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Nickel	11		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Potassium	860		25		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Selenium	ND		4.9		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Silver	ND		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Sodium	160		25		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Thallium	ND		2.5		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Vanadium	23		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1
Zinc	1400		4.9		mg/Kg	☼	07/10/19 16:05	07/12/19 17:56	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	95	H	44		ug/Kg	☼	07/08/19 10:47	07/08/19 16:01	1

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Client Sample ID: XRF-100

Lab Sample ID: 590-10699-332

Date Collected: 03/28/19 11:44

Matrix: Solid

Date Received: 03/29/19 13:00

Percent Solids: 94.4

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5000		48		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Antimony	3.5		2.4		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Arsenic	6.8		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Barium	290		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Beryllium	ND		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Cadmium	4.2		0.96		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Calcium	37000		96		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Chromium	18		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Cobalt	6.3		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Copper	140		3.9		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Iron	24000		96		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Lead	190		2.9		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Magnesium	18000		48		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Manganese	410		14		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Nickel	11		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Potassium	940		24		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Selenium	ND		4.8		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Silver	ND		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Sodium	180		24		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Thallium	ND		2.4		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Vanadium	23		1.2		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1
Zinc	1700		4.8		mg/Kg	☼	07/10/19 16:05	07/12/19 18:00	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	98	H	48		ug/Kg	☼	07/08/19 10:47	07/08/19 16:03	1

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 590-22884/2-A
Matrix: Solid
Analysis Batch: 22913

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22884

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		50		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Arsenic	ND		1.3		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Barium	ND		1.3		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Beryllium	ND		1.3		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Cadmium	ND		1.0		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Calcium	ND		100		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Chromium	ND		1.3		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Cobalt	ND		1.3		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Copper	ND		4.0		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Iron	ND		100		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Lead	ND		3.0		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Magnesium	ND		50		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Manganese	ND		15		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Nickel	ND		1.3		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Potassium	ND		25		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Selenium	ND		5.0		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Silver	ND		1.3		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Sodium	ND		25		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Thallium	ND		2.5		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Vanadium	ND		1.3		mg/Kg		07/08/19 09:28	07/08/19 16:52	1
Zinc	ND		5.0		mg/Kg		07/08/19 09:28	07/08/19 16:52	1

Lab Sample ID: MB 590-22884/2-A
Matrix: Solid
Analysis Batch: 22936

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22884

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.5		mg/Kg		07/08/19 09:28	07/09/19 12:28	1

Lab Sample ID: LCS 590-22884/1-A
Matrix: Solid
Analysis Batch: 22913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22884

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	500	512		mg/Kg		102	80 - 120
Arsenic	100	95.1		mg/Kg		95	80 - 120
Barium	100	104		mg/Kg		104	80 - 120
Beryllium	50.0	50.2		mg/Kg		100	80 - 120
Cadmium	50.0	50.0		mg/Kg		100	80 - 120
Calcium	2500	2570		mg/Kg		103	80 - 120
Chromium	50.0	49.8		mg/Kg		100	80 - 120
Cobalt	50.0	51.8		mg/Kg		104	80 - 120
Copper	50.0	48.0		mg/Kg		96	80 - 120
Iron	500	558		mg/Kg		112	80 - 120
Lead	50.0	51.3		mg/Kg		103	80 - 120
Magnesium	2500	2490		mg/Kg		100	80 - 120
Manganese	50.0	52.8		mg/Kg		106	80 - 120
Nickel	50.0	51.9		mg/Kg		104	80 - 120
Potassium	2500	2130		mg/Kg		85	80 - 120

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 590-22884/1-A
Matrix: Solid
Analysis Batch: 22913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22884

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	100	97.2		mg/Kg		97	80 - 120
Silver	5.00	5.01		mg/Kg		100	80 - 120
Sodium	2500	2310		mg/Kg		92	80 - 120
Thallium	100	105		mg/Kg		105	80 - 120
Vanadium	50.0	49.4		mg/Kg		99	80 - 120
Zinc	50.0	52.6		mg/Kg		105	80 - 120

Lab Sample ID: LCS 590-22884/1-A
Matrix: Solid
Analysis Batch: 22936

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22884

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	50.0	53.3		mg/Kg		107	80 - 120

Lab Sample ID: MB 590-22964/2-A
Matrix: Solid
Analysis Batch: 23001

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22964

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		50		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Antimony	ND		2.5		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Arsenic	ND		1.3		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Barium	ND		1.3		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Beryllium	ND		1.3		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Cadmium	ND		1.0		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Calcium	ND		100		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Chromium	ND		1.3		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Cobalt	ND		1.3		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Copper	ND		4.0		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Iron	ND		100		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Lead	ND		3.0		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Magnesium	ND		50		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Manganese	ND		15		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Nickel	ND		1.3		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Potassium	ND		25		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Selenium	ND		5.0		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Silver	ND		1.3		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Sodium	ND		25		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Thallium	ND		2.5		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Vanadium	ND		1.3		mg/Kg		07/10/19 16:05	07/12/19 17:12	1
Zinc	ND		5.0		mg/Kg		07/10/19 16:05	07/12/19 17:12	1

Lab Sample ID: LCS 590-22964/1-A
Matrix: Solid
Analysis Batch: 23001

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22964

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	500	489		mg/Kg		98	80 - 120
Antimony	50.0	50.3		mg/Kg		101	80 - 120

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 590-22964/1-A
Matrix: Solid
Analysis Batch: 23001

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22964

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	100	99.3		mg/Kg		99	80 - 120
Barium	100	105		mg/Kg		105	80 - 120
Beryllium	50.0	52.3		mg/Kg		105	80 - 120
Cadmium	50.0	50.8		mg/Kg		102	80 - 120
Calcium	2500	2510		mg/Kg		100	80 - 120
Chromium	50.0	51.7		mg/Kg		103	80 - 120
Cobalt	50.0	52.4		mg/Kg		105	80 - 120
Copper	50.0	48.4		mg/Kg		97	80 - 120
Iron	500	515		mg/Kg		103	80 - 120
Lead	50.0	52.3		mg/Kg		105	80 - 120
Magnesium	2500	2460		mg/Kg		98	80 - 120
Manganese	50.0	52.9		mg/Kg		106	80 - 120
Nickel	50.0	52.9		mg/Kg		106	80 - 120
Potassium	2500	2220		mg/Kg		89	80 - 120
Selenium	100	99.8		mg/Kg		100	80 - 120
Silver	5.00	4.92		mg/Kg		98	80 - 120
Sodium	2500	2370		mg/Kg		95	80 - 120
Thallium	100	107		mg/Kg		107	80 - 120
Vanadium	50.0	51.1		mg/Kg		102	80 - 120
Zinc	50.0	54.4		mg/Kg		109	80 - 120

Lab Sample ID: 590-10699-230 MS
Matrix: Solid
Analysis Batch: 23001

Client Sample ID: HS-3 (0.0-0.5)
Prep Type: Total/NA
Prep Batch: 22964

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	4700		482	5630	4	mg/Kg	☼	197	75 - 125
Antimony	4.3		48.2	52.9		mg/Kg	☼	101	75 - 125
Arsenic	7.4		96.4	96.8		mg/Kg	☼	93	75 - 125
Barium	270	F1	96.4	294	F1	mg/Kg	☼	19	75 - 125
Beryllium	ND		48.2	46.2		mg/Kg	☼	94	75 - 125
Cadmium	4.0		48.2	49.5		mg/Kg	☼	94	75 - 125
Calcium	37000		2410	38000	4	mg/Kg	☼	59	75 - 125
Chromium	18		48.2	63.4		mg/Kg	☼	94	75 - 125
Cobalt	6.5		48.2	49.8		mg/Kg	☼	90	75 - 125
Copper	140	F2 F1	48.2	236	F1	mg/Kg	☼	193	75 - 125
Iron	25000		482	27200	4	mg/Kg	☼	507	75 - 125
Lead	170		48.2	221		mg/Kg	☼	108	75 - 125
Magnesium	18000		2410	19400	4	mg/Kg	☼	80	75 - 125
Manganese	410		48.2	483	4	mg/Kg	☼	156	75 - 125
Nickel	11		48.2	54.1		mg/Kg	☼	89	75 - 125
Potassium	830		2410	3260		mg/Kg	☼	101	75 - 125
Selenium	ND		96.4	88.1		mg/Kg	☼	91	75 - 125
Silver	1.3		4.82	6.33		mg/Kg	☼	105	75 - 125
Sodium	180		2410	2500		mg/Kg	☼	96	75 - 125
Thallium	ND		96.4	84.5		mg/Kg	☼	87	75 - 125
Vanadium	23		48.2	67.6		mg/Kg	☼	93	75 - 125
Zinc	1700		48.2	1820	4	mg/Kg	☼	299	75 - 125

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 590-10699-230 MSD
Matrix: Solid
Analysis Batch: 23001

Client Sample ID: HS-3 (0.0-0.5)
Prep Type: Total/NA
Prep Batch: 22964

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
Aluminum	4700		482	5470	4	mg/Kg	☼	163	75 - 125	3	20
Antimony	4.3		48.2	44.1		mg/Kg	☼	83	75 - 125	18	20
Arsenic	7.4		96.4	93.6		mg/Kg	☼	89	75 - 125	3	20
Barium	270	F1	96.4	294	F1	mg/Kg	☼	20	75 - 125	0	20
Beryllium	ND		48.2	45.3		mg/Kg	☼	93	75 - 125	2	20
Cadmium	4.0		48.2	48.6		mg/Kg	☼	92	75 - 125	2	20
Calcium	37000		2410	38900	4	mg/Kg	☼	96	75 - 125	2	20
Chromium	18		48.2	61.1		mg/Kg	☼	89	75 - 125	4	20
Cobalt	6.5		48.2	48.5		mg/Kg	☼	87	75 - 125	2	20
Copper	140	F2 F1	48.2	177	F2 F1	mg/Kg	☼	72	75 - 125	28	20
Iron	25000		482	24700	4	mg/Kg	☼	-7	75 - 125	10	20
Lead	170		48.2	211		mg/Kg	☼	89	75 - 125	4	20
Magnesium	18000		2410	20400	4	mg/Kg	☼	119	75 - 125	5	20
Manganese	410		48.2	439	4	mg/Kg	☼	64	75 - 125	10	20
Nickel	11		48.2	53.2		mg/Kg	☼	87	75 - 125	2	20
Potassium	830		2410	3200		mg/Kg	☼	99	75 - 125	2	20
Selenium	ND		96.4	84.8		mg/Kg	☼	88	75 - 125	4	20
Silver	1.3		4.82	5.65		mg/Kg	☼	90	75 - 125	11	20
Sodium	180		2410	2470		mg/Kg	☼	95	75 - 125	1	20
Thallium	ND		96.4	83.4		mg/Kg	☼	86	75 - 125	1	20
Vanadium	23		48.2	67.1		mg/Kg	☼	91	75 - 125	1	20
Zinc	1700		48.2	1620	4	mg/Kg	☼	-111	75 - 125	11	20

Lab Sample ID: 590-10699-230 DU
Matrix: Solid
Analysis Batch: 23001

Client Sample ID: HS-3 (0.0-0.5)
Prep Type: Total/NA
Prep Batch: 22964

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD
	Result	Qualifier	Result	Qualifier				Limit
Aluminum	4700		4540		mg/Kg	☼	3	20
Antimony	4.3		5.56	F5	mg/Kg	☼	27	20
Arsenic	7.4		6.58		mg/Kg	☼	12	20
Barium	270	F1	274		mg/Kg	☼	0.2	20
Beryllium	ND		ND		mg/Kg	☼	NC	20
Cadmium	4.0		3.74		mg/Kg	☼	8	20
Calcium	37000		34000		mg/Kg	☼	7	20
Chromium	18		18.5		mg/Kg	☼	3	20
Cobalt	6.5		6.79		mg/Kg	☼	5	20
Copper	140	F2 F1	161		mg/Kg	☼	12	20
Iron	25000		24800		mg/Kg	☼	0.3	20
Lead	170		179		mg/Kg	☼	6	20
Magnesium	18000		16200		mg/Kg	☼	8	20
Manganese	410		417		mg/Kg	☼	2	20
Nickel	11		10.5		mg/Kg	☼	8	20
Potassium	830		792		mg/Kg	☼	4	20
Selenium	ND		ND		mg/Kg	☼	NC	20
Silver	1.3		ND		mg/Kg	☼	NC	20
Sodium	180		175		mg/Kg	☼	5	20
Thallium	ND		ND		mg/Kg	☼	NC	20
Vanadium	23		23.0		mg/Kg	☼	0.2	20

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 590-10699-230 DU
 Matrix: Solid
 Analysis Batch: 23001

Client Sample ID: HS-3 (0.0-0.5)
 Prep Type: Total/NA
 Prep Batch: 22964

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Zinc	1700		1690		mg/Kg	☼	0.9	20

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 590-22888/9-A
 Matrix: Solid
 Analysis Batch: 22906

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 22888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		25		ug/Kg		07/08/19 10:47	07/08/19 15:45	1

Lab Sample ID: LCS 590-22888/8-A
 Matrix: Solid
 Analysis Batch: 22906

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 22888

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	100	98.0		ug/Kg		98	80 - 120

Lab Sample ID: 590-10699-273 MS
 Matrix: Solid
 Analysis Batch: 22906

Client Sample ID: XRF-41
 Prep Type: Total/NA
 Prep Batch: 22888

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	ND	H	196	219		ug/Kg	☼	102	80 - 120

Lab Sample ID: 590-10699-273 MSD
 Matrix: Solid
 Analysis Batch: 22906

Client Sample ID: XRF-41
 Prep Type: Total/NA
 Prep Batch: 22888

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hg	ND	H	192	204		ug/Kg	☼	96	80 - 120	7	20

Lab Sample ID: 590-10699-273 DU
 Matrix: Solid
 Analysis Batch: 22906

Client Sample ID: XRF-41
 Prep Type: Total/NA
 Prep Batch: 22888

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Hg	ND	H	ND		ug/Kg	☼	NC	20

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Client Sample ID: TP-18 (3.5-4.0)

Date Collected: 03/26/19 15:18

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-156

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			22844	07/02/19 10:10	CWD	TAL SPK

Client Sample ID: TP-18 (3.5-4.0)

Date Collected: 03/26/19 15:18

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-156

Matrix: Solid

Percent Solids: 96.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.13 g	50 mL	22884	07/08/19 09:28	SJK	TAL SPK
Total/NA	Analysis	6010C		2			22936	07/09/19 13:01	JSP	TAL SPK

Client Sample ID: TP-22 (0.5-1.0)

Date Collected: 03/27/19 09:30

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-182

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			22844	07/02/19 10:10	CWD	TAL SPK

Client Sample ID: TP-22 (0.5-1.0)

Date Collected: 03/27/19 09:30

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-182

Matrix: Solid

Percent Solids: 91.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.15 g	50 mL	22884	07/08/19 09:28	SJK	TAL SPK
Total/NA	Analysis	6010C		10			22913	07/08/19 18:15	JSP	TAL SPK

Client Sample ID: TP-22 (3.5-4.0)

Date Collected: 03/27/19 09:42

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-188

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			22844	07/02/19 10:10	CWD	TAL SPK

Client Sample ID: TP-22 (3.5-4.0)

Date Collected: 03/27/19 09:42

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-188

Matrix: Solid

Percent Solids: 83.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.55 g	50 mL	22884	07/08/19 09:28	SJK	TAL SPK
Total/NA	Analysis	6010C		50			22913	07/08/19 18:19	JSP	TAL SPK

Client Sample ID: TP-23 (0.0-0.5)

Date Collected: 03/27/19 09:57

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-189

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			22844	07/02/19 10:10	CWD	TAL SPK

Eurofins TestAmerica, Spokane

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Client Sample ID: TP-23 (0.0-0.5)

Date Collected: 03/27/19 09:57

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-189

Matrix: Solid

Percent Solids: 87.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.20 g	50 mL	22884	07/08/19 09:28	SJK	TAL SPK
Total/NA	Analysis	6010C		1			22913	07/08/19 18:23	JSP	TAL SPK

Client Sample ID: HS-3 (0.0-0.5)

Date Collected: 03/27/19 15:04

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-230

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			22844	07/02/19 10:10	CWD	TAL SPK

Client Sample ID: HS-3 (0.0-0.5)

Date Collected: 03/27/19 15:04

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-230

Matrix: Solid

Percent Solids: 92.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.12 g	50 mL	22964	07/10/19 16:05	SJK	TAL SPK
Total/NA	Analysis	6010C		1			23001	07/12/19 17:16	JSP	TAL SPK
Total/NA	Prep	7471B			0.54 g	50 mL	22888	07/08/19 10:47	SJK	TAL SPK
Total/NA	Analysis	7471B		1			22906	07/08/19 15:56	JSP	TAL SPK

Client Sample ID: XRF-41

Date Collected: 03/26/19 15:07

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-273

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			22844	07/02/19 10:10	CWD	TAL SPK

Client Sample ID: XRF-41

Date Collected: 03/26/19 15:07

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-273

Matrix: Solid

Percent Solids: 96.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.17 g	50 mL	22884	07/08/19 09:28	SJK	TAL SPK
Total/NA	Analysis	6010C		10			22913	07/08/19 18:12	JSP	TAL SPK
Total/NA	Prep	7471B			0.54 g	50 mL	22888	07/08/19 10:47	SJK	TAL SPK
Total/NA	Analysis	7471B		1			22906	07/08/19 15:47	JSP	TAL SPK

Client Sample ID: XRF-59

Date Collected: 03/27/19 10:58

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-291

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			22844	07/02/19 10:10	CWD	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Client Sample ID: XRF-59

Date Collected: 03/27/19 10:58

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-291

Matrix: Solid

Percent Solids: 96.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.08 g	50 mL	22964	07/10/19 16:05	SJK	TAL SPK
Total/NA	Analysis	6010C		5			23010	07/15/19 11:06	JSP	TAL SPK

Client Sample ID: XRF-60

Date Collected: 03/27/19 11:13

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-292

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			22844	07/02/19 10:10	CWD	TAL SPK

Client Sample ID: XRF-60

Date Collected: 03/27/19 11:13

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-292

Matrix: Solid

Percent Solids: 97.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.08 g	50 mL	22964	07/10/19 16:05	SJK	TAL SPK
Total/NA	Analysis	6010C		5			23010	07/15/19 11:10	JSP	TAL SPK

Client Sample ID: XRF-96

Date Collected: 03/28/19 11:28

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-328

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			22844	07/02/19 10:10	CWD	TAL SPK

Client Sample ID: XRF-96

Date Collected: 03/28/19 11:28

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-328

Matrix: Solid

Percent Solids: 76.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.35 g	50 mL	22964	07/10/19 16:05	SJK	TAL SPK
Total/NA	Analysis	6010C		1			23001	07/12/19 17:53	JSP	TAL SPK
Total/NA	Prep	7471B			0.66 g	50 mL	22888	07/08/19 10:47	SJK	TAL SPK
Total/NA	Analysis	7471B		1			22906	07/08/19 15:59	JSP	TAL SPK

Client Sample ID: XRF-99

Date Collected: 03/28/19 11:40

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-331

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			22844	07/02/19 10:10	CWD	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Client Sample ID: XRF-99

Date Collected: 03/28/19 11:40

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-331

Matrix: Solid

Percent Solids: 89.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.13 g	50 mL	22964	07/10/19 16:05	SJK	TAL SPK
Total/NA	Analysis	6010C		1			23001	07/12/19 17:56	JSP	TAL SPK
Total/NA	Prep	7471B			0.63 g	50 mL	22888	07/08/19 10:47	SJK	TAL SPK
Total/NA	Analysis	7471B		1			22906	07/08/19 16:01	JSP	TAL SPK

Client Sample ID: XRF-100

Date Collected: 03/28/19 11:44

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-332

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			22844	07/02/19 10:10	CWD	TAL SPK

Client Sample ID: XRF-100

Date Collected: 03/28/19 11:44

Date Received: 03/29/19 13:00

Lab Sample ID: 590-10699-332

Matrix: Solid

Percent Solids: 94.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.10 g	50 mL	22964	07/10/19 16:05	SJK	TAL SPK
Total/NA	Analysis	6010C		1			23001	07/12/19 18:00	JSP	TAL SPK
Total/NA	Prep	7471B			0.55 g	50 mL	22888	07/08/19 10:47	SJK	TAL SPK
Total/NA	Analysis	7471B		1			22906	07/08/19 16:03	JSP	TAL SPK

Laboratory References:

TAL SPK = Eurofins TestAmerica, Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Laboratory: Eurofins TestAmerica, Spokane

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-025	12-07-19
Oregon	NELAP	10	4137	12-07-19
Oregon	NELAP		4137	12-07-19
Washington	State Program	10	C569	01-06-20

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Method Summary

Client: GeoEngineers Inc
Project/Site: Northport Waterfront Remedial Investigat

Job ID: 590-10699-2

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL SPK
7471B	Mercury (CVAA)	SW846	TAL SPK
Moisture	Percent Moisture	EPA	TAL SPK
3050B	Preparation, Metals	SW846	TAL SPK
7471B	Preparation, Mercury	SW846	TAL SPK

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SPK = Eurofins TestAmerica, Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200



TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:			COC No:			
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:			of 28 COCs			
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N)			Perform MS/MSD (Y/N)			TAL Metals			
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____												
(509) 363-3125		<input checked="" type="checkbox"/> 2 weeks												
(509) 747-2250		<input type="checkbox"/> 1 week												
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 2 days												
Site: Northport Waterfront		<input type="checkbox"/> 1 day									Sampler:			
P O # 0504-160-00											For Lab Use Only:			
											Walk-in Client:			
											Lab Sampling:			
											Job / SDG No.:			
											Sample Specific Notes:			
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.								
TP-1 (0.0-0.5)		3/26/19	0912	G	Soil	1								
TP-1 (0.5-1.0)			0914	G	Soil	1								
TP-1 (1.0-1.5)			0916	G	Soil	1								
TP-1 (1.5-2.0)			0918	G	Soil	1								
TP-1 (2.0-2.5)			0920	G	Soil	1								
TP-1 (2.5-3.0)			0922	G	Soil	1								
TP-1 (3.0-3.5)			0924	G	Soil	1								
TP-1 (3.5-4.0)			0926	G	Soil	1								
TP-2 (0.0-0.5)			0955	G	Soil	1								
TP-2 (0.5-1.0)			0957	G	Soil	1								
TP-2 (1.0-1.5)			0959	G	Soil	1								
TP-2 (1.5-2.0)			1001	G	Soil	1								
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other														
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months							
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.														
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No.:			Cooler Temp. (°C): Obs'd:			Corr'd:			Therm ID No.:		
Relinquished by: [Signature]			Company: GET			Date/Time: 3/21/19-12:59			Received by: [Signature]			Company: TASP		
Relinquished by:			Company:			Date/Time:			Received by:			Company:		
Relinquished by:			Company:			Date/Time:			Received in Laboratory by:			Company:		



7/15/2019 Page 22 of 79

TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



7/15/2019

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date: Carrier:		COC No: 2 of 28 COCs	
		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals
TP-2 (2.0-2.5)		3/26/19	1003	G	Soil	1	X		
TP-2 (2.5-3.0)			1005	G	Soil	1	X		
TP-2 (3.0-3.5)			1007	G	Soil	1	X		
TP-2 (3.5-4.0)			1009	G	Soil	1	X		
TP-3 (0.0-0.5)			1030	G	Soil	1	X		
TP-3 (0.5-1.0)			1032	G	Soil	1	X		
TP-3 (1.0-1.5)			1034	G	Soil	1	X		
TP-3 (1.5-2.0)			1031	G	Soil	1	X		
TP-3 (2.0-2.5)			1033	G	Soil	1	X		
TP-3 (2.5-3.0)			1040	G	Soil	1	X		
TP-3 (3.0-3.5)			1042	G	Soil	1	X		
TP-3 (3.5-4.0)			1044	G	Soil	1	X		
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: 3/29/19-13:00		Received by: <i>Marica O'Bole</i>		Company: <i>TA-SR</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

Page 23 of 79

TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date:		COC No: 5 of 28 COCs	
Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day								Sampler: For Lab Use Only: Walk-in Client: Lab Sampling:	
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00								Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	TAL Metals
TP-4 (0.0-0.5)		3/26/19	0837	G	Soil	1		X	
TP-4 (0.5-1.0)			0839	G	Soil	1		X	
TP-4 (1.0-1.5)			0841	G	Soil	1		X	
TP-4 (1.5-2.0)			0843	G	Soil	1		X	
TP-4 (2.0-2.5)			0845	G	Soil	1		X	
TP-4 (2.5-3.0)			0847	G	Soil	1		X	
TP-4 (3.0-3.5)			0849	G	Soil	1		X	
TP-4 (3.5-4.0)			0851	G	Soil	1		X	
TP-5 (0.0-0.5)			0802	G	Soil	1		X	
TP-5 (0.5-1.0)			0804	G	Soil	1		X	
TP-5 (1.0-1.5)			0806	G	Soil	1		X	
TP-5 (1.5-2.0)			0808	G	Soil	1		X	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by: [Signature]		Company: GEI		Date/Time: 3/29/19-1300		Received by: Maria Ordo		Company: TA-SDP	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:			COC No:		
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:			5 of 28 COCs		
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals						Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.: Sample Specific Notes:		
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day											
(509) 363-3125													
(509) 747-2250													
Project Name: Northport Waterfront Remedial Investigation													
Site: Northport Waterfront													
P O # 0504-160-00													
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.							
TP-7(0.0-0.5)		3/25/19	1536	G	Soil	1	X						
TP-7(0.5-1.0)			1538	G	Soil	1	X						
TP-7(1.0-1.5)			1540	G	Soil	1	X						
TP-7(1.5-2.0)			1542	G	Soil	1	X						
TP-7(2.0-2.5)			1544	G	Soil	1	X						
TP-7(2.5-3.0)			1546	G	Soil	1	X						
TP-7(3.0-3.5)			1548	G	Soil	1	X						
TP-7(3.5-4.0)			1550	G	Soil	1	X						
TP-8(0.0-0.5)			1617	G	Soil	1	X						
TP-8(0.5-1.0)			1619	G	Soil	1	X						
TP-8(1.0-1.5)			1621	G	Soil	1	X						
TP-8(1.5-2.0)			1623	G	Soil	1	X						
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other													
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months						
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.													
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____			Therm ID No.:				
Relinquished by: <i>[Signature]</i>			Company: <i>GET</i>			Date/Time: <i>3/29/19-1300</i>			Received by: <i>Maria O'Boole</i>				
Relinquished by:			Company:			Date/Time:			Company: <i>TA SDP</i>				
Relinquished by:			Company:			Date/Time:			Date/Time: <i>3/29/19 13:00</i>				
Relinquished by:			Company:			Date/Time:			Received in Laboratory by:				
Relinquished by:			Company:			Date/Time:			Company:				
Relinquished by:			Company:			Date/Time:			Date/Time:				

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



7/15/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		of 48 COCs	
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.: Sample Specific Notes:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____									
(509) 363-3125		<input checked="" type="checkbox"/> 2 weeks									
(509) 747-2250		<input type="checkbox"/> 1 week									
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 2 days									
Site: Northport Waterfront		<input type="checkbox"/> 1 day									
P O # 0504-160-00											
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.					
TP-8 (2.0-2.5)		3/15/19	1625	G	Soil	1		X			
TP-8 (2.5-3.0)			1627	G	Soil	1		X			
TP-8 (3.0-3.5)			1629	G	Soil	1		X			
TP-8 (3.5-4.0)			1631	G	Soil	1		X			
TP-9 (0.0-0.5)		3/26/19	1404	G	Soil	1		X			
TP-9 (0.5-1.0)			1406	G	Soil	1		X			
TP-9 (1.0-1.5)			1408	G	Soil	1		X			
TP-9 (1.5-2.0)			1410	G	Soil	1		X			
TP-9 (2.0-2.5)			1412	G	Soil	1		X			
TP-9 (2.5-3.0)			1414	G	Soil	1		X			
TP-9 (3.0-3.5)			1416	G	Soil	1		X			
TP-9 (3.5-4.0)			1418	G	Soil	1		X			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.											
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:		
Relinquished by:		Company:			Date/Time: 3/29/19-13:00		Received by: Maria Toledo		Company: TASP		Date/Time: 3/29/19 13:00
Relinquished by:		Company:			Date/Time:		Received by:		Company:		Date/Time:
Relinquished by:		Company:			Date/Time:		Received in Laboratory by:		Company:		Date/Time:

TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:			COC No:		
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:			8 of 17 COCs		
523 E Second Ave		Analysis Turnaround Time											
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day											
(509) 363-3125		Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals											
(509) 747-2250													
Project Name: Northport Waterfront Remedial Investigation													
Site: Northport Waterfront													
P O # 0504-160-00		For Lab Use Only: Walk-in Client: _____ Lab Sampling: _____ Job / SDG No.: _____											
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:						
TP-11 (2.0-2.5)		3/25/19	1305	G	Soil	1							
TP-11 (2.5-3.0)			1507	G	Soil	1							
TP-11 (3.0-3.5)			1509	G	Soil	1							
TP-11 (3.5-4.0)			1511	G	Soil	1							
TP-12 (0.0-0.5)			1155	G	Soil	1							
TP-12 (0.5-1.0)			1157	G	Soil	1							
TP-12 (1.0-1.5)			1159	G	Soil	1							
TP-12 (1.5-2.0)			1201	G	Soil	1							
TP-12 (2.0-2.5)			1203	G	Soil	1							
TP-12 (2.5-3.0)			1205	G	Soil	1							
TP-12 (3.0-3.5)			1207	G	Soil	1							
TP-12 (3.5-4.0)			1209	G	Soil	1							
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other													
Possible Hazard Identification:							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months						
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown													
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.													
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd:			Corr'd:			Therm ID No.:		
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: <i>3/26/19-13:00</i>		Received by: <i>Maria Crooke</i>		Company: <i>TASPO</i>		Date/Time: <i>3/29/19 13:00</i>			
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:			
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:			

TestAmerica Spokane

11922 E 1st Avenue

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Chain of Custody Record



7/15/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:			COC No:											
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:			9 of 28 COCs											
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N)			Perform MS/MSD (Y/N)			TAL Metals											
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day																				
(509) 363-3125		Sample Identification												Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:			
(509) 747-2250		Project Name: Northport Waterfront Remedial Investigation												TP-13 (0.0-0.5)			Soil	1	X			
Project Name: Northport Waterfront		Site: Northport Waterfront												TP-13 (0.5-1.0)			Soil	1	X			
P O # 0504-160-00		Site: Northport Waterfront			TP-13 (1.0-1.5)			Soil	1	X												
P O # 0504-160-00		Site: Northport Waterfront			TP-13 (1.5-2.0)			Soil	1	X												
P O # 0504-160-00		Site: Northport Waterfront			TP-13 (2.0-2.5)			Soil	1	X												
P O # 0504-160-00		Site: Northport Waterfront			TP-13 (2.5-3.0)			Soil	1	X												
P O # 0504-160-00		Site: Northport Waterfront			TP-13 (3.0-3.5)			Soil	1	X												
P O # 0504-160-00		Site: Northport Waterfront			TP-13 (3.5-4.0)			Soil	1	X												
P O # 0504-160-00		Site: Northport Waterfront			TP-14 (0.0-0.5)			Soil	1	X												
P O # 0504-160-00		Site: Northport Waterfront			TP-14 (0.5-1.0)			Soil	1	X												
P O # 0504-160-00		Site: Northport Waterfront			TP-14 (1.0-1.5)			Soil	1	X												
P O # 0504-160-00		Site: Northport Waterfront			TP-14 (1.5-2.0)			Soil	1	X												
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																	
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months																	
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.																						
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No.:			Cooler Temp. (°C): Obs'd:			Therm ID No.:													
Relinquished by: <i>[Signature]</i>			Company: <i>GET</i>			Date/Time: <i>3/29/19-1300</i>			Received by: <i>Marica Stode</i>													
Relinquished by:			Company:			Date/Time:			Received in Laboratory by:													
Relinquished by:			Company:			Date/Time:			Received in Laboratory by:													

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
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Chain of Custody Record



7/15/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date: Carrier:		COC No: 10 of 18 COCs	
		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals
TP-14 (2.0-2.5)		3/25/19	1247	G	Soil	1		X	
TP-14 (2.5-3.0)			1249	G	Soil	1		X	
TP-14 (3.0-3.5)			1251	G	Soil	1		X	
TP-14 (3.5-4.0)			1253	G	Soil	1		X	
TP-15 (0.0-0.5)			1342	G	Soil	1		X	
TP-15 (0.5-1.0)			1344	G	Soil	1		X	
TP-15 (1.0-1.5)			1346	G	Soil	1		X	
TP-15 (1.5-2.0)			1348	G	Soil	1		X	
TP-15 (2.0-2.5)			1350	G	Soil	1		X	
TP-15 (2.5-3.0)			1352	G	Soil	1		X	
TP-15 (3.0-3.5)			1354	G	Soil	1		X	
TP-15 (3.5-4.0)			1356	G	Soil	1		X	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____	
Relinquished by: <i>[Signature]</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19-1:00</i>		Received by: <i>Marla OToole</i>		Company: <i>TASPO</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

10006 2.9 3.7 0.6 2.0 8.8

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



7/15/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date:		COC No: 11 of 25 COCs	
Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day								Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	TAL Metals
TP-16 (0.0-0.5)		3/25/19	1311	G	Soil	1		X	
TP-16 (0.5-1.0)			1313	G	Soil	1		X	
TP-16 (1.0-1.5)			1315	G	Soil	1		X	
TP-16 (1.5-2.0)			1317	G	Soil	1		X	
TP-16 (2.0-2.5)			1319	G	Soil	1		X	
TP-16 (2.5-3.0)			1321	G	Soil	1		X	
TP-16 (3.0-3.5)			1323	G	Soil	1		X	
TP-16 (3.5-4.0)			1325	G	Soil	1		X	
TP-17 (0.0-0.5)		3/26/19	1122	G	Soil	1		X	
TP-17 (0.5-1.0)			1124	G	Soil	1		X	
TP-17 (1.0-1.5)			1126	G	Soil	1		X	
TP-17 (1.5-2.0)			1128	G	Soil	1		X	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19 13:00</i>		Received by: <i>Maria O'Neil</i>		Company: <i>TASPO</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		12 of 28 COCs	
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS									
(509) 363-3125		TAT if different from Below _____									
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day									
Project Name: Northport Waterfront Remedial Investigation		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:				
Site: Northport Waterfront		TP-17 (2.0-2.5)	3/24/19 1130	G	Soil	1					
P O # 0504-160-00		TP-17 (2.5-3.0)	1132	G	Soil	1					
		TP-17 (3.0-3.5)	1134	G	Soil	1					
		TP-17 (3.5-4.0)	1136	G	Soil	1					
		TP-18 (0.0-0.5)	1504	G	Soil	1					
		TP-18 (0.5-1.0)	1506	G	Soil	1					
		TP-18 (1.0-1.5)	1508	G	Soil	1					
		TP-18 (1.5-2.0)	1510	G	Soil	1					
		TP-18 (2.0-2.5)	1512	G	Soil	1					
		TP-18 (2.5-3.0)	1514	G	Soil	1					
		TP-18 (3.0-3.5)	1516	G	Soil	1					
		TP-18 (3.5-4.0)	1518	G	Soil	1					
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)									
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months									
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:		
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>			Date/Time: <i>3/29/19-1300</i>		Received by: <i>Maria Orosko</i>		Company: <i>TA SPU</i>		Date/Time: <i>3/29/19 13:00</i>
Relinquished by:		Company:			Date/Time:		Received by:		Company:		Date/Time:
Relinquished by:		Company:			Date/Time:		Received in Laboratory by:		Company:		Date/Time:

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TestAmerica Spokane

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Chain of Custody Record



7/15/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee		Date:		COC No:		
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:		Carrier:		13 of 28 COCs		
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y / N) TAL Metals				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:		
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS									
(509) 363-3125		TAT if different from Below _____									
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks									
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 1 week									
Site: Northport Waterfront		<input type="checkbox"/> 2 days									
P O # 0504-160-00		<input type="checkbox"/> 1 day									
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.			Sample Specific Notes:		
TP-19 (0.0-0.5)		3/26/19	1553	G	Soil	1		X			
TP-19 (0.5-1.0)			1555	G	Soil	1		X			
TP-19 (1.0-1.5)			1557	G	Soil	1		X			
TP-19 (1.5-2.0)			1559	G	Soil	1		X			
TP-19 (2.0-2.5)			1601	G	Soil	1		X			
TP-19 (2.5-3.0)			1603	G	Soil	1		X			
TP-19 (3.0-3.5)			1605	G	Soil	1		X			
TP-19 (3.5-4.0)			1607	G	Soil	1		X			
TP-20 (0.0-0.5)		3/27/19	0803	G	Soil	1		X			
TP-20 (0.5-1.0)			0805	G	Soil	1		X			
TP-20 (1.0-1.5)			0807	G	Soil	1		X			
TP-20 (1.5-2.0)			0809	G	Soil	1		X			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____		
Relinquished by: <i>[Signature]</i>		Company: <i>GPI</i>		Date/Time: <i>3/29/19-1300</i>		Received by: <i>MARGA OTOOLE</i>		Company: <i>TA-SPU</i>		Date/Time: <i>3/29/19 13:00</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:	

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00	Project Manager: Scott Lathan Tel/Fax: (509) 363-3125	Site Contact: Joshua Lee Lab Contact:	Date: Carrier:	COC No: 14 of 18 COCs
Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		For Lab Use Only: Sampler: Walk-in Client: Lab Sampling: Job / SDG No.:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals	Sample Specific Notes:
TP-20(2.0-2.5)	3/29/19	0811	G	Soil	1			X	
TP-20(2.5-3.0)		0813	G	Soil	1			X	
TP-20(3.0-3.5)		0815	G	Soil	1			X	
TP-20(3.5-4.0)		0817	G	Soil	1			X	
TP-21(0.0-0.5)		0835	G	Soil	1			X	
TP-21(0.5-1.0)		0837	G	Soil	1			X	
TP-21(1.0-1.5)		0839	G	Soil	1			X	
TP-21(1.5-2.0)		0841	G	Soil	1			X	
TP-21(2.0-2.5)		0843	G	Soil	1			X	
TP-21(2.5-3.0)		0845	G	Soil	1			X	
TP-21(3.0-3.5)		0847	G	Soil	1			X	
TP-21(3.5-4.0)		0849	G	Soil	1			X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.

Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: _____ Corr'd: _____	Therm ID No.: _____
Relinquished by: <i>[Signature]</i>	Company: <i>GET</i>	Date/Time: <i>3/29/19 1300</i>	Received by: _____
Relinquished by: _____	Company: _____	Date/Time: _____	Received by: _____
Relinquished by: _____	Company: _____	Date/Time: _____	Received in Laboratory by: _____

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7/15/2019 Page 35 of 79

TestAmerica Spokane

11922 E 1st Avenue

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Chain of Custody Record



7/15/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:		
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		15 of 28 COCs		
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:		
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS										
(509) 363-3125		TAT if different from Below _____										
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day										
Project Name: Northport Waterfront Remedial Investigation												
Site: Northport Waterfront												
P O # 0504-160-00												
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.						Sample Specific Notes:
TP-22 (0.0-0.5)		3/27/19	0928	G	Soil	1	X					
TP-22 (0.5-1.0)			0930	G	Soil	1	X					
TP-22 (1.0-1.5)			0932	G	Soil	1	X					
TP-22 (1.5-2.0)			0934	G	Soil	1	X					
TP-22 (2.0-2.5)			0936	G	Soil	1	X					
TP-22 (2.5-3.0)			0938	G	Soil	1	X					
TP-22 (3.0-3.5)			0940	G	Soil	1	X					
TP-22 (3.5-4.0)			0942	G	Soil	1	X					
TP-23 (0.0-0.5)			0957	G	Soil	1	X					
TP-23 (0.5-1.0)			0959	G	Soil	1	X					
TP-23 (1.0-1.5)			1001	G	Soil	1	X					
TP-23 (1.5-2.0)			1003	G	Soil	1	X					
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other												
Possible Hazard Identification:							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.												
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months					
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.												
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____			
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>			Date/Time: <i>3/28/19-1300</i>		Received by: <i>Marta O'Toole</i>		Company: <i>TA SPO</i>		Date/Time: <i>3/29/19 13:00</i>	
Relinquished by:		Company:			Date/Time:		Received by:		Company:		Date/Time:	
Relinquished by:		Company:			Date/Time:		Received in Laboratory by:		Company:		Date/Time:	

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TestAmerica Spokane

11922 E 1st Avenue

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Chain of Custody Record



7/15/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date:		COC No: 16 of 18 COCs	
		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals
TP-23 (2.0-2.5)		3/27/19	1005	G	Soil	1	X		
TP-23 (2.5-3.0)			1007	G	Soil	1	X		
TP-23 (3.0-3.5)			1009	G	Soil	1	X		
TP-23 (3.5-4.0)			1011	G	Soil	1	X		
TP-24 (0.0-0.5)			1030	G	Soil	1	X		
TP-24 (0.5-1.0)			1032	G	Soil	1	X		
TP-24 (1.0-1.5)			1034	G	Soil	1	X		
TP-24 (1.5-2.0)			1036	G	Soil	1	X		
TP-24 (2.0-2.5)			1038	G	Soil	1	X		
TP-24 (2.5-3.0)			1040	G	Soil	1	X		
TP-24 (3.0-3.5)			1042	G	Soil	1	X		
TP-24 (3.5-4.0)			1044	G	Soil	1	X		
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19-1300</i>		Received by: <i>Maria Ordoñez</i>		Company: <i>TASPO</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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TestAmerica Spokane

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Chain of Custody Record



7/15/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date: Carrier:		COC No: 17 of 22 COCs	
		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals
TP-25 (0.0-0.5)		3/27/19	1110	G	Soil	1		X	
TP-25 (0.5-1.0)			1112	G	Soil	1		X	
TP-25 (1.0-1.5)			1114	G	Soil	1		X	
TP-25 (1.5-2.0)			1116	G	Soil	1		X	
TP-25 (2.0-2.5)			1118	G	Soil	1		X	
TP-25 (2.5-3.0)			1120	G	Soil	1		X	
TP-25 (3.0-3.5)			1122	G	Soil	1		X	
TP-25 (3.5-4.0)			1124	G	Soil	1		X	
TP-26 (0.0-0.5)			1232	G	Soil	1		X	
TP-26 (0.5-1.0)			1234	G	Soil	1		X	
TP-26 (1.0-1.5)			1236	G	Soil	1		X	
TP-26 (1.5-2.0)			1237	G	Soil	1		X	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.									
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____	
Relinquished by: <i>[Signature]</i>		Company: <i>G&E</i>		Date/Time: <i>3/28/19-13:00</i>		Received by: <i>Maria O'Toole</i>		Company: <i>TASU</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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TestAmerica Spokane

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Chain of Custody Record



7/15/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		18 of 47 COCs	
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y / N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS									
(509) 363-3125		TAT if different from Below _____									
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks									
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 1 week									
Site: Northport Waterfront		<input type="checkbox"/> 2 days									
P O # 0504-160-00		<input type="checkbox"/> 1 day									
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:				
TP-26 (2.0-2.5)		3/27/19	1240	G	Soil	1					
TP-26 (2.5-3.0)			1242	G	Soil	1					
TP-26 (3.0-3.5)			1244	G	Soil	1					
TP-26 (3.5-4.0)			1246	G	Soil	1					
HS-1 (0.0-0.5)			1554	G	Soil	1					
HS-1 (0.5-1.0)			1556	G	Soil	1					
HS-1 (1.0-1.5)			1558	G	Soil	1					
HS-1 (1.5-2.0)			1400	G	Soil	1					
HS-1 (2.0-2.5)			1402	G	Soil	1					
HS-2 (0.0-0.5)			1407	G	Soil	1					
HS-2 (0.5-1.0)			1409	G	Soil	1					
HS-2 (1.0-1.5)			1411	G	Soil	1					
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:		
Relinquished by: [Signature]		Company: GET			Date/Time: 3/28/19-1300		Received by: Maria Stool		Company: TA SPU		Date/Time: 5/29/19 13:00
Relinquished by:		Company:			Date/Time:		Received by:		Company:		Date/Time:
Relinquished by:		Company:			Date/Time:		Received in Laboratory by:		Company:		Date/Time:

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Chain of Custody Record



7/15/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:					
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		19 of 28 COCs					
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day			Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:					
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)								Matrix	# of Cont.	Sample Specific Notes:	
HS-2 (1.5-2.0)		3/27/19	1413	G								Soil	1		
HS-3 (0.0-0.5)			1504	G								Soil	1		
HS-3 (0.5-1.0)			1506	G								Soil	1		
HS-3 (1.0-1.5)			1508	G								Soil	1		
XRF-1		3/25/19	1424	G								Soil	1		
XRF-2			1430	G								Soil	1		
XRF-3			1438	G								Soil	1		
XRF-4			1500	G								Soil	1		
XRF-5			1510	G	Soil	1									
XRF-6			1532	G	Soil	1									
XRF-7			1540	G	Soil	1									
XRF-9			1615-1627	G	Soil	1									
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other															
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown								<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months							
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.															
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:						
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>			Date/Time: 3/29/19-13:00		Received by: Maria O'roole		Company: TA SPO		Date/Time: 3/29/19 13:00				
Relinquished by:		Company:			Date/Time:		Received by:		Company:		Date/Time:				
Relinquished by:		Company:			Date/Time:		Received in Laboratory by:		Company:		Date/Time:				

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TestAmerica Spokane

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Chain of Custody Record



7/15/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date: Carrier:		COC No: 20 of 28 COCs	
		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals
XRF-10		3/26/19	0808	G	Soil	1		X	
XRF-11			0824	G	Soil	1		X	
XRF-12			0857	G	Soil	1		X	
XRF-13			0903	G	Soil	1		X	
XRF-14			0910	G	Soil	1		X	
XRF-15			0921	G	Soil	1		X	
XRF-16			0933	G	Soil	1		X	
XRF-17			0945	G	Soil	1		X	
XRF-18			0952	G	Soil	1		X	
XRF-19			1009	G	Soil	1		X	
XRF-20			1017	G	Soil	1		X	
XRF-21			1028	G	Soil	1		X	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months		
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____	
Relinquished by: <i>[Signature]</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19-13:00</i>		Received by: <i>Maria OTOOL</i>		Company: <i>TA SA</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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Chain of Custody Record



7/15/2019

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		21 of 18 COCs	
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals					Sampler:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____								For Lab Use Only:	
(509) 363-3125		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day								Walk-in Client:	
(509) 747-2250										Lab Sampling:	
Project Name: Northport Waterfront Remedial Investigation										Job / SDG No.:	
Site: Northport Waterfront											
P O # 0504-160-00											
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.					Sample Specific Notes:
XRF-22		3/26/19	1036	G	Soil	1		X			
XRF-23			1056	G	Soil	1		X			
XRF-24			1104	G	Soil	1		X			
XRF-25			1136	G	Soil	1		X			
XRF-26			1141	G	Soil	1		X			
XRF-27			1148	G	Soil	1		X			
XRF-28			1156	G	Soil	1		X			
XRF-29			1256	G	Soil	1		X			
XRF-30			1303	G	Soil	1		X			
XRF-31			1312	G	Soil	1		X			
XRF-32			1322	G	Soil	1		X			
XRF-33			1341	G	Soil	1		X			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other							1				
Possible Hazard Identification:							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.											
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____		
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: <i>3/29/19-1300</i>		Received by: <i>Maria OToole</i>		Company: <i>TA SPO</i>		Date/Time: <i>3/28/19 13:00</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:	

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



7/15/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan				Site Contact: Joshua Lee				Date:				COC No:			
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125				Lab Contact:				Carrier:				22 of 28 COCs			
523 E Second Ave		Analysis Turnaround Time				Filtered Sample (Y/N)				Perform MS / MSD (Y/N)				TAL Metals		Sampler:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day														For Lab Use Only:	
(509) 363-3125																Walk-in Client:	
(509) 747-2250																Lab Sampling:	
Project Name: Northport Waterfront Remedial Investigation																Job / SDG No.:	
Site: Northport Waterfront																	
P O # 0504-160-00																	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.											Sample Specific Notes:
XRF-34		3/26/19	1349	G	Soil	1											
XRF-35			1354	G	Soil	1											
XRF-36			1400	G	Soil	1											
XRF-37			1414	G	Soil	1											
XRF-38			1421	G	Soil	1											
XRF-39			1448	G	Soil	1											
XRF-40			1500	G	Soil	1											
XRF-41			1507	G	Soil	1											
XRF-42			1518	G	Soil	1											
XRF-43			1532	G	Soil	1											
XRF-44			1541	G	Soil	1											
XRF-45		3/27/19	0759	G	Soil	1											
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other																	
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.												Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown												<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months					
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.																	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No				Custody Seal No.:				Cooler Temp. (°C): Obs'd: _____ Corr'd: _____				Therm ID No.:					
Relinquished by: <i>[Signature]</i>				Company: <i>GEI</i>				Date/Time: <i>3/29/19-1300</i>				Received by: <i>Maria OTOOLE</i>					
												Company: <i>TA SPO</i>					
												Date/Time: <i>3/29/19 13:00</i>					
Relinquished by:				Company:				Date/Time:				Received in Laboratory by:					
												Company:					
												Date/Time:					

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



7/15/2019

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:		
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		23 of 28 COCs		
523 E Second Ave		Analysis Turnaround Time			Filled Sample (Y/N) Perform MS / MSD (Y / N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.: Sample Specific Notes:		
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____										
(509) 363-3125		<input checked="" type="checkbox"/> 2 weeks										
(509) 747-2250		<input type="checkbox"/> 1 week										
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 2 days										
Site: Northport Waterfront		<input type="checkbox"/> 1 day										
P O # 0504-160-00												
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.						
XRF-46		3/27/19	0811	G	Soil	1		X				
XRF-47			0822	G	Soil	1		X				
XRF-48			0830	G	Soil	1		X				
XRF-49			0841	G	Soil	1		X				
XRF-50			0855	G	Soil	1		X				
XRF-51			0905	G	Soil	1		X				
XRF-52			0914	G	Soil	1		X				
XRF-53			0933	G	Soil	1		X				
XRF-54			0943	G	Soil	1		X				
XRF-55			0955	G	Soil	1		X				
XRF-56			1032	G	Soil	1		X				
XRF-57			1037	G	Soil	1		X				
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other												
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months					
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.												
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____			
Relinquished by: <i>[Signature]</i>		Company: <i>GEI</i>			Date/Time: <i>3/29/19-1300</i>		Received by: <i>Maria OTOOLE</i>		Company: <i>PA SPO</i>		Date/Time: <i>3/29/19 13:00</i>	
Relinquished by:		Company:			Date/Time:		Received by:		Company:		Date/Time:	
Relinquished by:		Company:			Date/Time:		Received in Laboratory by:		Company:		Date/Time:	

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
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Chain of Custody Record



7/15/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:						
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		25 of 28 COCs						
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:						
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS														
(509) 363-3125		TAT if different from Below _____														
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks														
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 1 week														
Site: Northport Waterfront		<input type="checkbox"/> 2 days			Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.	
P O # 0504-160-00		<input type="checkbox"/> 1 day					Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.	
XRF-70		3/29/19		0824		G		Soil		1		X				
XRF-71				0833		G		Soil		1		X				
XRF-72				0836		G		Soil		1		X				
XRF-73				0843		G		Soil		1		X				
XRF-74				0847		G		Soil		1		X				
XRF-75				0854		G		Soil		1		X				
XRF-76				0855		G		Soil		1		X				
XRF-77				0902		G		Soil		1		X				
XRF-78				0918		G		Soil		1		X				
XRF-79				0920		G		Soil		1		X				
XRF-80				0923		G		Soil		1		X				
XRF-81				0927		G		Soil		1		X				
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other																
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.										Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown										<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months						
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.																
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____			Corr'd: _____			Therm ID No.:				
Relinquished by: <i>[Signature]</i>			Company: <i>GEI</i>			Date/Time: <i>3/29/19-1300</i>			Received by: <i>Maria OTOOLE</i>			Company: <i>TASPO</i>				
Relinquished by:			Company:			Date/Time:			Received by:			Company:				
Relinquished by:			Company:			Date/Time:			Received in Laboratory by:			Company:				

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		76 of 18 COCs	
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals					Sampler:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS								For Lab Use Only:	
(509) 363-3125		TAT if different from Below _____								Walk-in Client:	
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day								Lab Sampling:	
Project Name: Northport Waterfront Remedial Investigation										Job / SDG No.:	
Site: Northport Waterfront											
P O # 0504-160-00											
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.					Sample Specific Notes:
XRF-82		3/28/19	0944	G	Soil	1		X			
XRF-83			0946	G	Soil	1		X			
XRF-84			0946	G	Soil	1		X			
XRF-85			0951	G	Soil	1		X			
XRF-86			0955	G	Soil	1		X			
XRF-87			1003	G	Soil	1		X			
XRF-88			1014	G	Soil	1		X			
XRF-89			1025	G	Soil	1		X			
XRF-90			1026	G	Soil	1		X			
XRF-91			1049	G	Soil	1		X			
XRF-92			1053	G	Soil	1		X			
XRF-93			1059	G	Soil	1		X			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:		
Relinquished by: <i>[Signature]</i>		Company: GEI			Date/Time: 3/29/19-1300		Received by: Maria OToole		Company: TASP		Date/Time: 3/29/19 13:00
Relinquished by:		Company:			Date/Time:		Received by:		Company:		Date/Time:
Relinquished by:		Company:			Date/Time:		Received in Laboratory by:		Company:		Date/Time:

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record



7/15/2019

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee			Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:			Carrier:		27 of 27 COCs	
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals					Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.: Sample Specific Notes:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____									
(509) 363-3125		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day									
(509) 747-2250											
Project Name: Northport Waterfront Remedial Investigation											
Site: Northport Waterfront											
P O # 0504-160-00											
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.					
XRF-94		3/28/19	1110	G	Soil	1	X				
XRF-95			1113	G	Soil	1	X				
XRF-96			1128	G	Soil	1	X				
XRF-97			1132	G	Soil	1	X				
XRF-98			1135	G	Soil	1	X				
XRF-99			1140	G	Soil	1	X				
XRF-100			1144	G	Soil	1	X				
XRF-101			1152	G	Soil	1	X				
XRF-102			1330	G	Soil	1	X				
XRF-103			1332	G	Soil	1	X				
XRF-104			1339	G	Soil	1	X				
XRF-105		✓	1341	G	Soil	1	X				
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:		
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>			Date/Time: <i>3/29/19-1300</i>		Received by: <i>Marica OTOOLE</i>		Company: <i>TA SPO</i>		Date/Time: <i>3/29/19 13:00</i>
Relinquished by:		Company:			Date/Time:		Received by:		Company:		Date/Time:
Relinquished by:		Company:			Date/Time:		Received in Laboratory by:		Company:		Date/Time:

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TestAmerica - Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00	Project Manager: Scott Lathan Tel/Fax: (509) 363-3125 <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	Site Contact: Joshua Lee Date: _____ Lab Contact: _____ Carrier: _____	COC No: _____ of <u>28</u> COCs Sampler: _____ For Lab Use Only: Walk-in Client: _____ Lab Sampling: _____ Job / SDG No.: _____
--	--	---	--

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	TAL Metals	Sample Specific Notes:
TP-1 (0.0-0.5)	3/26/19	0912	G	Soil	1			X	
TP-1 (0.5-1.0)		0914	G	Soil	1			X	
TP-1 (1.0-1.5)		0916	G	Soil	1				
TP-1 (1.5-2.0)		0918	G	Soil	1				
TP-1 (2.0-2.5)		0920	G	Soil	1				
TP-1 (2.5-3.0)		0922	G	Soil	1				
TP-1 (3.0-3.5)		0924	G	Soil	1				
TP-1 (3.5-4.0)		0926	G	Soil	1			X	
TP-2 (0.0-0.5)		0955	G	Soil	1				
TP-2 (0.5-1.0)		0957	G	Soil	1				
TP-2 (1.0-1.5)		0959	G	Soil	1				
TP-2 (1.5-2.0)	↓	1001	G	Soil	1				

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temp. (°C): Obs'd:	Cor'd:	Therm ID No.:
Relinquished by:	Company: <u>GET</u>	Date/Time: <u>3/27/19 13:00</u>	Received by: <u>M. V. O'Connell</u>	Company: <u>ASPO</u>
Relinquished by:	Company:	Date/Time:	Received by:	Company:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:

Revised COC Received 4/13/19 PA

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00	Project Manager: Scott Lathan Tel/Fax: (509) 363-3125 Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	Site Contact: Joshua Lee Lab Contact:	Date: Carrier:	COC No: 2 of 28 COCs Sampler: For Lab Use Only: Walk-In Client: Lab Sampling: Job / SDG No.:
--	---	--	---------------------------------	--

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Other	Sample Specific Notes:
TP-2 (2.0-2.5)	3/26/19	1003	G	Soil	1				
TP-2 (2.5-3.0)		1005	G	Soil	1				
TP-2 (3.0-3.5)		1007	G	Soil	1				
TP-2 (3.5-4.0)		1009	G	Soil	1				
TP-3 (0.0-0.5)		1030	G	Soil	1				
TP-3 (0.5-1.0)		1032	G	Soil	1				
TP-3 (1.0-1.5)		1034	G	Soil	1				
TP-3 (1.5-2.0)		1031	G	Soil	1				
TP-3 (2.0-2.5)		1033	G	Soil	1				
TP-3 (2.5-3.0)		1040	G	Soil	1				
TP-3 (3.0-3.5)		1042	G	Soil	1				
TP-3 (3.5-4.0)		1044	G	Soil	1				

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:
Relinquished by: <i>[Signature]</i>	Company: <i>GET</i>	Date/Time: 3/29/19 13:00	Received by: <i>Marica O'Boole</i>	Company: <i>TA-SD</i>
Relinquished by:	Company:	Date/Time:	Received by:	Company:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		3 of 28 COCs	
		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS / MSD (Y/N)		TAL Metals		Sampler: For Lab Use Only: Walk-In Client: Lab Sampling: Job / SDG No.:	
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:		
TP-4 (0.0-0.5)		3/24/19	0837	G	Soil	1	X		
TP-4 (0.5-1.0)			0839	G	Soil	1	X		
TP-4 (1.0-1.5)			0841	G	Soil	1			
TP-4 (1.5-2.0)			0843	G	Soil	1			
TP-4 (2.0-2.5)			0845	G	Soil	1			
TP-4 (2.5-3.0)			0847	G	Soil	1			
TP-4 (3.0-3.5)			0849	G	Soil	1			
TP-4 (3.5-4.0)			0851	G	Soil	1	X		
TP-5 (0.0-0.5)			0802	G	Soil	1	X		
TP-5 (0.5-1.0)			0804	G	Soil	1	X		
TP-5 (1.0-1.5)			0806	G	Soil	1	X		
TP-5 (1.5-2.0)			0808	G	Soil	1	X		
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C):		Obs'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: 3/29/19-13:00		Received by: <i>Marta Ornela</i>		Company: <i>TA SD</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
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Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		5 of 28 COCs	
523 E Second Ave		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS							
(509) 363-3125		TAT if different from Below _____							
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Project Name: Northport Waterfront Remedial Investigation									
Site: Northport Waterfront									
P O # 0504-160-00									
Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals	Sample Specific Notes:
TP-7(0.0-0.5)	3/25/19	1536	G	Soil	1				
TP-7(0.5-1.0)		1538	G	Soil	1				
TP-7(1.0-1.5)		1540	G	Soil	1				
TP-7(1.5-2.0)		1542	G	Soil	1				
TP-7(2.0-2.5)		1544	G	Soil	1				
TP-7(2.5-3.0)		1546	G	Soil	1				
TP-7(3.0-3.5)		1548	G	Soil	1				
TP-7(3.5-4.0)		1550	G	Soil	1				
TP-8(0.0-0.5)		1617	G	Soil	1				
TP-8(0.5-1.0)		1619	G	Soil	1				
TP-8(1.0-1.5)		1621	G	Soil	1				
TP-8(1.5-2.0)		1623	G	Soil	1				
Preservation Used: 1- Ice, 2- HCl, 3- H2SO4, 4- HNO3, 5- NaOH, 6- Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months			
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19-13:00</i>		Received by: <i>Maria OToole</i>		Company: <i>TA SDO</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		2 of 28 COCs	
		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N)		TAL Metals		Sampler:	
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						For Lab Use Only: Walk-in Client: Lab Sampling:	
Sample Identification		Sample Date	Sample Time	Sample Type (C-Comp, GeGrab)	Matrix	# of Cont.	Sample Specific Notes:		
TP-8 (2.0-2.5)		3/25/19	1625	G	Soil	1			
TP-8 (2.5-3.0)			1627	G	Soil	1			
TP-8 (3.0-3.5)			1629	G	Soil	1			
TP-8 (3.5-4.0)			1631	G	Soil	1			
TP-9 (0.0-0.5)		3/25/19	1404	G	Soil	1	X		
TP-9 (0.5-1.0)			1406	G	Soil	1			
TP-9 (1.0-1.5)			1408	G	Soil	1			
TP-9 (1.5-2.0)			1410	G	Soil	1			
TP-9 (2.0-2.5)			1412	G	Soil	1	X		
TP-9 (2.5-3.0)			1414	G	Soil	1			
TP-9 (3.0-3.5)			1416	G	Soil	1			
TP-9 (3.5-4.0)			1418	G	Soil	1	X		
Preservation Used: 1-Ice, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intagt: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:	
Relinquished by:		Company: GEI		Date/Time: 3/29/19-1300		Received by: Maria OTOOLE		Company: TASP0	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee		Date:		COC No:											
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125			Lab Contact:		Carrier:		7 of 28 COCs											
523 E Second Ave		Analysis Turnaround Time			Filtered Sample (Y/N)		Perform MS / MSD (Y/N)		TAL Metals											
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS																		
(509) 363-3125		TAT if different from Below _____																		
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks																		
Project Name: Northport Waterfront Remedial Investigation		<input type="checkbox"/> 1 week																		
Site: Northport Waterfront		<input type="checkbox"/> 2 days			Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.							
P O # 0504-160-00		<input type="checkbox"/> 1 day																		
Sample Identification											Sample Specific Notes:									
TP-10(0.0-0.5)											3/26/19 1328		G		Soil		1		X	
TP-10(0.5-1.0)											1330		G		Soil		1		X	
TP-10(1.0-1.5)											1332		G		Soil		1		X	
TP-10(1.5-2.0)											1334		G		Soil		1			
TP-10(2.0-2.5)											1336		G		Soil		1			
TP-10(2.5-3.0)											1338		G		Soil		1			
TP-10(3.0-3.5)											1340		G		Soil		1			
TP-10(3.5-4.0)											1342		G		Soil		1			
TP-11(0.0-0.5)											3/25/19 1457		G		Soil		1			
TP-11(0.5-1.0)											1459		G		Soil		1		X	
TP-11(1.0-1.5)											1501		G		Soil		1			
TP-11(1.5-2.0)											1503		G		Soil		1			
Preservation Used: 1-Ice, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-Other																				
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.											Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)									
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown											<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months									
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.																				
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____			Corr'd: _____			Therm ID No.:								
Relinquished by: <i>[Signature]</i>			Company: <i>GI</i>			Date/Time: <i>3/29/19-1300</i>			Received by: <i>Maria OTOOLE</i>			Company: <i>TA SPO</i>								
Relinquished by:			Company:			Date/Time:			Received by:			Company:								
Relinquished by:			Company:			Date/Time:			Received in Laboratory by:			Company:								

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:		
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		8 of 28 COCs		
		Analysis Turnaround Time						Sampler:		
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS						For Lab Use Only:		
		TAT if different from Below _____						Walk-in Client:		
		<input checked="" type="checkbox"/> 2 weeks						Lab Sampling:		
		<input type="checkbox"/> 1 week						Job / SDG No.:		
		<input type="checkbox"/> 2 days								
		<input type="checkbox"/> 1 day								
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Sample Specific Notes:	
TP-11 (2.0-2.5)		3/25/19	1505	G	Soil	1				
TP-11 (2.5-3.0)			1507	G	Soil	1				
TP-11 (3.0-3.5)			1509	G	Soil	1				
TP-11 (3.5-4.0)			1511	G	Soil	1			X	
TP-12 (0.0-0.5)			1155	G	Soil	1			X	
TP-12 (0.5-1.0)			1157	G	Soil	1				
TP-12 (1.0-1.5)			1159	G	Soil	1			X	
TP-12 (1.5-2.0)			1201	G	Soil	1				
TP-12 (2.0-2.5)			1203	G	Soil	1				
TP-12 (2.5-3.0)			1205	G	Soil	1				
TP-12 (3.0-3.5)			1207	G	Soil	1				
TP-12 (3.5-4.0)			1209	G	Soil	1				
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown										
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.										
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____		
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: <i>3/29/19 (3:00)</i>		Received by: <i>Maria Grode</i>		Company: <i>TASPO</i>		
Relinquished by:		Company:		Date/Time:		Received by:		Company:		
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		9 of 28 COCs	
523 E Second Ave		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS		TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Filtered Sample (Y/N) Perform MS / MSD (Y/N)		Sampler: For Lab Use Only: Walk-in Client: _____ Lab Sampling: _____ Job / SDG No.: _____	
Spokane, WA 99206									
(509) 363-3125									
(509) 747-2250									
Project Name: Northport Waterfront Remedial Investigation									
Site: Northport Waterfront									
P O # 0504-160-00									
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:		
TP-13 (0.0-0.5)		3/25/19	1420	G	Soil	1	X		
TP-13 (0.5-1.0)			1422	G	Soil	1			
TP-13 (1.0-1.5)			1424	G	Soil	1			
TP-13 (1.5-2.0)			1426	G	Soil	1			
TP-13 (2.0-2.5)			1428	G	Soil	1			
TP-13 (2.5-3.0)			1430	G	Soil	1			
TP-13 (3.0-3.5)			1432	G	Soil	1			
TP-13 (3.5-4.0)			1434	G	Soil	1			
TP-14 (0.0-0.5)			1239	G	Soil	1	X		
TP-14 (0.5-1.0)			1241	G	Soil	1	X		
TP-14 (1.0-1.5)			1243	G	Soil	1	X		
TP-14 (1.5-2.0)			1245	G	Soil	1	X		
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Ome									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Cor'd: _____		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: <i>3/29/19 13:00</i>		Received by: <i>Maria Stode</i>		Company: <i>TASPO</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		10 of 28 COCs	
		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals				Sampler:	
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS						For Lab Use Only:	
		TAT if different from Below _____						Walk-in Client: _____ Lab Sampling: _____	
		<input checked="" type="checkbox"/> 2 weeks						Job / SDG No.:	
		<input type="checkbox"/> 1 week							
		<input type="checkbox"/> 2 days							
		<input type="checkbox"/> 1 day							
Sample Identification		Sample Date	Sample Time	Sample Type (Co-Comp, G-Grab)	Matrix	# of Cont.	Sample Specific Notes:		
TP-14 (2.0-2.5)		3/25/19	1247	G	Soil	1			
TP-14 (2.5-3.0)			1249	G	Soil	1			
TP-14 (3.0-3.5)			1251	G	Soil	1			
TP-14 (3.5-4.0)			1253	G	Soil	1			
TP-15 (0.0-0.5)			1342	G	Soil	1			
TP-15 (0.5-1.0)			1344	G	Soil	1			
TP-15 (1.0-1.5)			1346	G	Soil	1			
TP-15 (1.5-2.0)			1348	G	Soil	1			
TP-15 (2.0-2.5)			1350	G	Soil	1			
TP-15 (2.5-3.0)			1352	G	Soil	1			
TP-15 (3.0-3.5)			1354	G	Soil	1			
TP-15 (3.5-4.0)			1356	G	Soil	1			
Preservation Used: 1- Ice 2- HCl 3- H2SO4 4- HNO3 5- NaOH 6- Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months							
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____ Cor'd: _____		Therm ID No.:			
Relinquished by: <i>Scott Lathan</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19-13:00</i>		Received by: <i>Maria OToole</i>		Company: <i>TASPO</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		11 of 28 COCs	
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Perform MS / MSD (Y / N)				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Sample Specific Notes:	
TP-16 (0.0-0.5)		3/25/19	1311	G	Soil	1	X		
TP-16 (0.5-1.0)			1313	G	Soil	1	X		
TP-16 (1.0-1.5)			1315	G	Soil	1			
TP-16 (1.5-2.0)			1317	G	Soil	1			
TP-16 (2.0-2.5)			1319	G	Soil	1			
TP-16 (2.5-3.0)			1321	G	Soil	1			
TP-16 (3.0-3.5)			1323	G	Soil	1	X		
TP-16 (3.5-4.0)			1325	G	Soil	1			
TP-17 (0.0-0.5)		3/26/19	1122	G	Soil	1	X		
TP-17 (0.5-1.0)			1124	G	Soil	1	X		
TP-17 (1.0-1.5)			1126	G	Soil	1			
TP-17 (1.5-2.0)			1128	G	Soil	1			
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months							
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: GET		Date/Time: 3/29/19 13:00		Received by: Maria O'Neal		Company: TASP	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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TestAmerica Spokane
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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:		
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		12 of 28 COCs		
		Analysis Turnaround Time						Sampler:		
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS						For Lab Use Only:		
		TAT if different from Below _____						Walk-In Client: <input type="checkbox"/>		
		<input checked="" type="checkbox"/> 2 weeks						Lab Sampling: <input type="checkbox"/>		
		<input type="checkbox"/> 1 week						Job / SDG No.:		
		<input type="checkbox"/> 2 days								
		<input type="checkbox"/> 1 day								
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:	
TP-17 (0.0-2.5)		3/24/19	1130	G	Soil	1				
TP-17 (2.5-3.0)			1132	G	Soil	1				
TP-17 (3.0-3.5)			1134	G	Soil	1				
TP-17 (3.5-4.0)			1136	G	Soil	1				
TP-18 (0.0-0.5)			1504	G	Soil	1			X	
TP-18 (0.5-1.0)			1506	G	Soil	1				
TP-18 (1.0-1.5)			1508	G	Soil	1				
TP-18 (1.5-2.0)			1510	G	Soil	1				
TP-18 (2.0-2.5)			1512	G	Soil	1				
TP-18 (2.5-3.0)			1514	G	Soil	1				
TP-18 (3.0-3.5)			1516	G	Soil	1				
TP-18 (3.5-4.0)			1518	G	Soil	1				
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown										
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.										
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____		
Relinquished by: <i>[Signature]</i>		Company: <i>GFI</i>		Date/Time: 3/29/19-1300		Received by: <i>Maria Oloke</i>		Company: <i>TA SPU</i>		
Relinquished by:		Company:		Date/Time:		Received by:		Company:		
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		

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TestAmerica Spokane
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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		13 of 28 COCs	
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT If different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Filtered Sample (Y/N)		Perform MS/MSD (Y/N)		Sampler:	
								For Lab Use Only: Walk-In Client: Lab Sampling:	
								Job / SDG No.:	
								Sample Specific Notes:	
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)		
TP-19 (0.0-0.5)	3/26/19	1553	G	Soil	1			X	
TP-19 (0.5-1.0)		1555	G	Soil	1			X	
TP-19 (1.0-1.5)		1557	G	Soil	1			X	
TP-19 (1.5-2.0)		1559	G	Soil	1			X	
TP-19 (2.0-2.5)		1601	G	Soil	1				
TP-19 (2.5-3.0)		1603	G	Soil	1				
TP-19 (3.0-3.5)		1605	G	Soil	1				
TP-19 (3.5-4.0)	↓	1607	G	Soil	1				
TP-20 (0.0-0.5)	3/27/19	0803	G	Soil	1			X	
TP-20 (0.5-1.0)		0805	G	Soil	1				
TP-20 (1.0-1.5)		0807	G	Soil	1				
TP-20 (1.5-2.0)	↓	0809	G	Soil	1				
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: GEI		Date/Time: 3/29/19-1300		Received by: Maria O'Bole		Company: TA-SPU	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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Chain of Custody Record

TestAmerica
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Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		14 of 18 COCs	
		Analysis Turnaround Time		Filled Sample (Y/N) Perform MS / MSD (Y/N)				Sampler: For Lab Use Only: Walk-In Client: Lab Sampling: Job / SDG No.:	
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.			Sample Specific Notes:	
TP-20(2.0-2.5)	3/27/19	0811	G	Soil	1				
TP-20(2.5-3.0)		0813	G	Soil	1				
TP-20(3.0-3.5)		0815	G	Soil	1				
TP-20(3.5-4.0)	↓	0817	G	Soil	1				
TP-21(0.0-0.5)		0835	G	Soil	1				
TP-21(0.5-1.0)		0837	G	Soil	1				
TP-21(1.0-1.5)		0839	G	Soil	1				
TP-21(1.5-2.0)		0841	G	Soil	1				
TP-21(2.0-2.5)		0843	G	Soil	1				
TP-21(2.5-3.0)		0845	G	Soil	1				
TP-21(3.0-3.5)		0847	G	Soil	1				
TP-21(3.5-4.0)	↓	0849	G	Soil	1				
Preservation Used: 1- Ice, 2- HCl, 3- H2SO4, 4- HNO3, 5- NaOH, 6- Other:						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.						<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months			
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Cor'd: _____		Therm ID No.: _____	
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: <i>3/27/19 1:30</i>		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:			
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		16 of 18 COCs			
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Filtered Sample (Y/N) Perform MS/MSD (Y/N)		TAT Metals TAL Metals		Sampler: For Lab Use Only: Walk-In Client: Lab Sampling:		Job / SDG No.:	
Sample Identification		Sample Date	Sample Time	Sample Type (Co-Comp, Ge-Grab)	Matrix	# of Cont.	Sample Specific Notes:				
TP-23 (2.0-2.5)		3/27/19	1005	G	Soil	1					
TP-23 (2.5-3.0)			1007	G	Soil	1					
TP-23 (3.0-3.5)			1009	G	Soil	1					
TP-23 (3.5-4.0)			1011	G	Soil	1					
TP-24 (0.0-0.5)			1030	G	Soil	1					
TP-24 (0.5-1.0)			1032	G	Soil	1					
TP-24 (1.0-1.5)			1034	G	Soil	1					
TP-24 (1.5-2.0)			1036	G	Soil	1					
TP-24 (2.0-2.5)			1038	G	Soil	1					
TP-24 (2.5-3.0)			1040	G	Soil	1					
TP-24 (3.0-3.5)			1042	G	Soil	1					
TP-24 (3.5-4.0)			1044	G	Soil	1					
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months						
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Cor'd:		Therm ID No.:			
Relinquished by: <i>[Signature]</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19 13:00</i>		Received by: <i>Maria Stode</i>		Company: <i>TASPO</i>			
Relinquished by:		Company:		Date/Time:		Received by:		Company:			
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:			

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Chain of Custody Record

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Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee		Date:		COC No:			
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Tel/Fax: (509) 363-3125			Lab Contact:		Carrier:		17 of 27 COCs			
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day			Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL Metals		Sampler:		For Lab Use Only: Walk-in Client: Lab Sampling:			
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)			Matrix	# of Cont.	Sample Specific Notes:			
TP-25 (0.0-0.5)		3/27/19	1110	G			Soil	1				
TP-25 (0.5-1.0)			1112	G			Soil	1				
TP-25 (1.0-1.5)			1114	G			Soil	1				
TP-25 (1.5-2.0)			1116	G			Soil	1				
TP-25 (2.0-2.5)			1118	G			Soil	1				
TP-25 (2.5-3.0)			1120	G			Soil	1				
TP-25 (3.0-3.5)			1122	G			Soil	1				
TP-25 (3.5-4.0)			1124	G			Soil	1				
TP-26 (0.0-0.5)			1232	G	Soil	1						
TP-26 (0.5-1.0)			1234	G	Soil	1						
TP-26 (1.0-1.5)			1236	G	Soil	1						
TP-26 (1.5-2.0)			1238	G	Soil	1						
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months							
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.												
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:			
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>			Date/Time: <i>3/29/19 1:00</i>		Received by: <i>Marta O'Loole</i>		Company: <i>TA-SPD</i>			
Relinquished by:		Company:			Date/Time:		Received by:		Company:			
Relinquished by:		Company:			Date/Time:		Received in Laboratory by:		Company:			

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TestAmerica Spokane
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Chain of Custody Record

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Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		18 of 27 COCs	
		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS / MSD (Y/N)		TAL Metals		Sampler:	
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						For Lab Use Only: Walk-in Client: Lab Sampling:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:		
TP-26 (2.0-2.5)		3/27/19	1240	G	Soil	1			
TP-26 (2.5-3.0)			1242	G	Soil	1			
TP-26 (3.0-3.5)			1244	G	Soil	1			
TP-26 (3.5-4.0)			1246	G	Soil	1			
HS-1 (0.0-0.5)			1554	G	Soil	1			
HS-1 (0.5-1.0)			1556	G	Soil	1			
HS-1 (1.0-1.5)			1558	G	Soil	1			
HS-1 (1.5-2.0)			1400	G	Soil	1	X		
HS-1 (2.0-2.5)			1402	G	Soil	1			
HS-2 (0.0-0.5)			1407	G	Soil	1	X		
HS-2 (0.5-1.0)			1409	G	Soil	1	X		
HS-2 (1.0-1.5)			1411	G	Soil	1	X		
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C):		Obs'd:		Therm ID No.:	
Relinquished by: [Signature]		Company: GET		Date/Time: 3/29/19-1700		Received by: Maria Stoole		Company: TA SPU	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee		Date:		COC No:							
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Tel/Fax: (509) 363-3125			Lab Contact:		Carrier:		19 of 29 COCs							
		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals TAL Metals TAL Metals				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.: Sample Specific Notes:							
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day														
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)							Matrix	# of Cont.				
HS-2 (1.5-2.0)		3/27/19	1413	G							Soil	1				
HS-3 (0.0-0.5)			1504	G	Soil	1										
HS-3 (0.5-1.0)			1506	G	Soil	1										
HS-3 (1.0-1.5)			1508	G	Soil	1										
XRF-1		3/25/19	1424	G	Soil	1										
XRF-2			1430	G	Soil	1										
XRF-3			1439	G	Soil	1										
XRF-4			1500	G	Soil	1										
XRF-5			1510	G	Soil	1										
XRF-6			1532	G	Soil	1										
XRF-7			1540	G	Soil	1										
XRF-9			1615	G	Soil	1										
XRF-9			1627	G	Soil	1										
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other																
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)											
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months											
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.																
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____ Cor'd: _____		Therm ID No.:									
Relinquished by: <i>[Signature]</i>		Company: <i>GET</i>		Date/Time: 3/29/19-1300		Received by: <i>Maria Orozco</i>		Company: <i>TA SPO</i>		Date/Time: 3/29/19 13:00						
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:						
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:						

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		20 of 18 COCs	
		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N)		TAL Metals		Sampler:	
		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						For Lab Use Only: Walk-in Client: Lab Sampling:	
Sample Identification		Sample Date	Sample Time	Sample Type (S=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:		
XRF-10		3/26/19	0808	G	Soil	1			
XRF-11			0824	G	Soil	1	X		
XRF-12			0857	G	Soil	1			
XRF-13			0903	G	Soil	1			
XRF-14			0910	G	Soil	1			
XRF-15			0921	G	Soil	1			
XRF-16			0933	G	Soil	1			
XRF-17			0945	G	Soil	1			
XRF-18			0952	G	Soil	1			
XRF-19			1009	G	Soil	1			
XRF-20			1017	G	Soil	1			
XRF-21			1027	G	Soil	1			
Preservation Used: 1-Ice; 2-HCl; 3-H2SO4; 4-HNO3; 5-NaOH; 6-Other					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Cor'd:		Therm ID No.:	
Relinquished by: <i>Mark Peterson</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19 13:00</i>		Received by: <i>Maria Orroce</i>		Company: <i>TA Sp</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		21 of 18 COCs	
523 E Second Ave		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS							
(509) 363-3125		TAT if different from Below _____							
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Project Name: Northport Waterfront Remedial Investigation		Sample Date		Sample Time		Sample Type (C-Comp, G-Grab)		Matrix	
Site: Northport Waterfront									
P O # 0504-160-00									
Sample Identification									
XRF-22		3/26/19		1036		G Soil		1	
XRF-23				1056		G Soil		1	
XRF-24				1104		G Soil		1	
XRF-25				1136		G Soil		1	
XRF-26				1141		G Soil		1	
XRF-27				1148		G Soil		1	
XRF-28				1156		G Soil		1	
XRF-29				1256		G Soil		1	
XRF-30				1303		G Soil		1	
XRF-31				1312		G Soil		1	
XRF-32				1322		G Soil		1	
XRF-33				1341		G Soil		1	
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:	
Relinquished by: <i>Scott Lathan</i>		Company: <i>GET</i>		Date/Time: <i>3/29/19-1300</i>		Received by: <i>Maria OTOOLE</i>		Company: <i>TA SPO</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		Project Manager: Scott Lathan Tel/Fax: (509) 363-3125		Site Contact: Joshua Lee Lab Contact:		Date: Carrier:		COC No: 22 of 28 COCs			
		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling:			
Sample Identification		Sample Date	Sample Time			Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:		
XRF-34		3/26/19	1349			G	Soil	1			
XRF-35			1354			G	Soil	1			
XRF-36			1400			G	Soil	1			
XRF-37			1414			G	Soil	1			
XRF-38			1421			G	Soil	1			
XRF-39			1448			G	Soil	1			
XRF-40			1500			G	Soil	1			
XRF-41			1507			G	Soil	1			
XRF-42			1518	G	Soil	1					
XRF-43			1532	G	Soil	1					
XRF-44			1541	G	Soil	1					
XRF-45		3/27/19	0759	G	Soil	1					
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months						
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.											
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:			
Relinquished by: <i>[Signature]</i>		Company: <i>GEI</i>		Date/Time: <i>3/29/19-1300</i>		Received by: <i>Maria OTOOLE</i>		Company: <i>TA SPD</i>			
Relinquished by:		Company:		Date/Time:		Received by:		Date/Time:			
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Date/Time:			

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TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan		Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc.		Tel/Fax: (509) 363-3125		Lab Contact:		Carrier:		23 of 24 COCs	
523 E Second Ave		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS / MSD (Y/N) TALENTS				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
Spokane, WA 99206		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS							
(509) 363-3125		TAT if different from Below _____							
(509) 747-2250		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Project Name: Northport Waterfront Remedial Investigation									
Site: Northport Waterfront									
P O # 0504-160-00									
Sample Identification		Sample Date	Sample Time	Sample Type (Ca-Comp, G-Grab)	Matrix	# of Cont.	Sample Specific Notes:		
XRF-46		3/27/19	0811	G	Soil	1			
XRF-47			0822	G	Soil	1			
XRF-48			0830	G	Soil	1			
XRF-49			0841	G	Soil	1			
XRF-50			0855	G	Soil	1			
XRF-51			0905	G	Soil	1			
XRF-52			0914	G	Soil	1			
XRF-53			0933	G	Soil	1			
XRF-54			0943	G	Soil	1			
XRF-55			0955	G	Soil	1			
XRF-56			1032	G	Soil	1			
XRF-57			1037	G	Soil	1			
Preservation Used: <input type="checkbox"/> HCl <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> HNO ₃ <input type="checkbox"/> NaOH <input type="checkbox"/> Other:									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.: _____	
Relinquished by: <i>[Signature]</i>		Company: GEL		Date/Time: 3/29/19-1300		Received by: Maria OTOOLE		Company: TA SPO	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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TestAmerica Spokane
11922 E 1st Avenue

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Scott Lathan			Site Contact: Joshua Lee		Date:		COC No:	
GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250		Tel/Fax: (509) 363-3125			Lab Contact:		Carrier:		49 of 28 COCs	
Analysis Turnaround Time		TAT if different from Below _____			Filtered Sample (Y/N) Perform MS / MSD (Y/N) TAL metals TAL metals				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS		<input checked="" type="checkbox"/> 2 weeks								
		<input type="checkbox"/> 1 week								
		<input type="checkbox"/> 2 days								
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00		<input type="checkbox"/> 1 day								
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:			
XRF-58		3/27/19	1047	G	Soil	1				
XRF-59			1058	G	Soil	1				
XRF-60			1113	G	Soil	1				
XRF-61			1224	G	Soil	1				
XRF-62			1225	G	Soil	1				
XRF-63			1246	G	Soil	1				
XRF-64			1251	G	Soil	1				
XRF-65			1259	G	Soil	1				
XRF-66			1305	G	Soil	1				
XRF-67		3/28/19	0811	G	Soil	1				
XRF-68			0814	G	Soil	1				
XRF-69			0822	G	Soil	1				
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other										
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.										
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:	
Relinquished by: <i>[Signature]</i>		Company: GEI		Date/Time: 3/29/19 13:00		Received by: Maria OTOOLE		Company: TASPQ		Date/Time: 3/29/19 13:00
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:

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TestAmerica Spokane

11922 E 1st Avenue

Spokane, WA 99206-5302
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Chain of Custody Record

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THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250 Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00	Project Manager: Scott Lathan Tel/Fax: (509) 363-3125	Site Contact: Joshua Lee Lab Contact:	Date: Carrier:	COC No: 25 of 28 COCs
Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day			For Lab Use Only: Walk-in Client: _____ Lab Sampling: _____ Job / SDG No.: _____	

Sample Identification	Sample Date	Sample Time	Sample Type (Ca-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals	Sample Specific Notes:
XRF-70	3/28/19	0824	G	Soil	1				
XRF-71		0833	G	Soil	1				
XRF-72		0836	G	Soil	1				
XRF-73		0843	G	Soil	1				
XRF-74		0847	G	Soil	1				
XRF-75		0854	G	Soil	1				
XRF-76		0855	G	Soil	1				
XRF-77		0902	G	Soil	1				
XRF-78		0918	G	Soil	1				
XRF-79		0920	G	Soil	1				
XRF-80		0923	G	Soil	1				
XRF-81		0927	G	Soil	1				

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: _____ Cor'd: _____	Therm ID No.:
Relinquished by: <i>[Signature]</i>	Company: <i>GFI</i>	Date/Time: <i>3/29/19 13:00</i>	Received by: <i>Maria O'Roole</i>
Relinquished by:	Company:	Date/Time:	Received by:
Relinquished by:	Company:	Date/Time:	Received In Laboratory by:

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Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Scott Lathan	Site Contact: Joshua Lee	Date:	COC No:
GeoEngineers, Inc.	Tel/Fax: (509) 363-3125	Lab Contact:	Carrier:	76 of 18 COCs
523 E Second Ave	Analysis Turnaround Time			Sampler:
Spokane, WA 99206	<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS			For Lab Use Only:
(509) 363-3125	TAT if different from Below _____			Walk-in Client:
(509) 747-2250	<input checked="" type="checkbox"/> 2 weeks			Lab Sampling:
Project Name: Northport Waterfront Remedial Investigation	<input type="checkbox"/> 1 week			Job / SDG No.:
Site: Northport Waterfront	<input type="checkbox"/> 2 days			
P O # 0504-160-00	<input type="checkbox"/> 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes
XRF-82	3/28/19	0942	G	Soil	1			
XRF-83		0946	G	Soil	1			
XRF-84		0948	G	Soil	1			
XRF-85		0951	G	Soil	1			
XRF-86		0955	G	Soil	1			
XRF-87		1003	G	Soil	1			
XRF-88		1014	G	Soil	1			
XRF-89		1025	G	Soil	1			
XRF-90		1026	G	Soil	1			
XRF-91		1049	G	Soil	1			
XRF-92		1053	G	Soil	1			
XRF-93		1059	G	Soil	1			

Preservation Used: 1- Ice, 2- HCl, 3- H2SO4, 4- HNO3, 5- NaOH, 6- Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of smapels to run for TAL metals.

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:
Relinquished by: <i>[Signature]</i>	Company: <i>GTI</i>	Date/Time: <i>3/29/19-1300</i>	Received by: <i>Maria O'Keefe</i>	Company: <i>TASPO</i>
Relinquished by:	Company:	Date/Time:	Received by:	Company:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:

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TestAmerica Spokane

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Chain of Custody Record

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Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250	Project Manager: Scott Lathan Tel/Fax: (509) 363-3125	Site Contact: Joshua Lee Date:	Lab Contact: Carrier:	COC No: 28 of 28 COCs
Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TAL Metals	Sample Specific Notes
XRF-106	3/28/19	1346	G	Soil	1				
XRF-107		1347	G	Soil	1				
XRF-108		1353	G	Soil	1				
XRF-109		1356	G	Soil	1				
XRF-8	3/25/19	1615	G	Soil	1				
Dep-1	3/26/19	0700	G	Soil	1			X	
Dep-2	3/26/19	0830	G	Soil	1			X	
			G	Soil	1				
			G	Soil	1				
			G	Soil	1				
			G	Soil	1				
			G	Soil	1				

Possible Hazard Identification:
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.

Custody Seals Intact: Yes No

Relinquished by: *[Signature]* Custody Seal No.: _____ Cooler Temp. (°C): Obs'd: 3.1 Cor'd: 3.4 Therm ID No.: F6000

Relinquished by: *[Signature]* Company: GET Date/Time: 3/29/19 13:00 Received by: Maria O'Bole Company: TASP Date/Time: 3/29/19 13:00

Relinquished by: *[Signature]* Company: GET Date/Time: 3/29/19 16:15 Received by: *[Signature]* Company: TASP Date/Time: 3/29/19 16:15

Received in Laboratory by: _____ Company: _____ Date/Time: _____

Chain of Custody Record

Spokane, WA 99206-5302
 phone 509.924.9200 fax 509.924.9290

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact GeoEngineers, Inc. 523 E Second Ave Spokane, WA 99206 (509) 363-3125 (509) 747-2250	Project Manager: Scott Lathan Tel/Fax: (509) 363-3125	Site Contact: Joshua Lee Date:	COC No: 28 of 28 COCs
Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	Lab Contact:	Carrier:	Sampler: For Lab Use Only: Walk-in Client: Lab Sampling:
Project Name: Northport Waterfront Remedial Investigation Site: Northport Waterfront P O # 0504-160-00	Filtered Sample (Y/N) Perform MS/MSD (Y/N) TAL Metals		Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	TAL Metals
XRF-106	3/28/19	1346	G	Soil	1			
XRF-107		1347	G	Soil	1			
XRF-108		1353	G	Soil	1			
XRF-109		1356	G	Soil	1			
XRF-8	3/25/19	1615	G	Soil	1			
Dup-1	3/26/19	0800	G	Soil	1		X	
Dup-2	3/26/19	0830	G	Soil	1		X	
			G	Soil	1			
			G	Soil	1			
			G	Soil	1			
			G	Soil	1			
			G	Soil	1			

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: Hold samples. Scott Lathan will contact with list of samples to run for TAL metals.

Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: 3.1 Corr'd: 3.9	Therm ID No.: F8000
Relinquished by: <i>[Signature]</i>	Company: <i>GET</i>	Date/Time: <i>3/29/19 13:00</i>	Received by: <i>Maria Stool</i>
Relinquished by: <i>[Signature]</i>	Company: <i>GET</i>	Date/Time: <i>4/2/19 1615</i>	Received by: <i>[Signature]</i>
Relinquished by: <i>[Signature]</i>	Company: <i>GET</i>	Date/Time: <i>4/2/19 1615</i>	Received in Laboratory by: <i>[Signature]</i>
			Company: <i>TASPO</i>
			Company: <i>TASPO</i>
			Company: <i>TASPO</i>

Revised COC. RA

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-10699-2

Login Number: 10699

List Number: 1

Creator: O'Toole, Maria C

List Source: Eurofins TestAmerica, Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Not listed on COC
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.



APPENDIX E
Comparison and Evaluation of XRF
vs Laboratory Analytical Data

Table E-1
Evaluation and Comparison of XRF and Laboratory Analytical Results¹
 Northport Waterfront Remedial Investigation
 Northport, Washington

Location	Depth (feet)	Investigation Area	Arsenic			Copper			Chromium			Lead			Zinc			Barium			Iron			Manganese		
			XRF	Lab	RPD	XRF	Lab	RPD	XRF	Lab	RPD	XRF	Lab	RPD	XRF	Lab	RPD	XRF	Lab	RPD	XRF	Lab	RPD	XRF	Lab	RPD
HS-1	1.5-2	Bayshore	0	18	200	159	450	96	0	40	200	508	800	45	2,455	6,300	88	900	810	-11	54,600	86,000	45	669	1,600	82
HS-2	0-0.5	Bayshore	0	8	200	72	640	160	0	18	-132	241	190	11	1,338	2,200	73	691	280	-85	31,100	24,000	-26	588	400	-38
HS-2	0.5-1	Bayshore	0	10	200	113	130	14	0	28	200	184	320	-24	1,213	2,800	49	0	430	200	28,100	37,000	27	414	560	30
HS-2	1-1.5	Bayshore	0	43	200	458	230	-66	137	28	200	2,410	2,700	54	7,008	15,000	79	1,149	410	-95	83,200	84,000	1	2,315	2,200	-5
HS-3	0-0.5	Bayshore	15	7	-68	113	140	21	109	18	200	153	170	11	1,243	1,700	73	1,236	270	-128	34,200	25,000	-31	567	410	-32
HS-3	0.5-1	Bayshore	0	0	0	231	400	54	126	0	-200	1,541	1,300	-17	6,882	6,300	-9	860	370	-80	67,600	51,000	-28	966	790	-20
TP-1	0-0.5	Beach	0	18	200	1,287	1,200	-7	471	56	-157	569	1,900	108	10,400	13,000	22	2,366	780	-101	233,600	120,000	-64	4,642	3,800	-20
TP-1	0.5-1	Beach	0	9	200	370	590	46	194	26	-153	284	470	49	2,245	4,500	67	487	330	-38	35,400	52,000	38	1,412	1,200	-16
TP-1	3.5-4	Beach	0	5	200	121	170	34	0	12	200	73	100	31	254	620	84	408	69	-142	24,000	17,000	-34	415	330	-23
TP-3	0-0.5	Beach	0	8	200	1,591	1,000	-46	0	25	200	470	570	19	3,149	3,900	21	710	450	-45	60,500	45,000	-29	1,168	990	-16
TP-3	0.5-1	Beach	358	0	-200	0	68	200	0	0	0	6,478	5,700	-13	26,200	23,000	-13	0	720	200	357,800	150,000	-82	12,400	6,500	-62
TP-3	1-1.5	Beach	0	4	200	259	320	21	0	15	200	22	15	-38	249	360	36	0	48	200	24,000	17,000	-34	460	250	-59
TP-4	0-0.5	Beach	0	24	200	866	1,900	75	372	88	-123	214	2,600	170	5,540	13,000	80	0	1,300	200	152,900	150,000	-2	2,526	3,100	20
TP-4	0.5-1	Beach	0	2	200	151	240	46	0	9.4	200	11	6	-62	0	49	200	566	35	-177	11,400	8,800	-26	289	160	-57
TP-4	3.5-4	Beach	0	3	200	307	340	10	0	13	200	28	12	-80	113	570	134	0	110	200	15,400	15,000	-3	374	290	-25
TP-5	0-0.5	Beach	0	0	0	86	100	15	2292	57	-190	7,251	4,900	-39	34,900	25,000	-33	0	890	200	374,100	170,000	-75	11,600	6,100	-62
TP-5	0.5-1	Beach	11	9	-21	1,575	1,300	-19	306	31	-163	30	130	125	909	860	-6	954	76	-170	90,700	28,000	-106	987	310	-104
TP-5	1-1.5	Beach	0	6	200	1,404	990	-35	0	16	200	21	57	92	74	310	123	547	63	-159	34,200	18,000	-62	519	230	-77
TP-6	0-0.5	Beach	0	14	200	772	610	-23	350	30	-168	601	1,100	59	1,642	4,400	91	711	360	-66	54,600	57,000	4	771	1,300	51
TP-6	0.5-1	Beach	21	12	-55	653	550	-17	312	36	-159	53	38	-33	387	230	-51	916	65	-173	80,200	32,000	-86	875	210	-123
TP-6	2-2.5	Beach	20	11	-58	119	53	-77	380	43	-159	23	10	-79	127	44	-97	2,439	54	-191	184,600	50,000	-115	2,308	290	-155
TP-7	0-0.5	Beach	0	28	200	1,133	1,800	45	255	87	-98	787	980	22	7,533	14,000	60	2,160	1,300	-50	207,600	150,000	-32	3,909	3,100	-23
TP-7	0.5-1	Beach	0	6	200	327	380	15	0	23	200	141	70	-67	1,702	1,400	-19	924	180	-135	41,400	26,000	-46	668	600	-11
TP-9	0-0.5	Beach	0	0	0	660	370	-56	0	0	0	9,319	8,800	-6	41,700	37,000	-12	1,695	400	-124	426,800	210,000	-68	35,300	19,000	-60
TP-9	2-2.5	Beach	353	0	-200	840	390	-73	0	0	0	60,200	7,300	-157	42,900	33,000	-26	0	330	200	495,100	190,000	-89	41,800	18,000	-80
TP-10	0-0.5	Beach	0	15	200	311	850	93	0	28	200	499	1,500	100	1,950	6,700	110	0	520	200	47,700	67,000	34	815	2,000	84
TP-10	0.5-1	Beach	154	41	-116	1,374	1,300	-6	0	19	200	4,773	5,600	16	15,600	12,000	-26	0	260	200	158,000	88,000	-57	7,547	4,000	-61
TP-10	1-1.5	Beach	16	6	-88	0	22	200	0	22	200	19	37	64	73	220	100	535	67	-155	26,800	16,000	-50	411	230	-56
TP-11	0.5-1	Beach	81	43	-61	1,222	1,800	38	0	34	200	910	4,700	135	2,238	16,000	151	1,174	440	-91	88,800	120,000	30	1,383	4,000	97
TP-11	3.5-4	Beach	0	7	200	282	440	44	0	18	200	334	640	63	386	2,300	143	0	120	200	20,600	29,000	34	332	670	67
TP-12	0-0.5	Beach	0	0	0	253	200	-23	0	0	0	10,800	11,000	2	54,500	46,000	-17	0	320	200	100,000	200,000	67	20,300	18,000	-12
TP-12	1-1.5	Beach	0	10	200	516	400	-25	77	22	-111	440	1,400	104	1,281	3,700	97	379	120	-104	34,500	39,000	12	633	1,800	96
TP-13	0-0.5	Beach	205	0	-200	1,287	1,100	-16	0	53	200	5,227	2,900	-57	26,200	21,000	-22	0	770	200	394,000	170,000	-79	9,529	4,500	-72
TP-14	0-0.5	Beach	79	0	-200	0	110	200	237	52	-128	1,048	3,900	115	6,723	19,000	95	1,225	640	-63	188,700	160,000	-16	3,414	5,000	38
TP-14	1-1.5	Beach	0	19	200	1,015	1,200	17	0	22	200	323	280	-14	347	670	64	751	170	-126	39,000	40,000	3	396	420	6
TP-14	1.5-2	Beach	0	5	200	436	470	8	222	25	-160	26	40	42	199	210	5	0	85	200	49,000	26,000	-61	758	310	-84
TP-16	0-0.5	Beach	0	15	200	723	1,300	57	213	79	-92	184	320	54	6,197	10,000	47	2,240	1,100	-68	144,300	130,000	-10	2,536	2,300	-10
TP-16	0.5-1	Beach	0	17	200	1,419	1,400	-1	0	94	200	201	350	54	5,541	12,000	74	1,837	1,300	-34	139,000	150,000	8	2,592	2,800	8
TP-16	3-3.5	Beach	0	31	200	678	1,600	81	0	43	200	2,083	1,400	-39	2,590	2,000	-26	0	690	200	137,700	110,000	-22	2,448	1,300	-61
TP-18	0-0.5	Beach	0	17	200	742	1,500	68	276	91	-101	183	260	35	4,900	10,000	68	1,667	1,200	-33	144,600	130,000	-11	2,522	2,600	3

Location	Depth (feet)	Investigation Area	Arsenic			Copper			Chromium			Lead			Zinc			Barium			Iron			Manganese		
			XRF	Lab	RPD	XRF	Lab	RPD	XRF	Lab	RPD	XRF	Lab	RPD	XRF	Lab	RPD	XRF	Lab	RPD	XRF	Lab	RPD	XRF	Lab	RPD
TP-18	3.5-4	Beach	15	9	-55	402	480	18	130	38	-110	94	160	52	2,414	3,600	39	1,540	-	-	88,000	-	-	1,425	-	-
TP-19	0-0.5	Bay	0	14	200	491	840	52	0	46	200	888	1,600	57	7,458	12,000	47	2,112	840	-86	135,100	120,000	-12	3,168	3,500	10
TP-19	0.5-1	Bay	60	56	-7	1,514	1,900	23	0	52	200	145	56	-89	448	240	-60	1,973	660	-100	178,800	110,000	-48	1,219	640	-62
TP-19	1.5-2	Bay	14	7	-64	129	200	43	0	19	200	139	170	20	1,119	1,100	-2	1,005	150	-148	40,300	29,000	-33	581	520	-11
TP-21	0.5-1	Hillside	639	0	-200	0	24	200	659	0	-200	23,100	14,000	-49	48,900	38,000	-25	0	270	200	495,500	200,000	-85	25,800	16,000	-47
TP-21	1-1.5	Hillside	0	4	200	4,057	740	-138	152	28	-138	37	110	99	72	2,100	187	451	100	-127	26,100	20,000	-26	472	410	-14
TP-22	0-0.5	Bay	0	12	200	519	820	45	0	49	200	306	490	46	4,049	8,600	72	376	650	53	79,200	80,000	1	1,473	1,600	8
TP-22	0.5-1	Bay	0	12	200	0	800	200	0	50	200	270	370	31	5,226	8,900	52	511	780	42	121,500	150,000	21	2,112	2,900	31
TP-22	0.5-1	Bay	0	12	200	0	800	200	0	50	200	270	370	31	5,226	8,900	52	511	-	-	121,500	-	-	2,112	-	-
TP-22	1-1.5	Bay	0	11	200	388	790	68	0	56	200	265	290	9	7,927	14,000	55	1,012	580	-54	198,600	150,000	-28	3,439	2,900	-17
TP-22	3.5-4	Bay	0	58	200	1,790	1,600	-11	0	48	200	11,700	13,000	11	31,900	30,000	-6	0	-	-	380,300	-	-	15,000	-	-
TP-23	0-0.5	Bay	0	7	200	81	170	71	147	20	-152	126	130	3	907	1,500	49	409	330	-21	26,100	26,000	0	396	400	1
TP-23	0-0.5	Bay	0	7	200	81	170	71	147	20	-152	126	130	3	907	1,500	49	409	-	-	26,100	-	-	396	-	-
TP-25	0-0.5	Bayshore	0	11	200	57	240	123	0	24	200	229	360	44	1,065	2,400	77	341	360	5	25,000	31,000	21	425	420	-1
XRF-1	0-0.5	Beach	0	0	0	482	860	56	0	0	0	6,072	8,200	30	35,900	38,000	6	0	640	200	274,100	190,000	-36	22,600	15,000	-40
XRF-7	0-0.5	Beach	0	10	200	1,136	840	-30	0	46	200	521	410	-24	9,308	7,900	-16	991	570	-54	200,000	70,000	-96	3,789	1,300	-98
XRF-11	0-0.5	Beach	0	24	200	1,032	1,500	37	0	82	200	393	1,600	121	8,392	17,000	68	890	1,100	21	218,000	190,000	-14	3,572	4,100	14
XRF-24	0-0.5	Beach	0	67	200	1,464	1,600	9	0	0	0	6,836	15,000	75	32,100	44,000	31	989	440	-77	364,700	220,000	-49	12,800	11,000	-15
XRF-26	0-0.5	Hillside	31	11	-95	0	43	200	0	25	200	270	190	-35	158	180	13	0	130	200	20,900	12,000	-54	371	240	-43
XRF-41	0-0.5	Beach	0	11	200	985	1,100	11	245	61	-120	299	290	-3	6,613	9,000	31	1,614	880	-59	158,800	100,000	-45	2,874	2,000	-36
XRF-49	0-0.5	Beach	0	58	200	2,025	3,000	39	0	140	200	562	2,100	116	13,400	44,000	107	1,011	560	-57	282,600	250,000	-12	4,935	5,200	5
XRF-50	0-0.5	Beach	0	48	200	1,593	2,900	58	0	140	200	655	1,000	42	12,300	21,000	52	1,647	980	-51	2,562	240,000	196	4,360	4,600	5
XRF-59	0-0.5	Jetty	0	13	200	652	1,000	42	0	63	200	79	190	83	2,444	6,100	86	800	-	-	76,200	-	-	1,384	-	-
XRF-60	0-0.5	Jetty	0	10	200	598	770	25	0	51	200	292	380	26	3,331	6,200	60	0	-	-	109,800	-	-	2,170	-	-
XRF-63	0-0.5	Jetty	0	31	200	1,378	2,400	54	0	130	200	219	510	80	7,891	18,000	78	731	1,500	69	192,000	210,000	9	3,218	4,100	24
XRF-66	0-0.5	Bay	0	7	200	160	230	36	0	20	200	145	200	32	1,333	2,100	45	0	310	200	20,400	28,000	31	343	520	41
XRF-96	0-0.5	Bayshore	0	8	200	103	77	-29	0	16	200	122	200	48	809	1,400	54	0	280	200	14,500	22,000	41	220	340	43
XRF-99	0-0.5	Bayshore	0	6	200	144	95	-41	0	15	200	139	190	31	1,046	1,400	29	0	290	200	14,700	20,000	31	311	350	12
XRF-100	0-0.5	Bayshore	0	7	200	46	140	101	0	18	200	142	190	29	849	1,700	67	0	290	200	18,700	24,000	25	383	410	7
True hits (lab results above cleanup level)			23			57			2			44			41			0			34			5		
True passes (lab results below cleanup level)			46			12			67			25			28			63			29			58		
False positives (XRF results above cleanup level when lab results are not)			12	21%		1	8%		19	22%		1	4%		0	0%		0	0%		5	15%		3	5%	
False negatives (XRF results below cleanup level when lab results are above)			20	47%		9	14%		2	50%		7	14%		9	18%		0	0%		4	11%		0	0%	
Count (total number of samples)			69			69			69			69			69			63			63			63		
Cleanup Level			12.9			143			131			250			3200			16000			56000			11200		
Average RPD					115			39			73			26			46			14			-19			-16
Minimum RPD					-200			-138			-200			-157			-97			-191			-115			-155
Maximum RPD					200			200			200			170			200			200			196			97
Correlation coefficient (R)			-0.146			0.664			0.103			0.571			0.895			0.379			0.759			0.948		

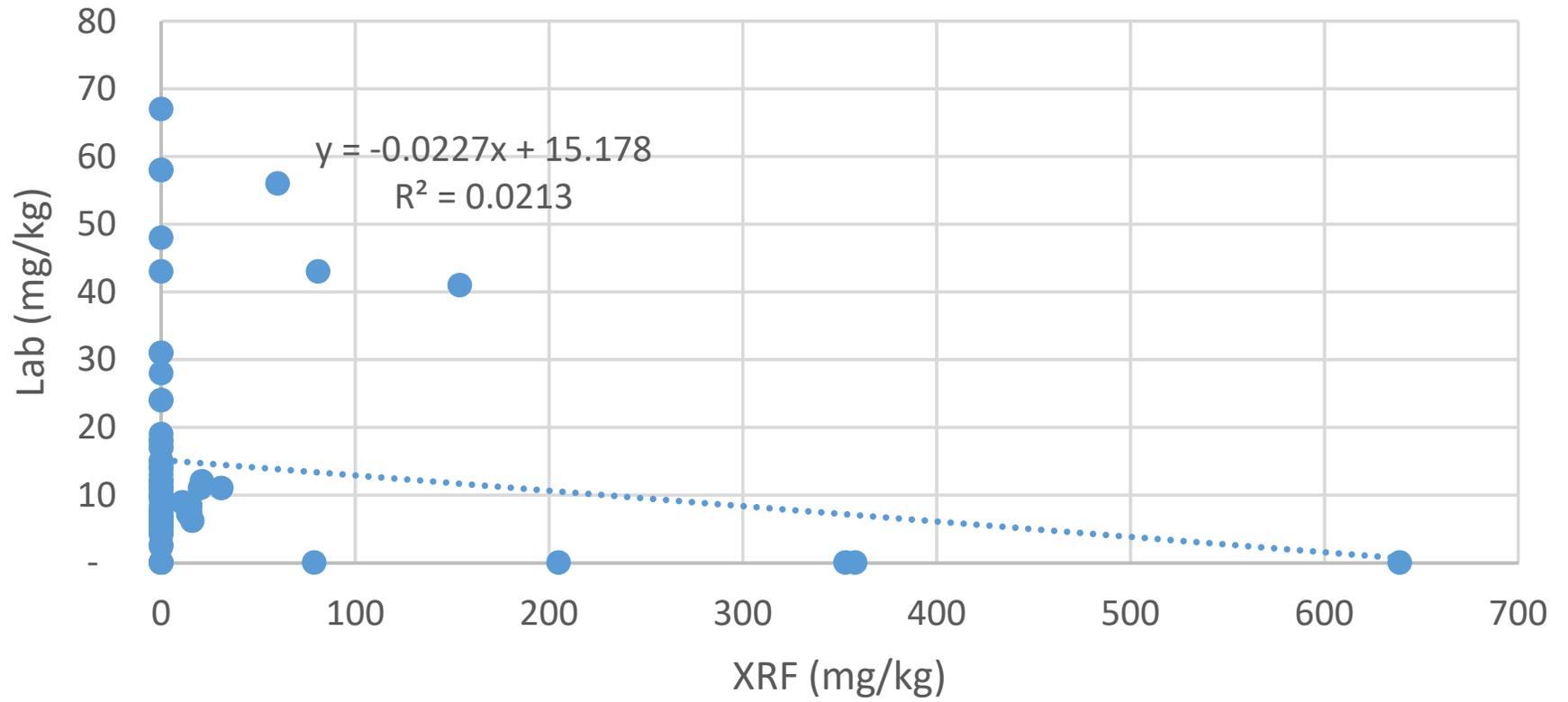
Notes:

¹Lab results in milligrams per kilogram (mg/kg); X-ray fluorescence (XRF) in parts per million (ppm)

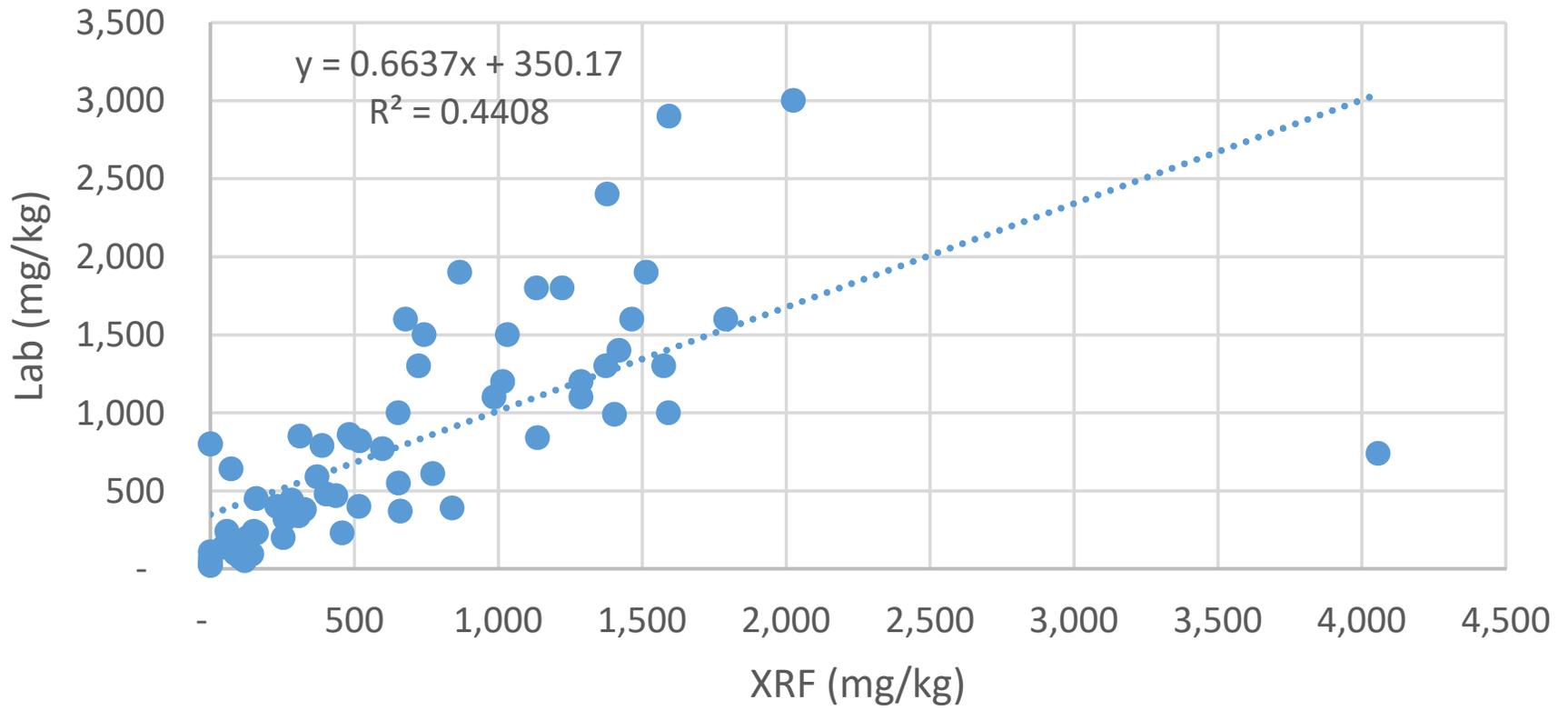
RPD = Relative percent difference

 = Exceeds screening level

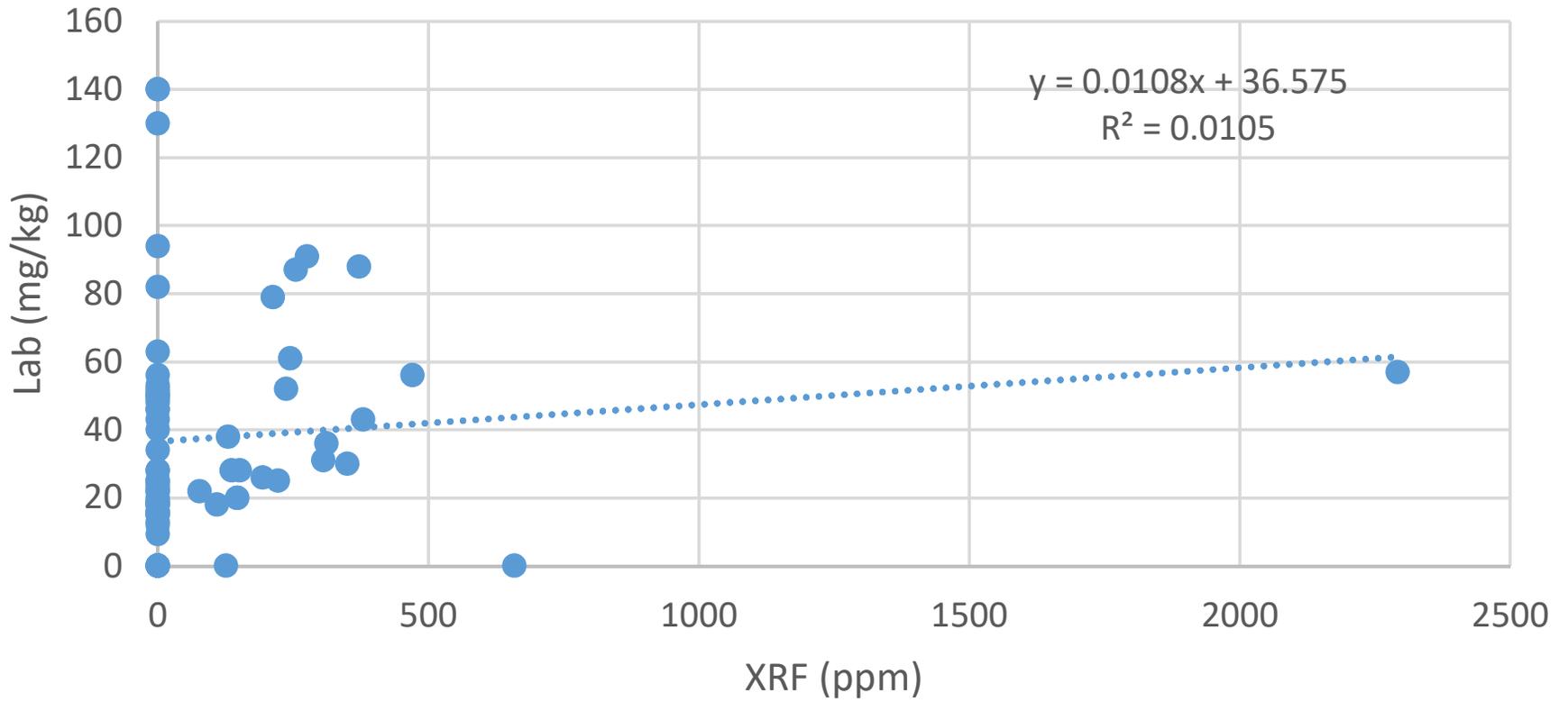
Arsenic



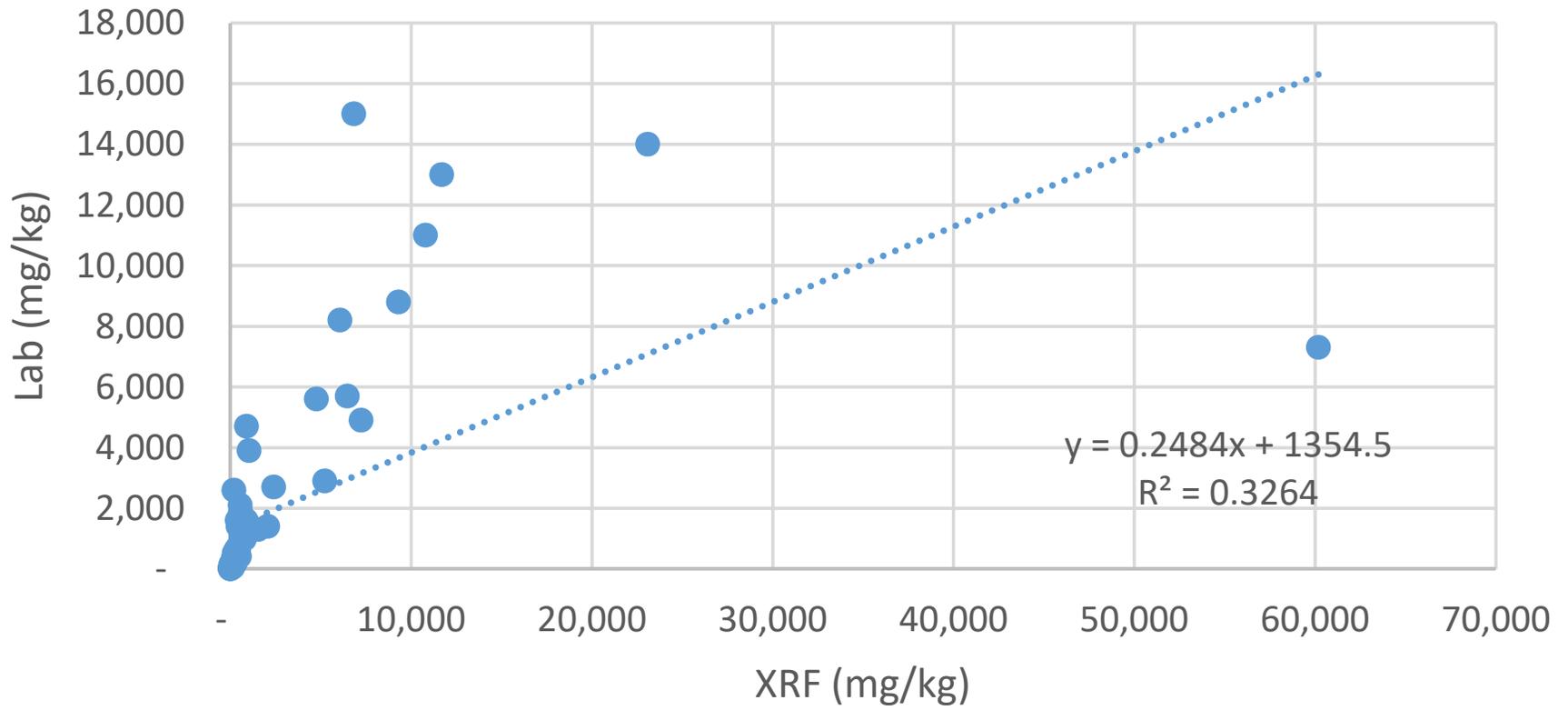
Copper



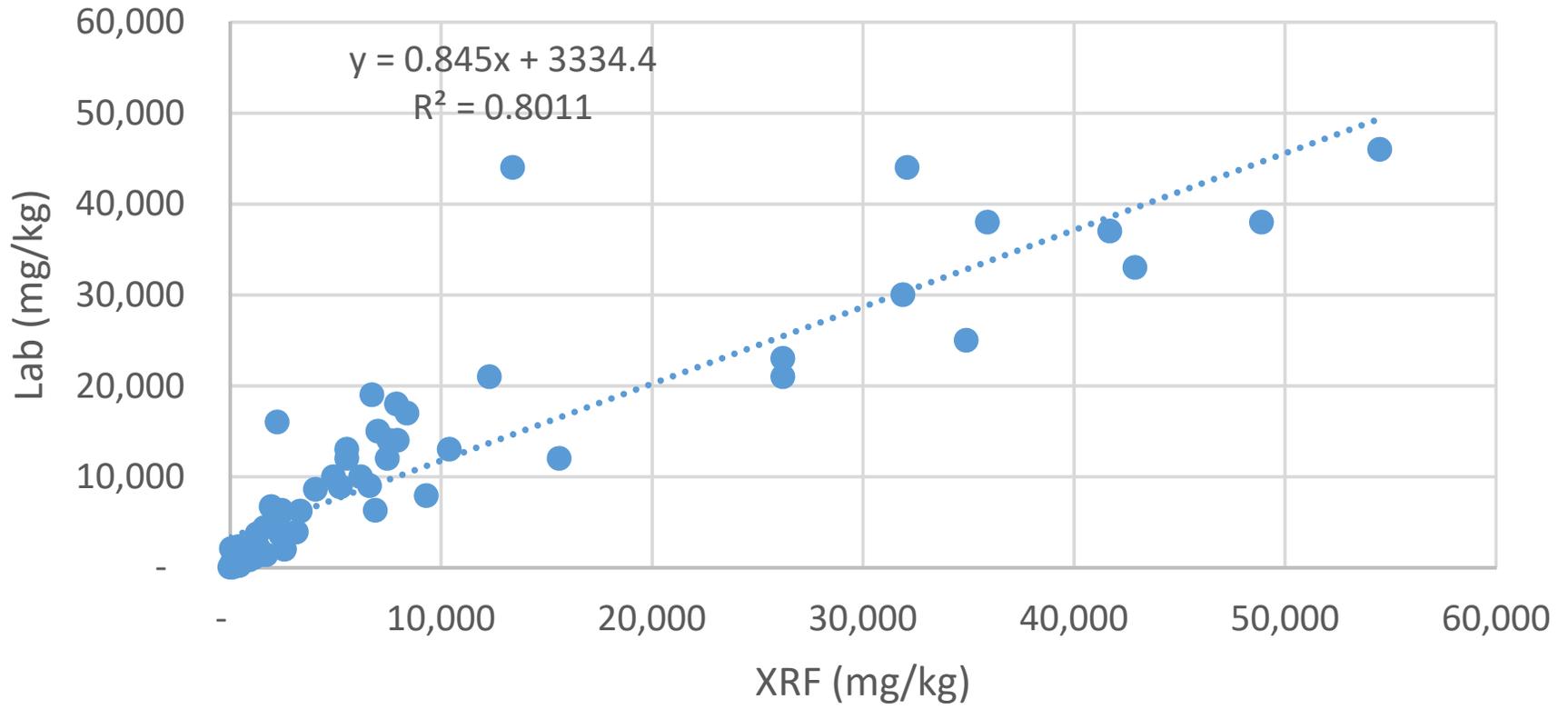
Chromium



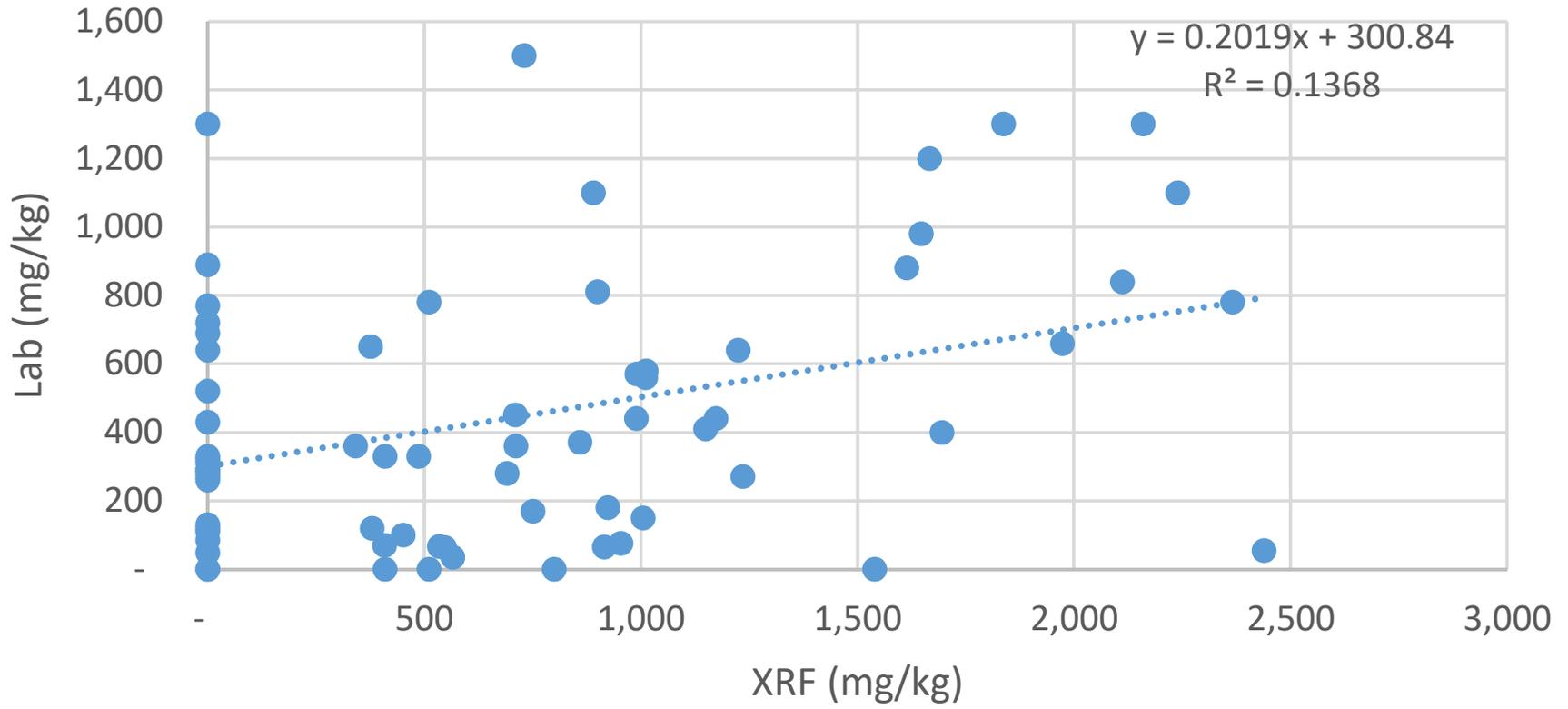
Lead



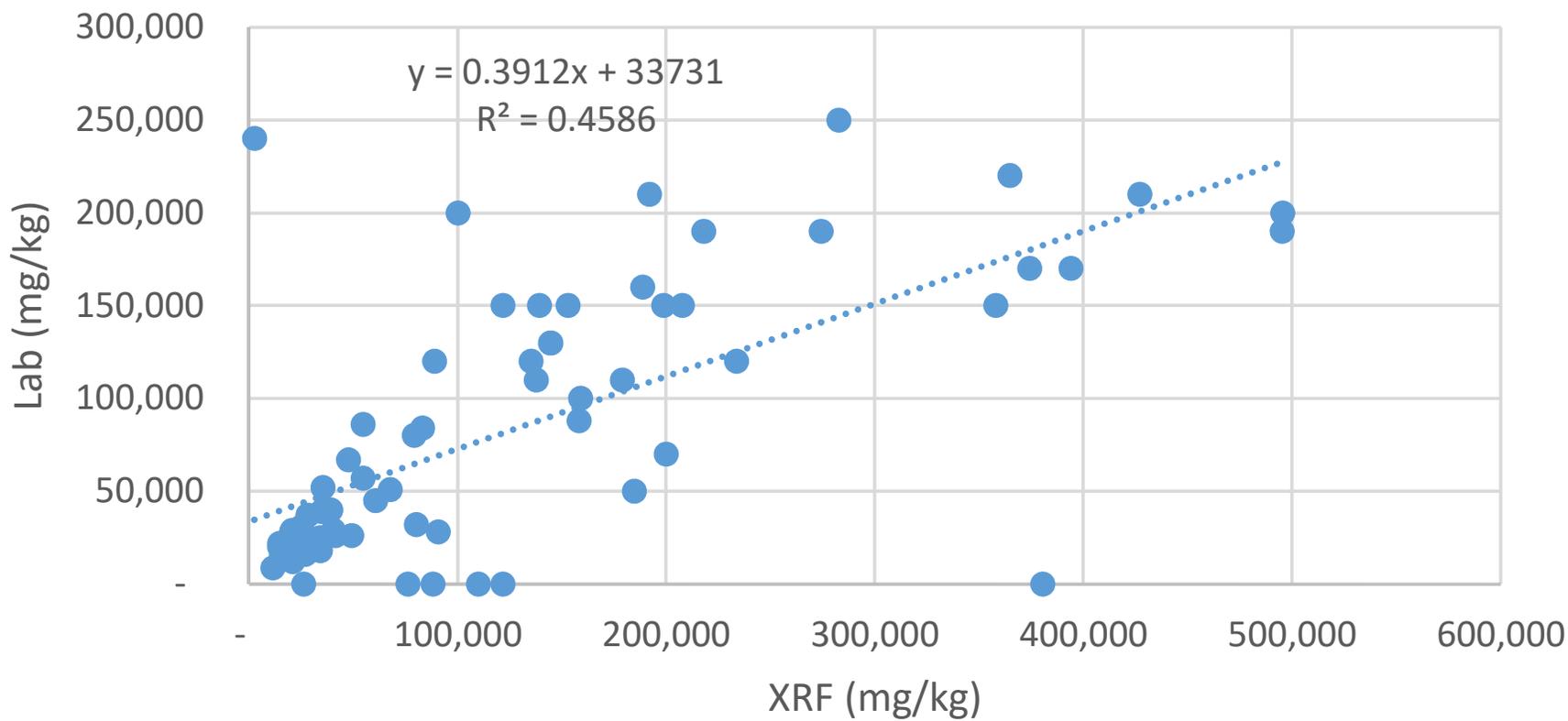
Zinc



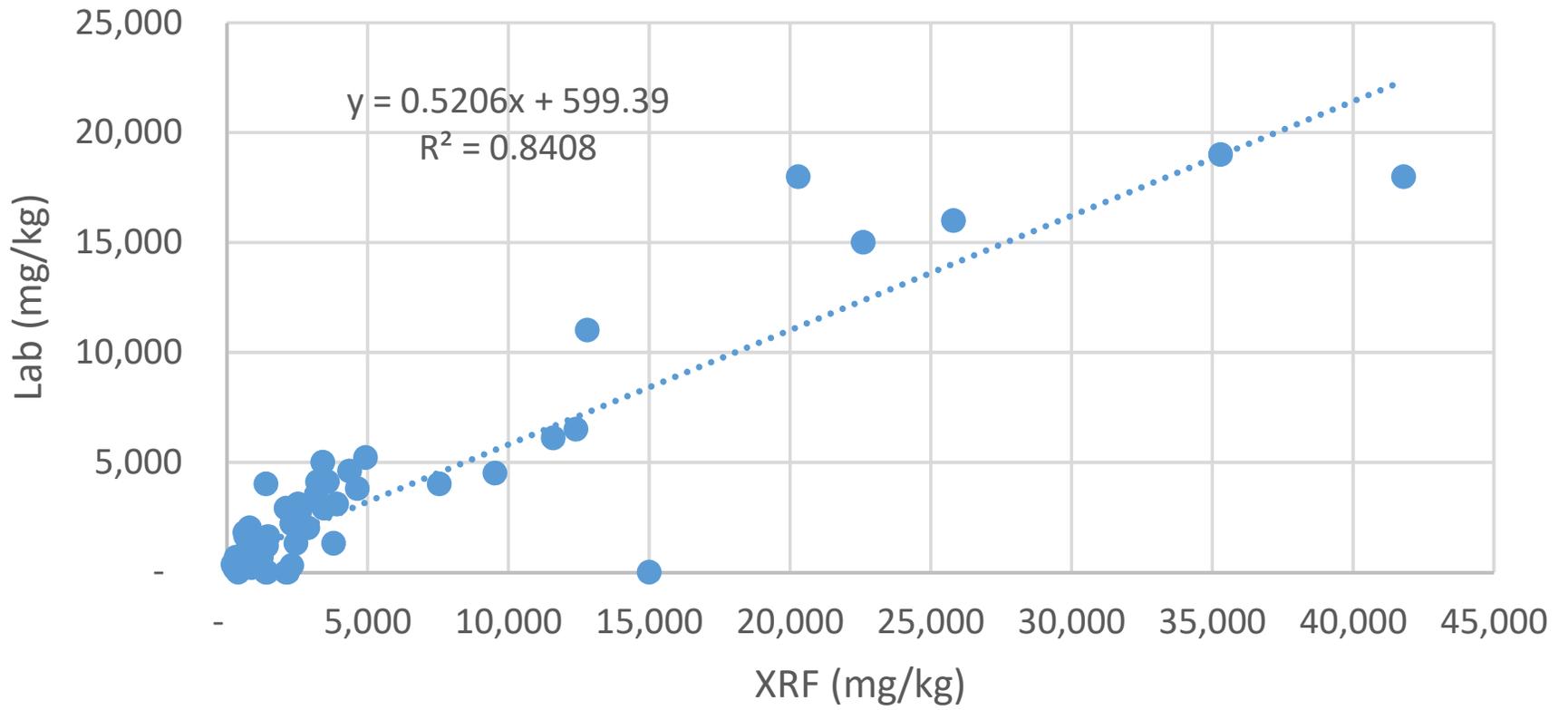
Barium



Iron



Manganese

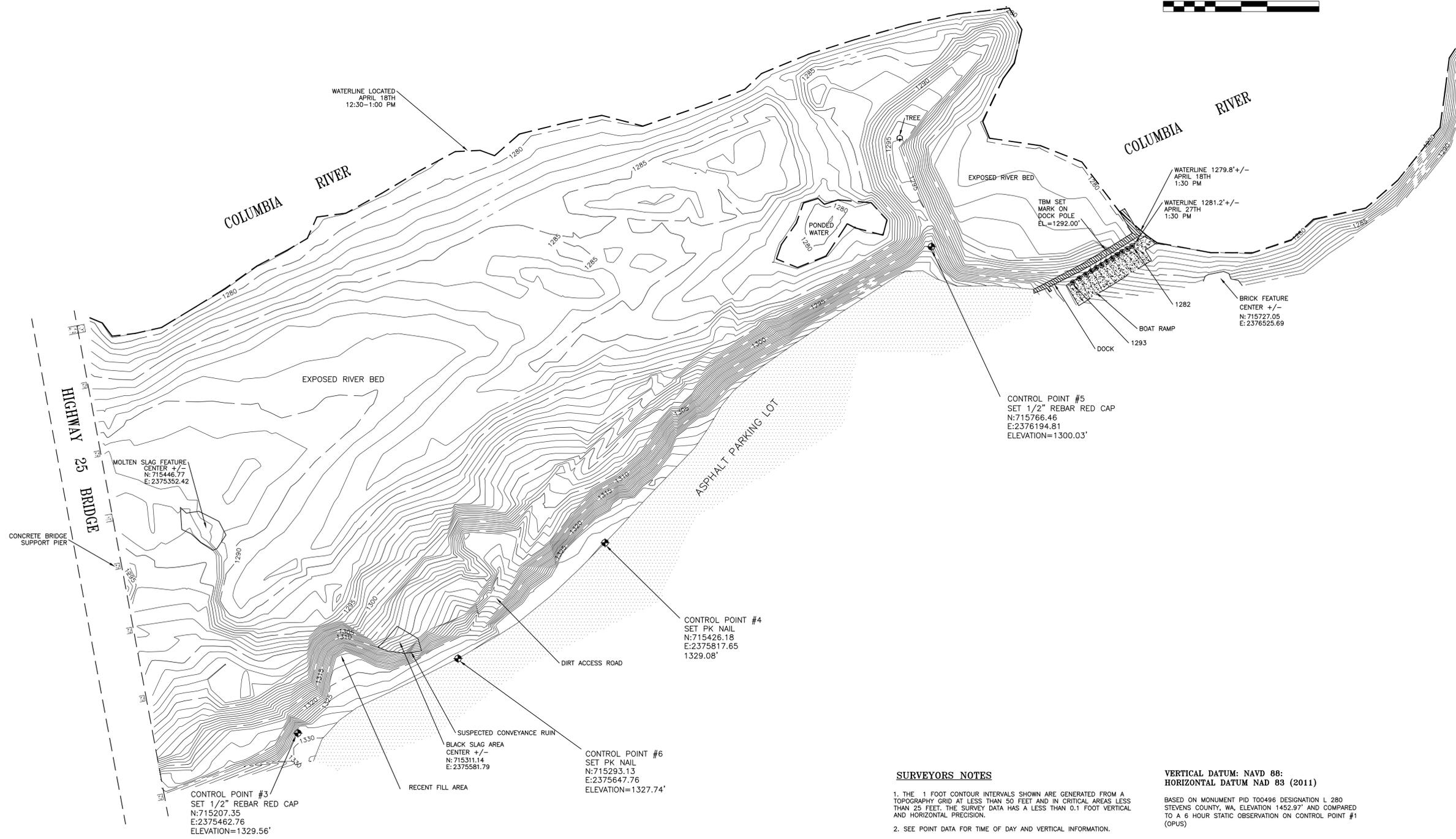


APPENDIX F
USGS Doppler Survey Results and Topographic Survey

TOPOGRAPHIC SURVEY NORTHPORT SMELTER WATERFRONT ACTION
 PROJECT NO. 8569
 NORTHPORT, WASHINGTON
 APRIL, 2018



GRAPHIC SCALE
 1" = 60 FEET



LEGEND

THESE STANDARD SYMBOLS WILL BE FOUND IN THE DRAWING

- TREE
- CONTROL POINT
- WASHER AND SCREW STAMPED WITH ELEVATION

SURVEYORS CERTIFICATE

I RUDY F. KITZAN PLS #33141 DO HEREBY CERTIFY THAT THIS TOPOGRAPHIC MAP WAS PREPARED BY ME OR UNDER MY DIRECTION IN ACCORDANCE WITH RCW 18.43.020 RUDY F. KITZAN PLS 33141

SURVEYORS NOTES

1. THE 1 FOOT CONTOUR INTERVALS SHOWN ARE GENERATED FROM A TOPOGRAPHY GRID AT LESS THAN 50 FEET AND IN CRITICAL AREAS LESS THAN 25 FEET. THE SURVEY DATA HAS A LESS THAN 0.1 FOOT VERTICAL AND HORIZONTAL PRECISION.
2. SEE POINT DATA FOR TIME OF DAY AND VERTICAL INFORMATION.

VERTICAL DATUM: NAVD 88;
 HORIZONTAL DATUM NAD 83 (2011)

BASED ON MONUMENT PID 700496 DESIGNATION L 280 STEVENS COUNTY, WA, ELEVATION 1452.97' AND COMPARED TO A 6 HOUR STATIC OBSERVATION ON CONTROL POINT #1 (OPUS)

UTILITY STATEMENT

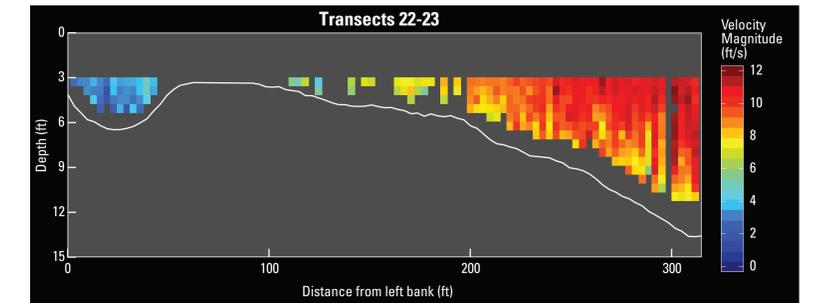
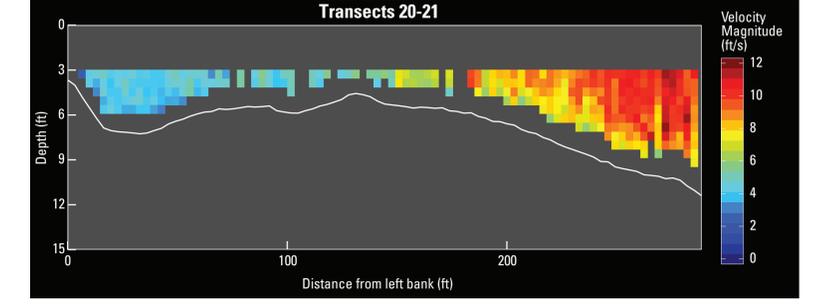
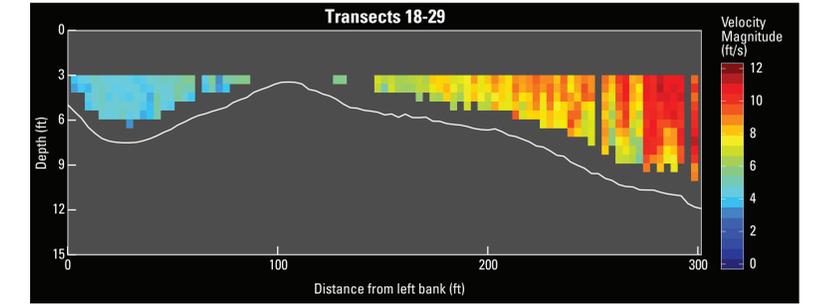
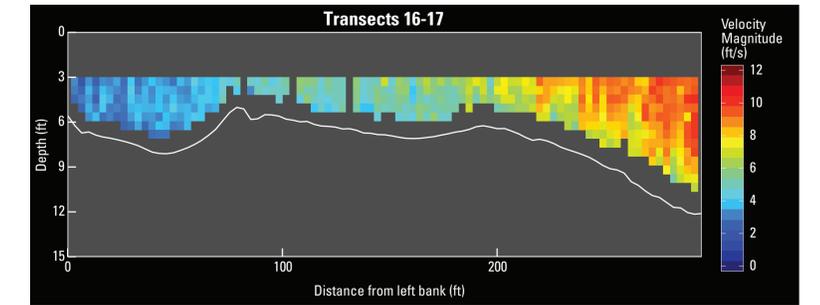
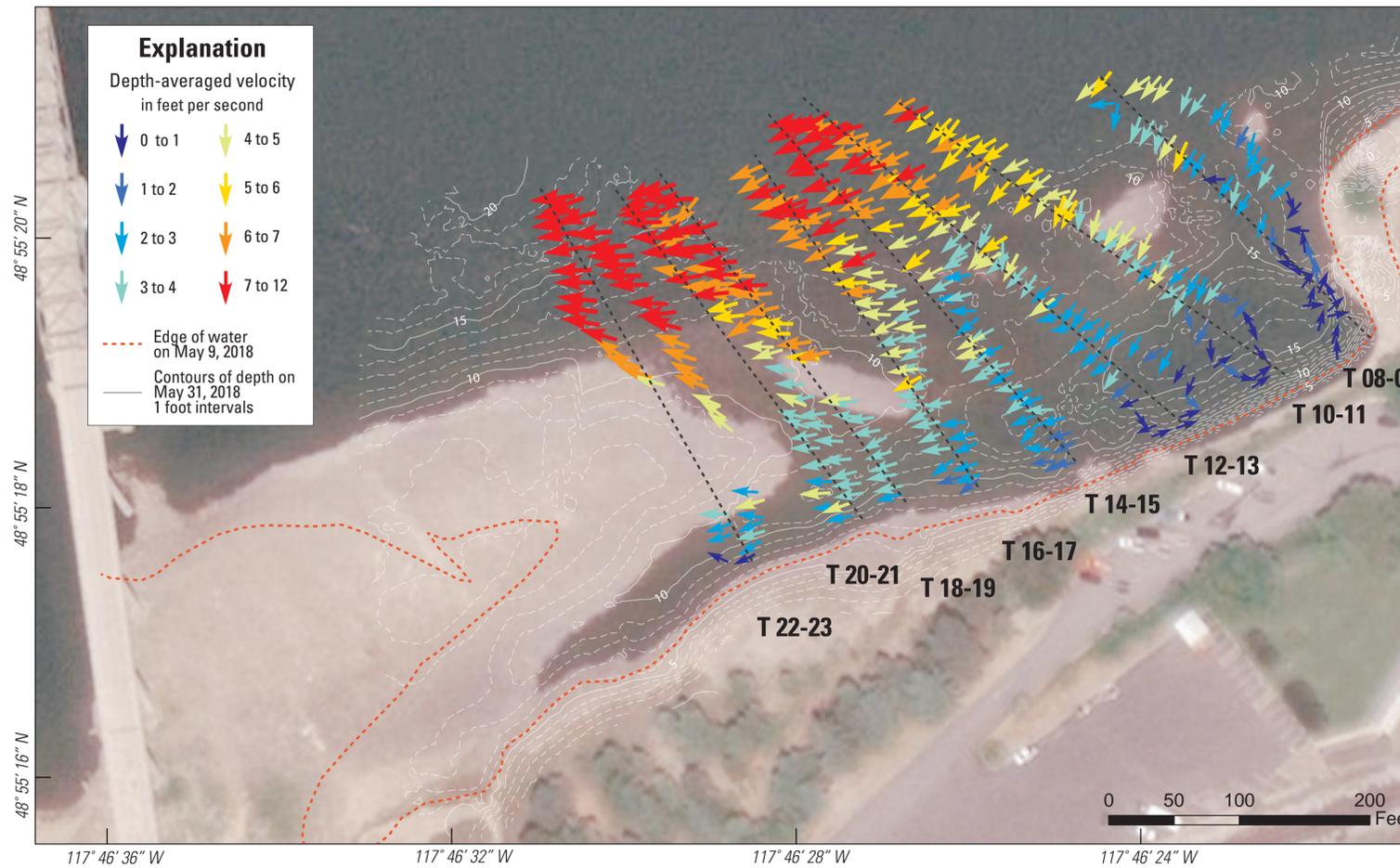
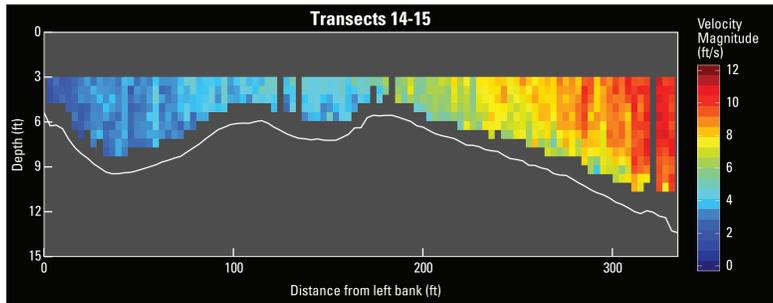
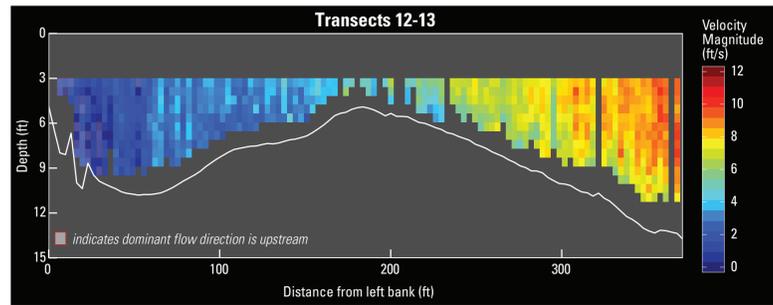
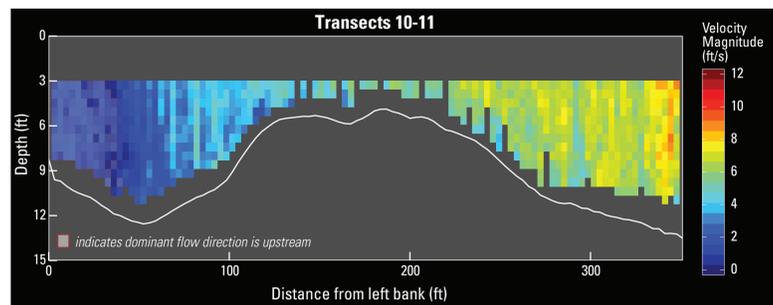
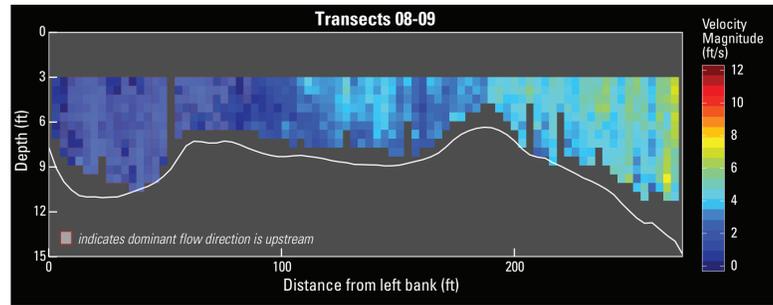
NO UNDERGROUND UTILITY LOCATE WAS PERFORMED FOR THIS SURVEY.

CONTROL POINT #1 SET 1/2" REBAR RED CAP N: 714927.95 E: 2375968.11 ELEVATION=1363.25'

PRELIMINARY

RFK LAND SURVEYING INC.				
1420 WEST GARLAND AVENUE SPOKANE, WA 99205 TEL: (509) 324-7861 FAX: (509) 327-7249 E-MAIL: Rudy@RFKLandSurveying.com	DRAWN RFK	APPROVED RFK	SCALE 1"=60'	PROJECT 18-134
	DATE 04/20/18	DATE 05/02/18	SHEET 1 OF 1	FIELD BOOK N/A

Northport Velocity Survey - May 9, 2018 - 202,000 ft³/s



Summary

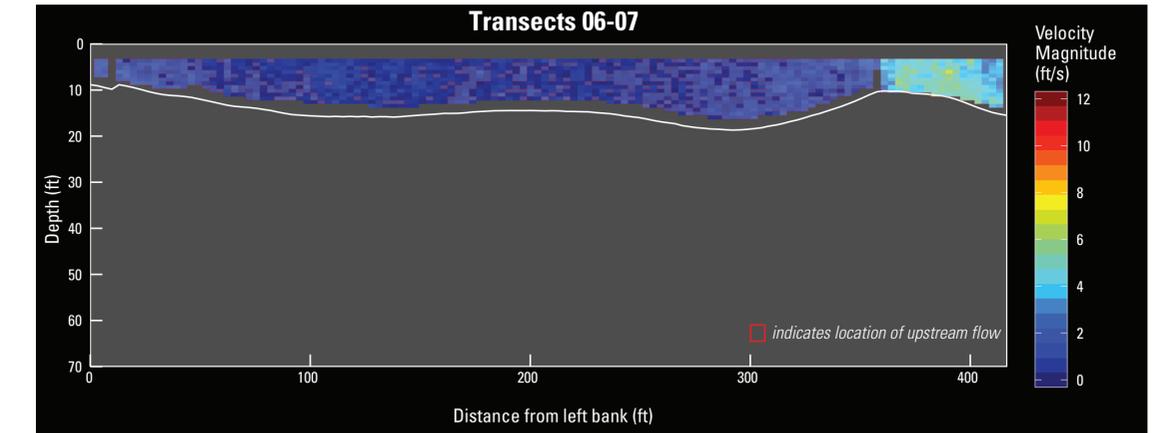
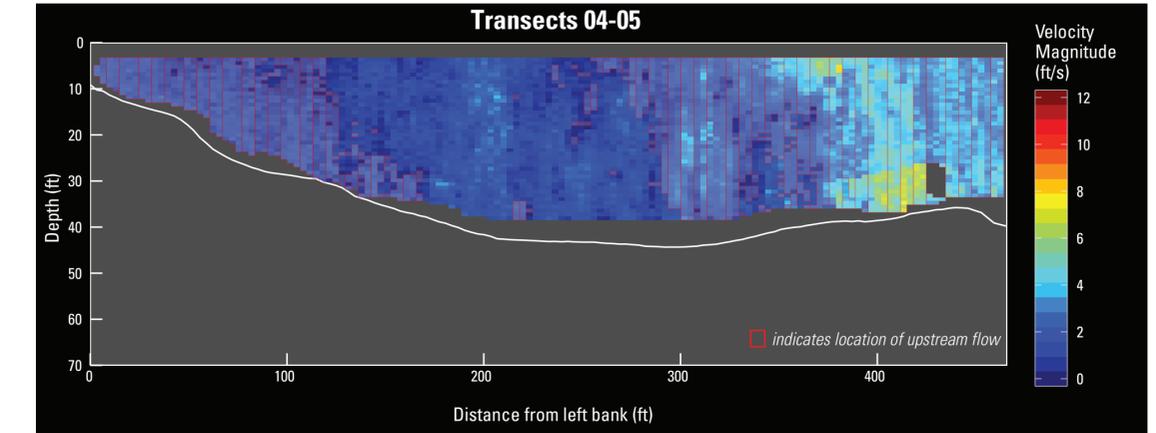
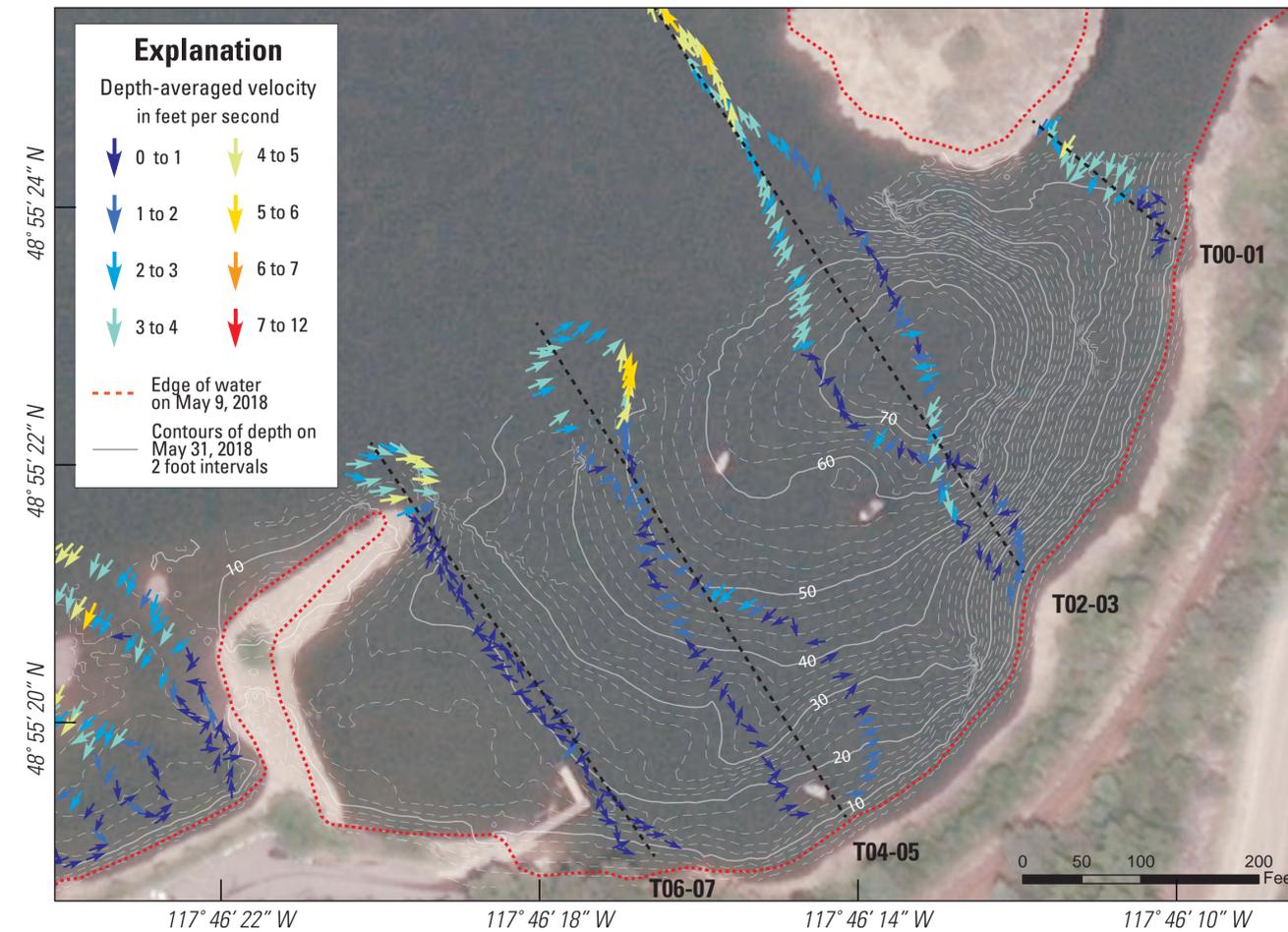
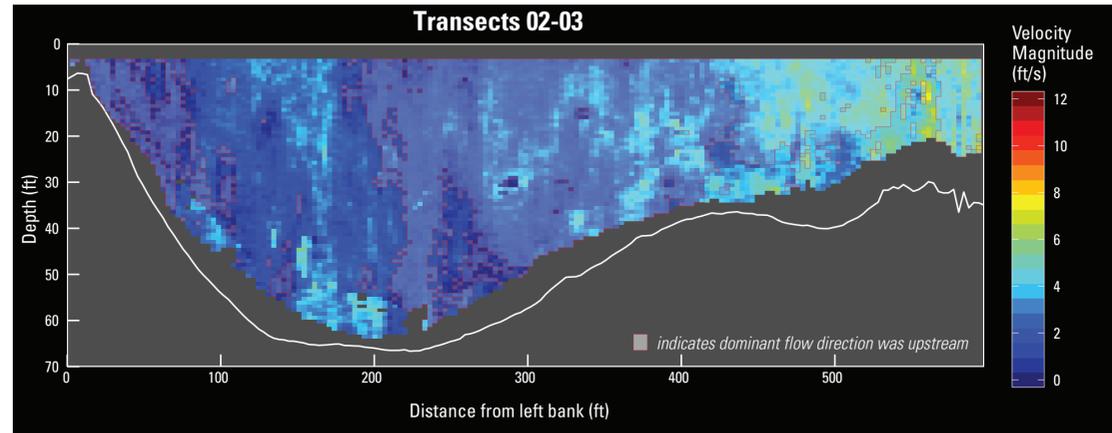
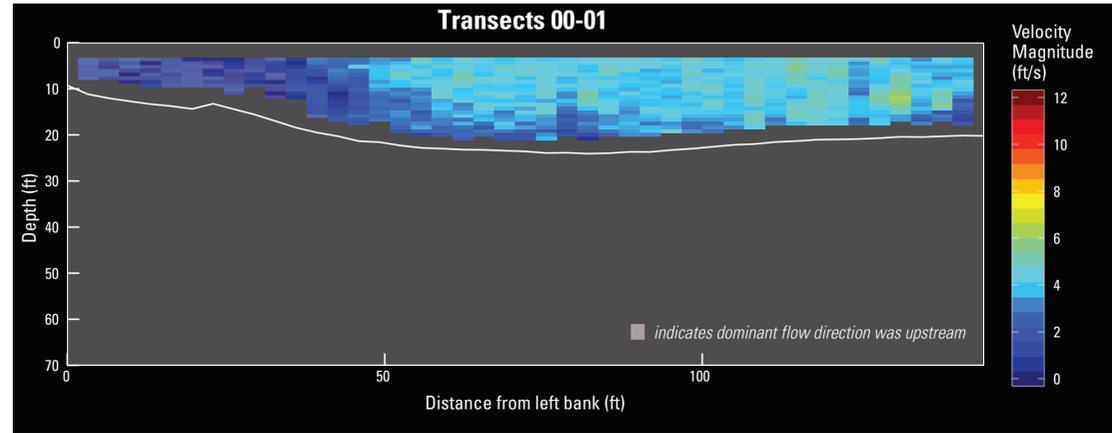
Velocity data were collected using a boat-mounted Rio Grande acoustic doppler current profiler (ADCP) along regular transects. Each transect was surveyed twice. After initial QAQC, velocity transects were processed using the USGS Velocity Mapping Toolbox (VMT). The main panel shows the magnitude and direction of the depth-averaged velocity. Contours indicate water depth at one-foot intervals based on conditions on May 31, 2018, when discharge was at 263,000 ft³/s. The edge of water at the time of the survey was estimated by tracing the known water surface elevation along lidar data collected in 2010.

Repeat transects were averaged in VMT by projecting each individual swath to a common best-fit straight line; those best-fit lines are shown as black dashed lines in the main panel. Cross-section plots show average velocity magnitude along those straight transects. Shaded areas with red bounding lines indicate where the direction of flow was predominately upstream.

Citation

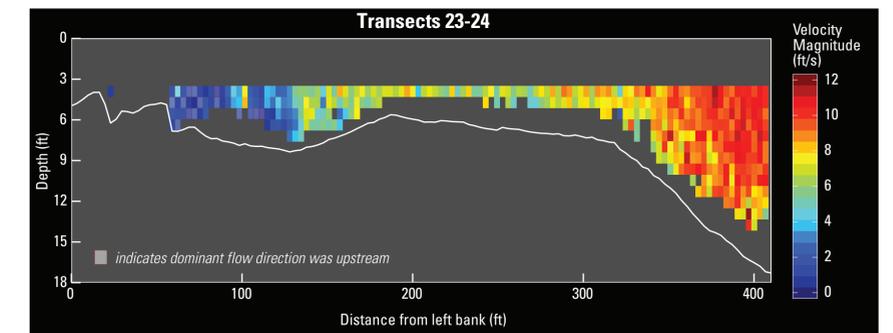
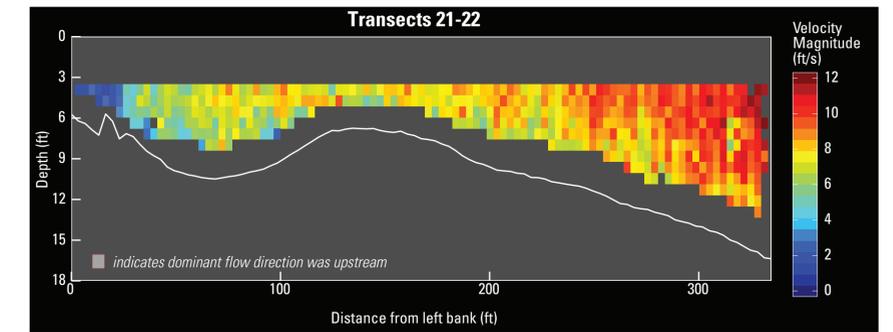
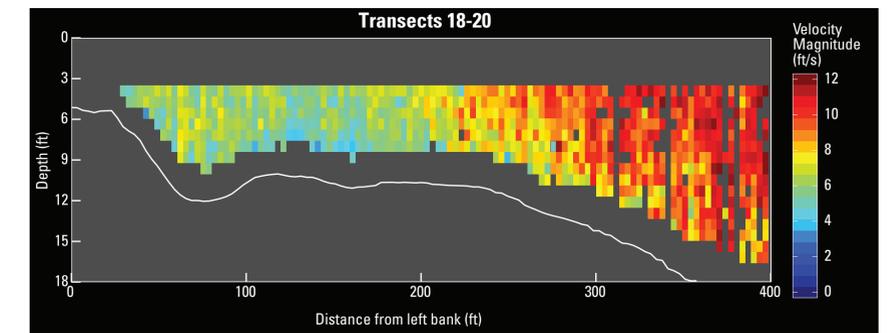
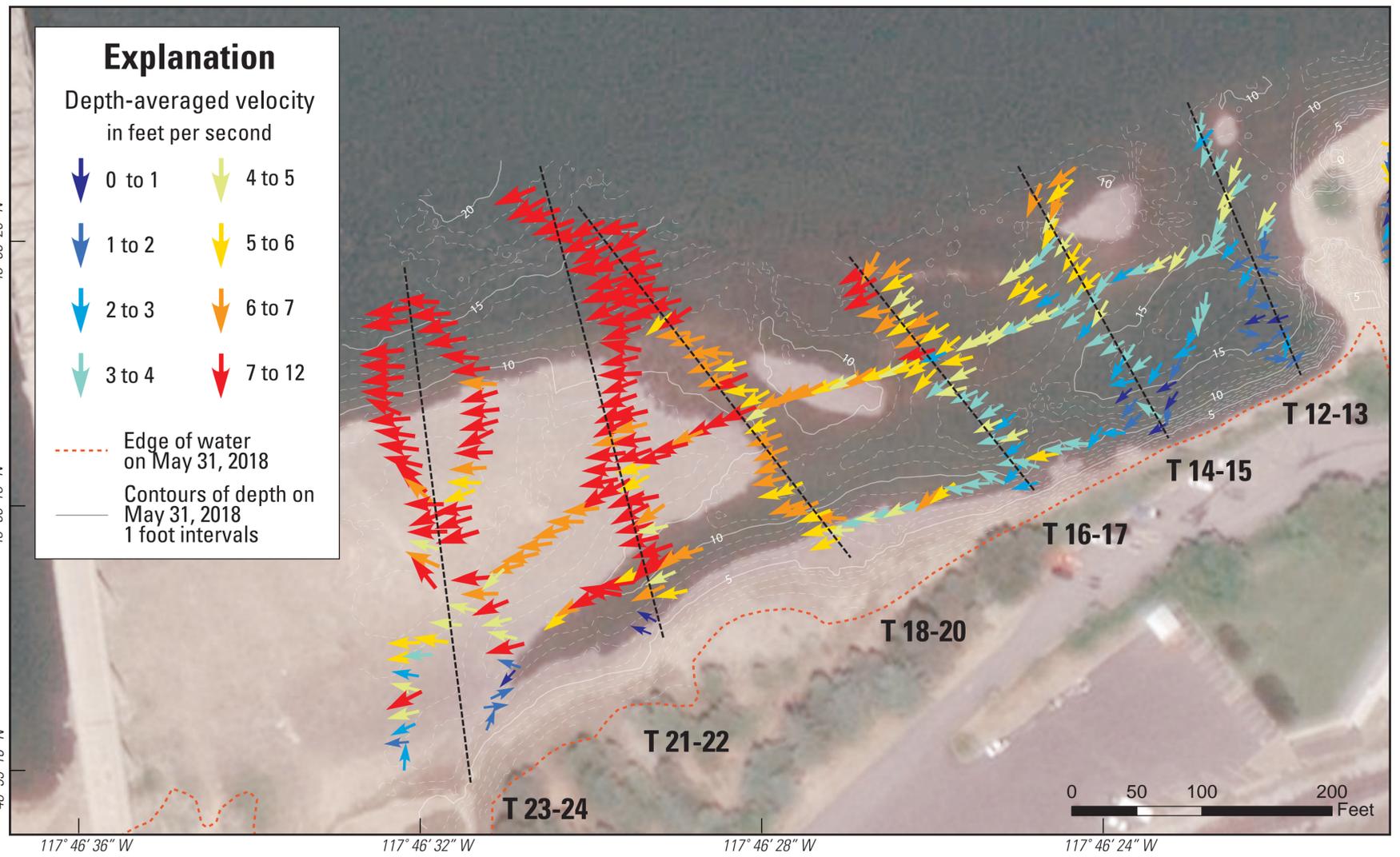
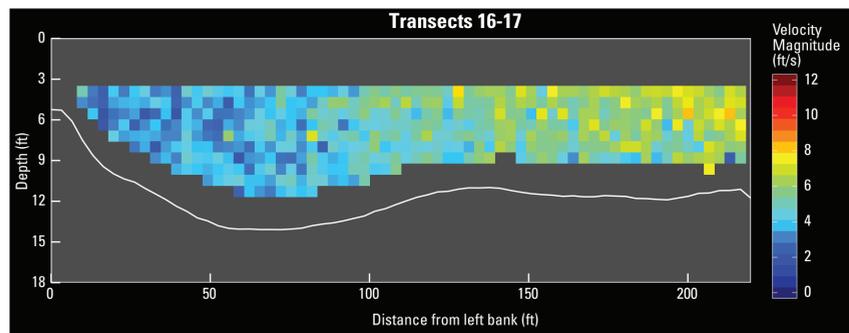
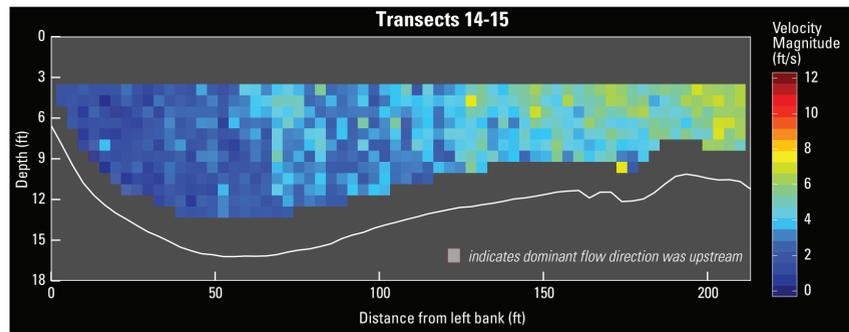
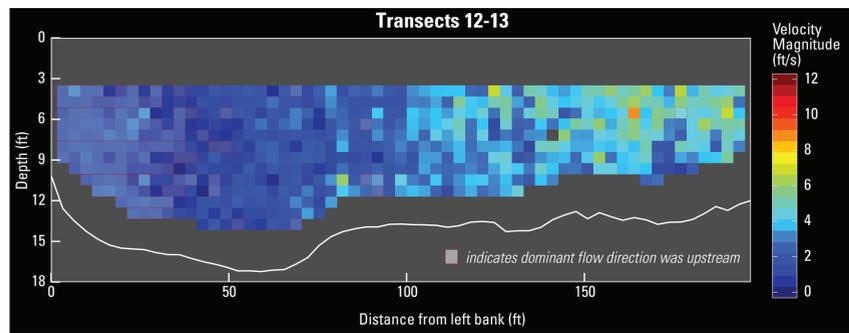
Anderson, S.W. and Elwell, N. Velocity surveys of the Columbia River near Northport, WA, May 2018. U.S. Geological Survey data release, <https://doi.org/10.5066/P9U6Z8QH>

Northport Velocity Survey - May 9, 2018 - 202,000 ft³/s

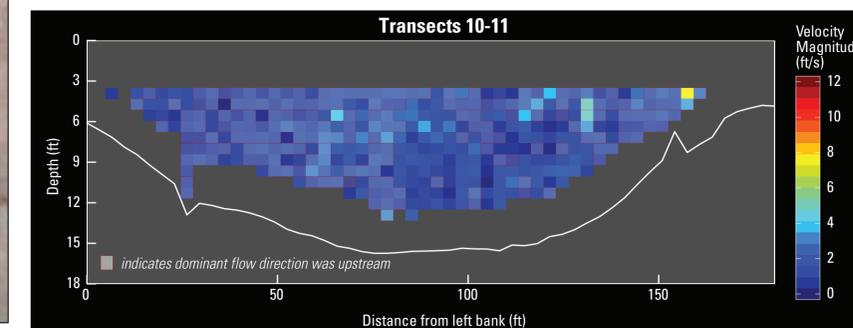
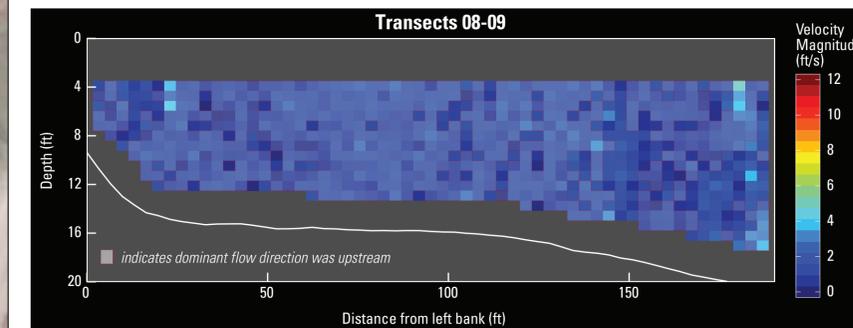
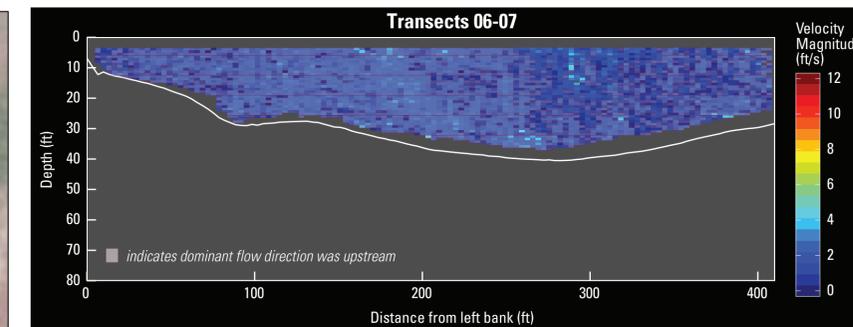
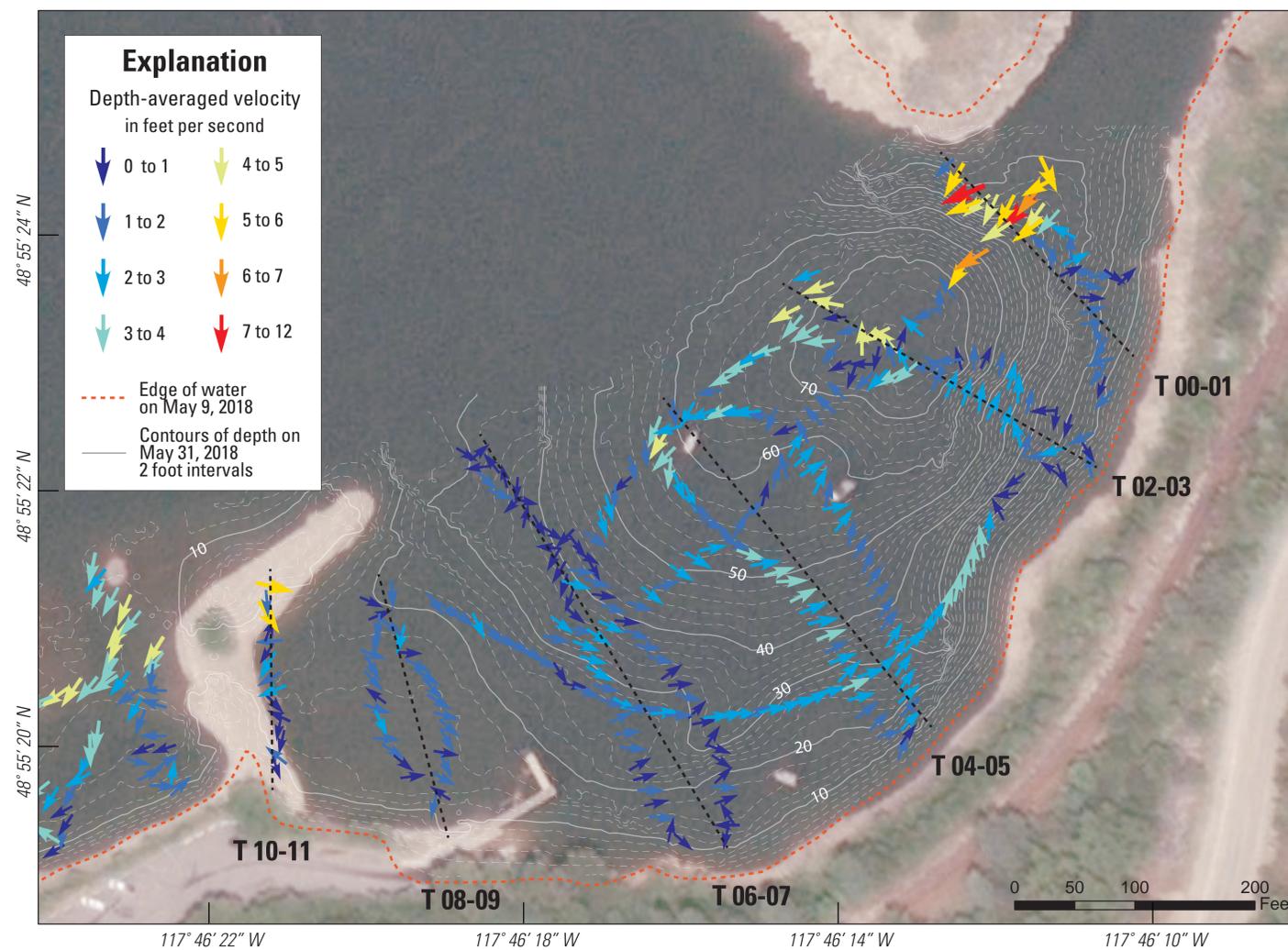
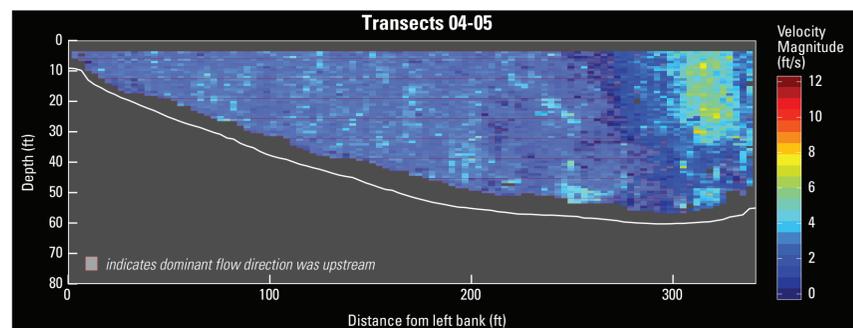
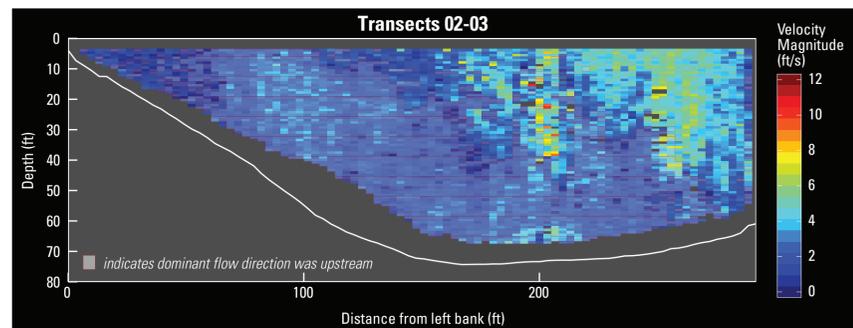
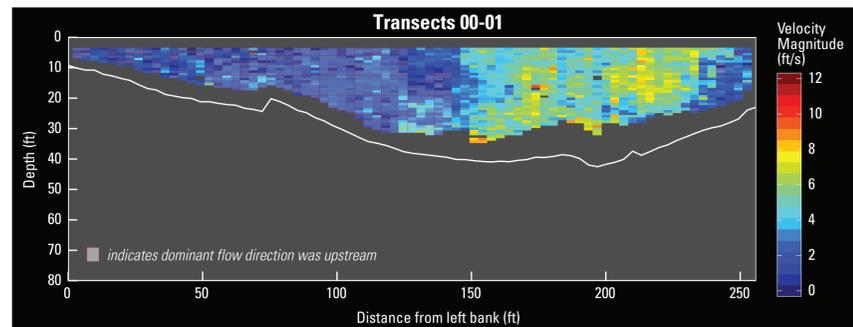


Citation

Northport Velocity Survey - May 31, 2018 - 263,000 ft³/s



Northport Velocity Survey - May 31, 2018 - 263,000 ft³/s



APPENDIX G
Report Limitations and Guidelines for Use

APPENDIX G

REPORT LIMITATIONS AND GUIDELINES FOR USE

This appendix provides information to help you manage your risks with respect to the use of this report.

Environmental Services are Performed for Specific Purposes, Persons and Projects

This report has been prepared for Washington State Department of Ecology (Ecology) under Ecology Master Contract No. C1900044, work assignment number GEI007. This report may be made available to regulatory agencies for review. This report is not intended for use by others and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. No one except Ecology should rely on this environmental report without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

This Environmental Report is Based on a Unique Set of Project-Specific Factors

This report has been prepared for the Northport Waterfront site located in Stevens County along the south bank of the Columbia River near Northport, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- not prepared for you.
- not prepared for your project.
- not prepared for the specific site explored.
- completed before important project changes were made.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

Reliance Conditions for Third Parties

If a lending agency or other parties intend to place legal reliance on the product of our services, we require that those parties indicate in writing their acknowledgement that the scope of services provided and the general conditions under which the services were rendered, including the limitation of professional liability, are understood and accepted by them. This is to provide our firm and Ecology with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions.

Environmental Regulations Are Always Evolving

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local, state or federal

regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

Subsurface Conditions Can Change

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by man-made events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability, or groundwater fluctuations. Always contact GeoEngineers before applying this report to determine if it is still applicable.

Most Environmental Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely-spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

Read These Provisions Closely

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory “limitations” provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these “Report Limitations and Guidelines for Use” apply to your project or site.

Geotechnical, Geologic and GeoEnvironmental Reports Should Not Be Interchanged

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

