ADDITIONAL SITE CHARACTERIZATION AND PILOT SCALE TESTING PLAN

Tacoma Metals, Inc. Site
Tacoma, Washington

Final Plan – October 20, 2021 (Revised 12-7-21)

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I. INTRODUCTION

This testing plan outlines work to; 1) identify soil that exceeds Cleanup Levels (CULs)/ Remediation Levels (RLs) outlined in a draft Remedial Investigation/Feasibility Study (RI/FS) report by Aspect Consulting (2018), and 2) work to complete a pilot-scale treatability study for a portion of the Tacoma Metals site. The work is being completed to meet the requirements of Agreed Order DE 17989. The site is generally located northeast of the intersection of Portland Avenue and St. Paul Avenue, Tacoma, Washington (Figure 1). A draft of the plan was submitted to Ecology for review on June 29. 2021. Comments were received from Andrew Smith (Ecology site manager) on August 23, 2021, and the plan was revised based on these comments (permitting requirements were expanded). Additional comments were received on November 18, 2021 via e-mail to M. Dalton. The plan was revised and responses/resolution to the comments were forwarded to Ecology on December 7, 2021.

In general, the Site consists of two areas with some overlap (Figure 1). These include 1) "*Off-Property Area*" including three property parcels (JJ Port Property, International Paper Property, and City of Tacoma Right of Way [E 18th St. Right-of-Way]) located on the northwest end of the property where releases of materials associated with a wood treating (creosote) operation occurred, and 2) "*On-Property Area*" where both wood treating and metal recycling activities occurred.

The On-Property Area is further divided into two remedial areas (Figure 2). These two areas are designated the General Metals Remedy Performance Area (GMRPA) and the International Paper Remedy Performance Area (IPRPA). General Metals is responsible for cleanup of contaminants associated with historic metal recycling operations within the unpaved and paved portions of the GMRPA including metals, petroleum hydrocarbons (TPH) and PCBs. International Paper is responsible for cleanup of the paved IPRPA where a creosote wood treating plant historically operated and any creosote related contamination within the GMRPA.

The objectives of the testing are as follows:

- Further define the extent of shallow soil exceeding CULs/RLs within the GMRPA of the portion of the Tacoma Metals Inc. site known as the "*On-Property Area*". The objective is to confirm the extent and depth of necessary soil remediation to prepare a draft Cleanup Action Plan (dCAP).

- Further characterize the extent of hydraulic oil release and migration from a historic shear that operated in the vicinity of TP-55.

- Confirm the efficacy of an on-site treatment method to remove the hazardous/dangerous waste (DW) designation of soil containing lead to reduce off-site disposal costs of soil requiring cleanup.

II. PREFERRED REMEDY

The preferred remedy for the GMRPA is presented in Section 8 of the Aspect draft RI/FS (Aspect 2018). The remedy generally consists of the following remedial elements.

- Decommissioning of existing monitoring wells located within the GMRPA.
- Excavation, on-site stabilization, and off-site disposal of soil exceeding CULs and RLs. Preliminary excavation depths estimated by Aspect are shown on Figure 4b but do not include the IPRPA.
- Backfilling to cap subgrade with imported clean fill soils.
- Placement and maintenance of an asphalt environmental cap incorporating stormwater controls.
- Re-install groundwater monitoring network and implement groundwater monitoring program to demonstrate long-term compliance and performance of remedial elements.
- Institutional controls/environmental covenant to protect remedial elements.

III. CLEANUP AND REMEDIATION LEVELS

Aspect Consulting (Aspect 2018) prepared a revised-draft RI/FS report that incorporated review comments by the Department Ecology (Ecology). The identified Contaminants of Concern (COCs) for the metals recycling area (not including creosote releases) included metals (primarily lead), diesel- + heavy-oil range organics (DRO+ORO), and polychlorinated biphenyls (PCBs). CULs and RLs were developed for each of the COCs as summarized in Table 1 below.

The proposed CULs apply to the unpaved portion of the On-Property area as illustrated on Figure 3[1]. The Point of Compliance (POC) for shallow soil CULs is 0 to 6-feet and for deep soil 6 to 15-feet. RLs apply to the paved portion of the On-Property GMRPA as the proposed remedy includes re-paving (placing an environmental cap) over this area after cleanup is completed. The RLs have a POC of 0 to 15-feet.

Table 1 – On-Property Soil CULs and RLs

COC	Unpaved Area		Capped Area
	Shallow Soil CULs (mg/kg)	Deep Soil CULs (mg/kg)	RLs (mg/kg)
DRO + RRO	2,000	2,000	2,000
PCBs	0.65	1.0	10
Arsenic	10	10	1,122
Barium	102	1,650	44,884
Cadmium	14	726	1,496
Chromium (III)	67	25,907	1,000,000
Copper	217	53,333	299,244
Lead	118	1,601	2,000
Mercury	5.5	13	2,900

[1] Figure 3 (base map) is based on a detailed survey of the On-Property area completed in March 2021 by Sitts&Hill. Test pit and well locations (before 2020) were transferred from figures in the Aspect (2018) draft RI/FS report. Test pit locations completed by DOF in 2020 (DOF 2020) were based on horizontal coordinates determined using a DGPS.

Selenium	0.3	233	11,221
Silver	1,133	1,133	6,359

Notes: Shallow soil – 0-6 feet; deep soil 6 to 15 feet; CUL – Cleanup Level; RL – Remediation Level

IV. SUBSURFACE CONDITIONS

Subsurface conditions were interpreted primarily based on test pits completed by Kennedy/Jenks (K/J) in 2001 (K/J 2014) and supplemented with test pits completed by DOF in 2020 (DOF 2020b). Test pit logs are presented in Attachments A and B. Most of the metal recycling related exceedances occur in "*Metal Debris Fill*" that covers portions of the On-Property area to depths of up to four feet. A deposit termed "*Mixed Fill*" underlies the metal debris fill, where present, the bottom of which lies at depths of approximately two to nine feet. Underlying these deposits is a "*Wood Fill*"[2] that appears to be present beneath most of the On-Property and ranges in thickness from one to twelve feet. These deposits are described as follows:

- **Metal Debris Fill** – *Abundant mixed metal and other debris with soil matrix. Debris includes cable, wire, sheet metal, springs, machine parts, scrap metal, rubber, glass, brick, concrete, and other material. Matrix material is typically a sand and gravel mixture.*

- **Mixed Fill** – *Variable fill material typically including well graded sand and gravel, poorly graded sand, silty sand and gravel, and some silt and clay. Commonly contains some metal, glass, brick, concrete, and other debris.*

- **Wood Fill** – *Mixed debris includes logs, boards, bark, chips, wood dust, planks, and pilings. Matrix material includes medium to fine, sand, silt, and clay mixtures. Matrix content is typically 0-20%.*

Tables 2a and 2b (attached) present a summary of soil analytical data for the unpaved and paved, respectively, portions of the GMRPA. Soil CUL/RL exceedances are shown on Figures 4a/4b (metals/lead), 4c (DRO+RRO), and 4d (PCBs) using figures from the draft RI/FS. Review of the soil analytical data indicate that lead CUL exceedances in the unpaved area are co-located with those for TPH and PCBs. Therefore, if the lead CULs are achieved, those for TPH and PCB will also be achieved. Beneath the paved area of the site, lead concentrations above RLs are co-located with PCB concentrations that exceed its RL. However, at several locations the lead/TPH pattern is not present as follows:

- TP-10, TP-11, and TP-55 - where hydraulic oil appears to have leaked from a shear.

- TP-9, TP-37, and TP-63 – while lead concentrations (1,630 to 1,960 mg/kg) are elevated, but below the RL, at these locations TPH concentrations exceed the RL (2,910 to 4,900 mg/kg). Sheens and hydrocarbon odors were present at these locations.

[2] Wood Fill was placed during lumbering operations that occurred on the site prior to metal recycling operations.

VI. RESULTS OF 2020 TESTING

A. TCLP TESTING

TCLP testing was completed because the high metals concentrations in soil indicate that some of the soils would designate as characteristic DW which affects soil handling/disposal options. Testing completed by K/J in 2001 indicated that soils with high lead concentrations would designate as DW based on TCLP testing. At that time, some limited testing was also completed for arsenic, barium, cadmium, chromium, mercury, selenium, and silver which passed the TCLP criteria (i.e., leachable concentrations were below criteria). The results of this early testing are presented in Attachment B.

To further assess this issue, DOF prepared and submitted a plan to Ecology (2020a) to complete additional designation testing. After approval by Ecology, the plan was implemented in May 2020 and included the excavation and sampling of 17 test pits (A to Q on Figure 2) and testing of 20 samples for total/TCLP RCRA metals (barium, chromium, lead, silver, arsenic, cadmium, selenium, and mercury). This testing confirmed that soil with high lead concentrations would likely designate as DW once excavated. Leachable concentrations of the other RCRA metals did not exceed the characteristic DW criteria. Test pit logs and the results of the 2020 testing are presented in DOF (2020b) which is presented as Attachment B.

The 2020 TCLP test results are similar to the 2001 results with leachable lead concentrations generally increasing with the concentration of total lead. However, there was a substantial amount of variability in the data which indicates different forms of lead with differing solubilities under the TCLP test conditions are present at the site. Analysis of the 2001 and 2020 data suggests that soils with lead concentrations greater than approximately 500 to 1000 mg/kg would generally designate as DW.

B. BENCH SCALE TREATABILITY TESTING

TCLP testing indicated that a substantial portion of shallow soil exceeding CULs/RLs on the former Tacoma Metals site would designate as DW because of lead and needs to be handled accordingly during cleanup. Bench-scale treatability testing was completed to assess the possible effectiveness of on-site treatment to remove the DW designation under the treatment by generator rule. Soil samples were submitted for bench-scale testing to The TDJ Group using their product named “Blastox”. The bench-scale testing indicated that a 3% to 4% addition of Blastox to site soil would be effective in removing the DW designation, so treated soil could be disposed at a Subtitle D landfill. Additional information concerning Blastox, and the results of the bench-scale testing are presented in the DOF (2020b) report (Attachment B).

C. FIELD XRF TESTING

During the 2020 test pit excavation, DOF used a field X-Ray Fluorescence analyzer (XRF) to assess its use in making field decisions during cleanup. The results of this testing are presented in DOF (2020b) presented as Attachment B. Assuming that lead is the primary remedial driver,

and considering measurement variability and CULs/RLs, the 2020 testing indicated the following:

- **Unpaved Area** – An XRF measurement higher than 50 to 100 mg/kg lead would indicate the sample is likely above the 0 to 6-feet CUL of 118 mg/kg, and 750 to 800 mg/kg lead is likely above the 6 to 15-feet CUL of 1,601 mg/kg.

- **Paved Area** – An XRF measurement of approximately 500 to 1,000 mg/kg or higher lead would indicate the sample is likely above the paved area RL of 2,000 mg/kg.

VII. CONCEPTUAL CLEANUP APPROACH AND TESTING

To assist in completing the pilot-scale treatability testing, a conceptual cleanup approach was developed so that the smaller pilot-scale field experience could be incorporated into the dCAP, and early consensus could be achieved on some of the major elements of the cleanup.

A. GRID LAYOUT AND EXCAVATION APPROACH

To effectively complete the cleanup, a grid layout would be used to guide the excavation and backfilling efforts. Excavation, confirmation sampling, and backfilling would be completed grid-area by grid-area. Grid-areas of approximately 2,500 to 3,000 square feet would be staked in the field as generally illustrated on Figure 3. Each incremental 1-foot excavation depth is 100 cubic yards in a grid-area 2,700 square feet in size.

- **Unpaved Area Grid-Area Numbers** – Each grid-area is designated with an UP-xx label. In the unpaved area there are 24 grid-areas (UP-1 to UP-24), as illustrated on Figure 5.

- **Paved Area Grid-Area Numbers** – The grid-areas are designated by rows and columns (Figure 5). The east-west rows are designated A to D; the north-south columns are numbered 1 to 20. There are 53 grid areas. Most grid-areas have a simple row/column designation (e.g., A4). Some areas have a more complex designation depending on their shape and position within the overall grid (e.g., A,B20 or C10,11)

B. HEATH AND SAFETY PLAN

Prior to the start of field testing a health and safety plan would be prepared that meets the requirements of WAC 173-340-810. Consistent with this section of the Model Toxics Control Act (MTCA), this plan will incorporate the requirements of the Occupational Safety and Health Act (OSHA), 29 CFR Subpart 1910.120 and Washington Industrial Safety and Health Act (WISHA). The plan will be submitted to Ecology for review and comment as this testing work is being completed under an Agreed Order.

C. EXCAVATION AREAS AND DEPTHS

A review of available soil analytical data indicate that some excavation will occur in most grid-areas. GMT proposes to determine the extent/depth of excavation within each grid-area up-front

using test pits as part of additional site characterization by collecting and analyzing additional soil samples. In addition, site characterization using push-probes will be completed in the TP-55 area where past testing indicates that oily releases from a shear appear to have occurred. The details of how this sampling and analysis will be performed is discussed below.

B.1 – TP-55 AREA - OIL RELEASES FROM SHEAR

In 2001 (Aspect 2018, Section 2.2.4), K/J encountered Less Dense Non-Aqueous Phase Liquid (LNAPL) in test pits TP-11 and TP-55 (Figure 6 and Attachment A) as follows:

- TP-11 – *"free oil product layer at 9.5' bgs (clear amber liquid, 0.3'thick)"*
- TP-55 – *"water at 9.5', dark brown HC product entering at sides of test pits"*.

LNAPL was also detected in the MW-12 well casing.

Relatively high TPH concentrations (8,000 to 14,400 mg/kg – Table 2b) were detected from the ground surface to the bottom of TP-55 (approximately 10-feet bgs) indicating the pit was excavated in the shear oil release area. The data also suggest that the LNAPL detected at TP-10, TP-11, and MW-12 migrated to these locations based on soil analytical data. Shallower soil concentrations were much lower than deeper TPH concentrations in pits TP-10 and TP-11. The lateral extent and depth of impacted soil that exceed TPH CULs/RLs are data gaps for remedial purposes. To fill these data gaps, the following work will be completed:

- **Measure LNAPL in well MW-12** – An interface probe will be used to assess the presence and thickness of LNAPL in MW-12.

- **Push-Probe Sampling** – Push-probes will be used to determine the lateral extent and approximate depth of soil that exceed the DRO+RRO CUL/RL as follows.

    - Advance a line of push-probes starting at TP-55 and stepping-out on 20-foot centers in an east-west direction from the initial probe until no evidence of LNAPL is observed.
    - Advance a line of push-probes starting at TP-55 and stepping-out on 20-foot centers in a north-south direction from the initial probe until no evidence of LNAPL is observed. Probes will likely extend beyond TP-10 to the south and MW-12 to the north and be advanced 5 to 10 feet below the water table.
    - Advance fill-in probes to tighten up the probe spacing to 10-feet or less within the impacted area.
    - Collect soil samples from each probe on 2.5-foot intervals and complete sheen testing.
    - Analyze 4 to 6 samples from each probe for TPH based on the results of the sheen testing and depth to the water table. Selected samples will include the sample obtained at/near the water table.

- **Extractable Petroleum Hydrocarbon (EPH) and cPAH Testing** – Three soil samples showing the presence of oily releases will be analyzed for extractable

petroleum hydrocarbons and PAHs to allow calculation of a Method B soil contact RL and assess possible impacts from oil leaching on groundwater quality.

- **Test Pit Excavations** – If push-probe recovery is poor near the water table, several test pits may be excavated to further assess the lateral extent of oily releases and migration. It is anticipated that the TP-55 area push-probe sampling would be the initial work completed on the site.

B.2 OUTSIDE OF AREA IMPACTED BY SHEAR RELEASES

In general, the additional soil characterization outside of the area impacted by shear releases will be completed as follows:

- A test pit will be excavated within the approximate center of each grid-area to a maximum depth of 15-feet, or until the underlying wood fill layer is encountered or the XRF indicates that lead concentrations are below CULs or RLs. The objective of this testing is to determine the depth of excavation to remove soil exceeding CULs or RLs. Approximately 24 test pits will be excavated in the unpaved area and 53 test pits will be excavated in the paved area.

- Materials encountered in each pit will be logged and any evidence of contamination will be noted (e.g., metal debris, oily soil, sheens, odors, discolored/stained soil).

- XRF measurements and sheen tests will be made within each 1-foot-thick sample interval to the bottom of the pit.

- Samples will be collected on approximately 1.0-foot intervals to the bottom of the pits. Some compositing of sample intervals may occur based on sample observations and field testing. For example, if high XRF measurements indicate high metals concentrations over greater than a 1-foot interval, a 2-foot or so composite sample may be collected for laboratory analysis.

- Total lead will be analyzed in selected samples with the objective of determining the depth at which lead CULs/RLs are achieved. The deepest sample with lead concentrations below the CUL/RL will also be analyzed for TPH if there is no deeper evidence of the presence of hydrocarbon sheens/odors.

- A remedial excavation depth will be determined for each grid-area based on the observations and analytical data for each test pit. This specific grid-area data will be supplemented with the historic analytical data summarized in Tables 2a and 2b, previous test pit observations (Attachments A and B) and data from adjacent grid-areas.

VIII. FIELD SAMPLING

A. TEST PIT LOCATIONS AND SAMPLE DEPTHS

In general, test pits would be excavated within each grid-area to the top of the Wood Fill layer or to a depth of eight feet, whichever is shallowest, assuming that field observations and XRF measurements indicate that lead and DRO+RRO CULs/RLs have likely been achieved within this interval. Soil samples would be obtained on 1-foot intervals.

Test pit excavation in the TP-55 area, if needed based on push-probe sample recovery at the water table, would proceed as deep as possible, at least to the water table. Locations would be determined using the push-probe results. Soil samples with visible indications of TPH and/or at the water table would be obtained for analysis.

B. PUSH-PROBES

Push-probes would be drilled to 5 to 10-feet below the water table or below the bottom of the "*smear zone*" based on field observations and sheen testing. Four (4) to 6 soil samples would be obtained from each probe. It is anticipated that 4 of the samples would include the following intervals: 2.5-feet above, at, 2.5-feet below and 5-feet below the water table, assuming the last sample is below the bottom of visual oil contamination.

C. FIELD LOGGING AND XRF MEASUREMENTS

A DOF licensed geologist would log the push-probes and test pits using ASTM D2488 as a general guide. Evidence of contamination such as debris, staining and sheens would be noted. Test pit/push-probe horizontal locations would be documented using a DGPS.

- Test pit samples would be obtained from the sides of the excavations using clean stainless-steel spoons.

- Push-probe soil samples would be obtained using a 5-foot-long barrel sampler with acrylic liners. The filled liners would be extracted, logged, and sampled using clean stainless-steel spoons on approximately 2.5-foot intervals.

- Samples from each interval will be placed in a stainless-steel bowl and mixed to homogenize the sample. A portion of each sample would be placed in one-quart plastic bags for field screening purposes.

- **Grid-Area Samples**. A portable XRF would be used to measure metal concentrations and sheen testing would be completed to assess the possible presence of TPH. The remainder of each mixed-sample would be placed in labeled 8-oz glass jars (for TPH analysis) and 4-oz glass jars (for metals analysis). The sample containers will be provided by the laboratory. The jars would be placed in chilled coolers for transport to the laboratory. Sample handling requirements are summarized below in Table 3 and will be documented using standard chain-of-custody procedures. The XRF measurements and sheen-testing results would be used to select samples for confirmation laboratory analysis; the objective being to determine the depth where CULs/RLs are achieved. The

deepest sample estimated to meet CULs/RLs would be analyzed for lead and TPH. Samples not analyzed would be archived for possible later analysis.

- **TP-55 Area Samples**. Sheen testing would be completed to assess the possible presence of DRO+RRO above the CUL/RL. The remainder of each mixed-sample would be placed in labeled 8-oz glass jars (for TPH analysis). The sample containers will be provided by the laboratory. The jars would be placed in chilled coolers for transport to the laboratory. Sample handling requirements are summarized below in Table 3 and will be documented using standard chain-of-custody procedures. Sheen-testing results would be used to select samples for confirmation laboratory analysis; the objective being to determine the depth where the CUL/RL are achieved. Four samples from each push-probe would be analyzed for TPH; 2.5-feet above, at, 2.5-feet below, and 5-feet below the water table, assuming the last sample is below the bottom of visual oil contamination. Samples not analyzed would be archived for possible later analysis.

Table 3. Sample Handling Requirements

Constituent	Container Type	No/ Volume	Preservation	Recommended Holding Time
Metals	Glass	1/8oz; 1/4oz	Cool	6 months
TPH				14 days
cPAHs				

IX. LABORATORY ANALYSES AND METHODS

Soil samples will be analyzed by Analytical Resources Inc. (ARI), a Washington State accredited laboratory. Soil samples will be analyzed using the following standard methods:

- Lead – EPA Method 6010C
- TPH – Ecology Method NWTPH-Dx (diesel- and heavy-oil range hydrocarbons).
- EPH – Ecology Method EPH
- cPAHs – EPA Method 8270-SIM

X. PILOT-SCALE TREATABILITY TESTING

Discussions with the proposed supplier (The TDJ Group) indicate that mixing of Blastox is typically conducted using one of two methods as summarized below:

- **Method 1** – Determine target area and depth and treat soil in 1.0-foot lifts. A predetermined amount (by weight) of Blastox is placed in the area to be treated and

mixed with a backhoe/excavator. Treated soil is excavated, placed in a stockpile, and tested using the TCLP.

- **Method 2** – Determine target area and depth. Excavate soil and mix soil with Blastox using a pug-mill. Screening of soil before treatment to remove debris could also be accomplished before treatment. Treated soil would be placed in stockpiles and tested using the TCLP.

Method 2 is more appropriately applied on a full-scale production basis. The pilot-scale treatability study will use Method 1.

A. SOIL TO BE TREATED

The pilot scale treatability study will use soil in grid-areas UP-11 and UP-22 (Figure 5) based on the following:

- **Grid-Area UP-11** – Test pits TP-21 and "G" were excavated in this area. Analytical data from these pits (Table 2a) indicate soil exceeding CULs extends to a depth of 3 to 4-feet bgs. Lead concentrations in this interval range between 3,800 and 7,570 mg/kg. Soil would be treated to a depth of 4-feet, in 1-foot lifts, which would generate approximately 350 to 400 cubic yards of soil. As each lift is treated (see below), it will be removed, stockpiled, tested, and disposed off-site.

- **Grid-Area UP-22** – TP-38 and "M" were excavated in this area. Analytical data from these pits (Table 2a) indicate soil exceeding CULs extends to a depth of 1 to 2-feet bgs. Lead concentrations in this interval range between 2,790 and 9,380 mg/kg. Soil would be treated to a depth of 2-feet, in 1-foot lifts, which would generate approximately 175 to 200 cubic yards of soil. As each lift is treated (see below), it will be removed, stockpiled, tested, and disposed off-site.

B. TREATMENT PROCEDURE

- Stake corners of treatment area using a DGPS. Coordinates would be determined from the surveyed engineering base map.
- Construct a lined stockpile area on adjacent paving to accommodate up to six 100 cubic yard stockpiles.
- Collect a 3-spot composite soil sample from each 1.0-foot depth interval for analysis of lead (in the laboratory and by XRF) and for sheen testing. Samples would be evenly distributed in the target area. The laboratory measurements will be supplemented with additional field XRF measurements. Samples for laboratory analysis would be mixed in an aluminum or stainless-steel bowl. A portion of each sample would be placed in a 1-quart plastic bag for field testing. The remaining portion would be placed in an 8-oz. glass jar for laboratory testing.
- Place a 3% by weight amount of Blastox in the area to be treated and mix with soil using a backhoe/excavator.

- Excavate treated soil and place in the lined stockpile area. At the end of each day, place a cover over the stockpiles.
- Backfill the excavations with clean imported fill. Field compact the backfill.
- Collect a 3-spot composite sample from the stockpile. The sample would be handled in the same manner as described above for the composite 1.0-foot interval samples. Field screen the samples using the XRF and sheen testing procedure. Submit the samples to the laboratory for analysis of total and TCLP RCRA metals.
- Based on the results of the laboratory testing, determine treated soil disposal options, gain facility and Ecology approval, transport treated soil to the approved facility and demobilize from the site.

C. PERMITS

To complete the pilot scale treatability testing, the following permit/submittal may be required from the City of Tacoma. The specific permits needed will be determined in a pre-application meeting with City staff. DOF anticipates that this site will be designated as a no stormwater discharge site, so some of the permitting requirements may be relaxed. However, this will need to be confirmed with the City. The preliminary list of necessary permits is listed below.

- Stormwater Site Plan Report Short Form (project disturbs less than 7,000 square feet).
- Construction SWPPP – Long Form (as described in Chapter 2 of Vol. 2 of the Tacoma Stormwater Management Manual (required because grading volumes are higher than 499 cubic yards).
- SEPA Review (excavation volume is greater than 500 cubic yards).
- Shoreline Permit/Exemption (site is located within 200 feet of OHWM).
- Site Development Permit (excavation volume is greater than 50 cubic yards)

XI. DATA EVALUATION

Data would be evaluated to address several issues:

1) Determine the remedial excavation depth for each grid-area.
2) Define the extent and depth of the oily releases in the TP-55 area.
3) Confirm that Blastox would be effective in reducing the leachability of lead and other metals to below DW threshold concentrations.
4) Confirm disposal options (and approximate cost) for treated soil.

XII. REPORTING

Following receipt of the final laboratory data and disposal documentation, a report will be prepared to document this portion of the RI/FS program. It is anticipated that the information generated during this work phase will be used to refine the draft RI/FS and prepare a draft Cleanup Action Plan. This report will include the following:

- Site plan showing testing locations.

- Test pit and push-probe logs with location coordinates.
- Summary of field and laboratory procedures.
- Tables summarizing field and laboratory data.
- Laboratory reports including chain-of-custody records.
- Proposed remedial excavation depths within each grid-area.
- Extent and depth of the oily releases associated with the TP-55 area.
- Results of pilot-scale treatability testing and an assessment of the efficacy of using Blastox to reduce disposal costs.
- Recommendations for full-scale soil remediation.

XIII. REFERENCES

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DOF, 2020b, TCLP Test Results, Former Tacoma Metals Site, Tacoma, Washington, August 17, 2020.

K/J (Kennedy/Jenks Consultants), 2014, Revised Augmented Remedial Investigation and Feasibility Study Report, Former Tacoma Metals Site, Tacoma, Washington; prepared for Portland Avenue Associates, LLC; September 2014.

Table 2a - Summary of Soil Analytical Data - Unpaved GMT Remedial Area (c)

Tacoma Metals Site
Tacoma, Washington

Location	Depth (ft)	TPH	PCBs	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Selenium	Silver
	CULs	2000(a)	0.65(a)	10(a)	102/1650(b)	14/726(b)	67/25907(a)	217/53333(b)	118/1601(b)	5.5/13(b)	0.3/233(b)	1133(a)
	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP-4	0-1	800	**8.3***	**30***	**609***	**21.6***	**82***	**4650***	**1760***	0.55	<10	1.2
	2-3	-----	**2.9***	-----	**-----**	8	**-----**	**-----**	**443***	-----	-----	-----
	4-6	-----	-----	-----	**-----**	-----	**-----**	**-----**	**160***	-----	-----	-----
TP-6	0-1	410	**0.86***	**30***	**208***	5.6	**92***	**711***	**1550***	0.5	**20***	2.1
	2-3	-----	-----	-----	-----	-----	-----	-----	54	-----	-----	-----
	4-6	-----	-----	-----	-----	-----	-----	-----	40	-----	-----	-----
TP-12	0-1	34	0.21	<5	37.5	3.3	19.4	21.3	17	<0.04	<5	<0.3
	2-3	-----	**0.84***	-----	-----	-----	-----	-----	-----	-----	-----	-----
TP-13	0-1	86	**3.1***	<5	96	3	49.3	**266**	**167***	0.71	<5	1
TP-21	0-1	860	**13.6***	**70***	**1580***	**66***	**574***	**12800***	**6020***	**22.4***	<30	31
	2-3	340	**3.6***	<300	**4190***	**130***	**1080***	**13200***	**7570***	**10.2***	<300	90
	4-6	-----	-----	-----	-----	<1	42	**-----**	20	-----	-----	-----
TP-22	0-1	310	**2.6***	**30***	**372***	51	**2520***	**13000***	**3180***	5.3	<30	36
	2-3	218	**2.9***	<60	**464***	52	**913***	**20200***	**3690***	5.1	<60	198
	4-6	-----	-----	-----	-----	-----	47	**-----**	**360***	-----	-----	-----
TP-33	0-1	**2970***	**3.5***	**40***	**3070***	**89***	**353***	**2970***	**6470***	2.9	<30	5
	2-3	**1420***	-----	-----	**-----**	**-----**	**-----**	**-----**	**4560***	1.7	-----	-----
	4-6	-----	-----	-----	**-----**	**-----**	**-----**	**-----**	10	-----	-----	-----
TP-38	0-1	**4100***	-----	**60***	**2710***	**125***	**263***	**3320***	**9380***	**14.3***	30	6
	2-3	156	-----	-----	-----	**-----**	-----	**-----**	70	0.12	-----	-----
	4-6	-----	-----	-----	-----	**-----**	-----	**-----**	50	-----	-----	-----
TP-39	0-1	433	**2.8***	10	**134***	**16.8***	30	**1100***	**1040***	0.24	<10	<0.7
	2-3	-----	-----	-----	-----	10.4	-----	-----	-----	-----	-----	-----
TP-44	0-1	47	0.14	<10	27.2	0.4	17.2	21.5	13	<0.05	<10	<0.6
TP-45	0-1	1550	**24.6***	**100***	**774***	**30***	**368***	**3560***	**4060***	**47***	**30***	7
	2-3	-----	**14.3***	-----	**-----**	**15***	-----	-----	**950***	**16***	-----	-----
	4-6	-----	-----	-----	**-----**	-----	-----	-----	**180***	-----	-----	-----
TP-A	0-0.8	-----	-----	**28.5***	**297***	12.7	59	-----	**1130***	1.4	**2***	4.3
TP-G	0-2.5	-----	-----	6.5	**494***	**69.2***	**382***	-----	**3800***	5	**5.6***	37.3

Table 2a - Summary of Soil Analytical Data - Unpaved GMT Remedial Area (c)

Tacoma Metals Site
Tacoma, Washington

Location	Depth (ft)	TPH	PCBs	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Selenium	Silver
	CULs	2000(a)	0.65(a)	10(a)	102/1650(b)	14/726(b)	67/25907(a)	217/53333(b)	118/1601(b)	5.5/13(b)	0.3/233(b)	1133(a)
TP-H	0.5-2	-----	-----	7.5	**334***	**28.4***	**1460***	-----	**6640***	**7.9***	**2.8***	32.3
TP-M	0-1.2	-----	-----	**33.7***	**1270***	**52.7***	**140***	-----	**2790***	3	**2.5***	1.4

Sources: Aspect (2018); DOF (2020)

(a) - CUL point of compliance (POC) - 0' to 15'

(b) CUL point of compliance (POC) - xxx/xxx - 0' to 6' / 6' to 15'

(c) - Bold and "*" indicates concentration higher than cleanup level

Table 2b - Summary of Soil Analytical Data - Paved GMT Remedial Area (b)

Tacoma Metals Site
Tacoma, Washington

Location	Depth (ft)	TPH	PCBs	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Selenium	Silver
	CULs(a)	2000	10	1122	44884	1496	1000000	299224	2000	2900	11221	6359
	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP-7	0-1	1090	0.19	10	697	12.3	103	361	796	0.88	8	1.5
	2-3	-----	9.3	-----	-----	9	-----	-----	-----	-----	-----	-----
TP-8	0-1	1640	-----	<5	235	0.9	33.9	41	31	<0.05	<5	0.3
	4-6	104	-----	<5	42.1	0.3	17.5	47.8	26	<0.05	<5	0.7
TP-9	0-1	**4900***	2.6	40	1990	59	132	1260	1960	0.9	<30	<2
	2-3	126	-----	-----	-----	-----	-----	-----	20	-----	-----	-----
	4-6	410	-----	<6	224	2.1	24.2	59.9	93	<0.05	<6	<0.4
TP-10	0-1	324	1.6	<5	218	4.2	49.2	217	460	0.54	7	0.5
	2-3	323	0.17	-----	-----	-----	-----	-----	-----	-----	-----	-----
	4-6	**2440***	-----	<5	61	0.7	32.2	60.3	72	0.07	<5	0.3
	6-10	**10100***	-----	<6	49.5	0.4	28.8	29.3	15	<0.06	<6	<0.4
TP-11	0-1	**3200***	3.2	<5	254	5.7	54.4	157	202	0.27	5	0.3
	2-3	980	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	4-6	1480	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	6-10	**12400***	-----	<9	164	<0.3	18.4	31.5	57	0.1	<9	<0.5
TP-14	0-1	20.2	0.14	<5	41.8	<0.2	22.2	13	8	<0.05	<5	<0.3
	2-3	-----	1.05	-----	-----	-----	-----	-----	560	-----	-----	-----
	4-6	-----	-----	-----	-----	-----	-----	-----	20	-----	-----	-----
	6-10	158	-----	<6	84.9	2.3	35.3	78.6	152	0.07	<6	<0.4
TP-15	0-1	43	0.206	<5	42.6	<0.2	32.8	29.4	79	<0.04	<5	0.3
TP-16	0-1	**5100***	**11.5***	40	999	45	105	1210	**2590***	2.19	<30	2
	2-3	**2340***	-----	-----	-----	68	-----	-----	**8240***	-----	-----	-----
TP-17	0-1	1500	2.8	60	272	15	120	2930	1470	0.4	<50	<3
	2-3	-----	-----	-----	-----	-----	-----	-----	30	-----	-----	-----
	4-6	-----	-----	-----	-----	-----	-----	-----	30	-----	-----	-----
	6-10	-----	-----	-----	-----	-----	-----	-----	20	-----	-----	-----
TP-18	0-1	215	-----	8	107	3.3	26.3	451	311	0.88	<5	0.9
TP-19	0-1	295	0.23	20	111	4	46	1060	204	1.35	<10	3.4
TP-20	0-1	<15.2	0.148	<6	35.9	<0.2	22	17.2	6	<0.06	6	<0.3
	2-3	550	1.56	20	304	26.2	84	6970	**10200***	0.95	<10	2.8

Table 2b - Summary of Soil Analytical Data - Paved GMT Remedial Area (b)

Tacoma Metals Site
Tacoma, Washington

Location	Depth (ft)	TPH	PCBs	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Selenium	Silver
	CULs(a)	2000	10	1122	44884	1496	1000000	299224	2000	2900	11221	6359
	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP-20	4-6	-----	-----	-----	-----	1	-----	-----	540	-----	-----	-----
	6-10	-----	-----	-----	-----	-----	-----	-----	230	-----	-----	-----
TP-23	0-1	22.2	0.144	<5	40.4	<0.2	25.1	21.9	11	<0.04	<5	<0.3
	2-3	1230	-----	30	376	15.3	127	1560	1190	1.21	<10	1.4
	4-6	-----	-----	-----	-----	-----	-----	-----	140	0.19	-----	-----
	6-10	-----	-----	-----	-----	-----	-----	-----	130	-----	-----	-----
TP-24	0-1	158	-----	6	105	2.3	34.3	539	438	0.7	6	0.5
TP-25	0-1	438	0.223	<5	52.5	0.3	28.4	151	48	0.14	<5	<0.3
TP-26	0-1	21.4	-----	<5	47.4	0.3	30.3	21.6	9	<0.05	<5	<0.3
	4-6	590	-----	<6	272	0.2	20.8	40.9	17	<0.05	<6	<0.3
	6-10	104	-----	<7	80.1	<0.3	17.3	31.1	13	<0.06	<7	<0.4
TP-27	0-1	**2870***	1.7	40	261	8.4	119	806	**14700***	1.83	<10	1.7
	2-3	550	-----	<10	217	6.2	49	3130	575	1.82	<10	1.3
	4-6	-----	-----	-----	-----	-----	-----	-----	-----	<0.06	-----	-----
TP-28	0-1	1130	-----	20	382	16.5	91	789	1430	1.56	10	1.5
	2-3	1930	-----	20	444	16.5	88	3000	**2340***	1.12	<10	1.8
	4-6	-----	-----	-----	-----	<1	-----	-----	<10	<0.05	-----	-----
	6-10	-----	-----	-----	-----	-----	-----	-----	7	-----	-----	-----
TP-29	0-1	359	0.15	5	67.9	0.2	29.7	24.6	16	<0.04	<5	<0.3
TP-30	0-1	**2130***	-----	30	733	59.5	108	1960	**2410***	2.06	<10	2.6
	2-3	**3200***	-----	20	805	21.2	90	540	1110	0.57	<10	1.4
	4-6	23.5	-----	-----	-----	<1	-----	-----	<10	-----	-----	-----
	6-10	-----	-----	-----	-----	-----	-----	-----	50	-----	-----	-----
TP-31	0-1	1790	1.7	<10	558	19.3	58	417	1040	0.63	<10	1
	2-3	900	-----	<10	189	6.4	40	182	387	0.42	<10	0.7
TP-32	0-1	**2150***	-----	30	2010	84	271	3720	**4470***	2.36	<30	3
TP-34	0-1	1860	1.3	10	1740	42	92	4030	**5100***	1.23	<10	1.6
	2-3	**3310***	1.12	30	1400	52	91	1570	**3990***	1.08	<30	<2
	4-6	219	-----	-----	-----	-----	-----	-----	1110	<0.05	-----	-----

Table 2b - Summary of Soil Analytical Data - Paved GMT Remedial Area (b)

Tacoma Metals Site
Tacoma, Washington

Location	Depth (ft)	TPH	PCBs	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Selenium	Silver
	CULs(a)	2000	10	1122	44884	1496	1000000	299224	2000	2900	11221	6359
	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	6-10	-----	-----	-----	-----	-----	-----	-----	40	-----	-----	-----
TP-35	0-1	540	0.619	<10	290	8.4	153	1260	**4230***	0.52	<10	2.2
	2-3	-----	-----	-----	-----	-----	-----	-----	240	-----	-----	-----
	4-6	-----	-----	-----	-----	-----	-----	-----	30	-----	-----	-----
	6-10	-----	-----	-----	-----	-----	-----	-----	20	-----	-----	-----
TP-36	0-1	71	0.24	<10	54.5	0.9	31	39.3	36	0.12	<10	<0.6
	6-10	500	-----	<10	31.7	0.5	19	25.3	15	0.06	<10	<0.8
TP-37	0-1	**2910***	3.35	30	979	26.6	124	625	1900	4.18	10	1.1
	2-3	**3770***	-----	20	1630	24.7	112	483	1630	2.66	<10	<0.6
	4-6	144	-----	-----	-----	<1	-----	-----	20	<0.05	-----	-----
	6-10	-----	-----	-----	-----	-----	-----	-----	30	-----	-----	-----
TP-40	0-1	**3400***	**27.8***	60	738	36	670	2530	**3700***	15	<50	4
	2-3	**2270***	5.6	<30	851	40	212	1240	**2050***	3.19	<30	3
	4-6	330	-----	<10	126	3.7	31	94	192	0.22	<10	<0.7
TP-41	0-1	21.2	0.175	<30	38	<1	39	20	20	5.5	<30	<2
TP-42	0-1	172	-----	<30	78	2	31	98	130	4.3	<30	<2
TP-43	0-1	**3800***	**23.9***	90	1620	54	566	5620	**9370***	47	<30	6
	2-3	**4900***	**19.8***	80	1280	46	259	2520	**12300***	21	<30	5
	4-6	<16.3	0.162	-----	-----	<1	-----	-----	10	<0.04	-----	-----
	6-10	-----	-----	-----	-----	-----	-----	-----	70		-----	-----
TP-46	0-1	590	**13.6***	40	302	15	721	1820	**2100***	10.6	<30	69
	2-3	680	0.184	-----	-----	9	104	-----	970	2.88	-----	-----
	4-6	**3700***	-----	50	1910	93	93	1180	**4320***	0.83	<30	2
	6-10	195	-----	-----	-----	-----	0.9	-----	82	-----	-----	-----
TP-47	0-1	17.2	0.149	<30	33	<1	25	13	<10	<0.05	<30	<2
TP-50	0-1	340	7.6	<30	293	18	55	1100	570	0.61	<30	<2
	2-3	93	0.165	<30	69	<1	44	29	150	<0.05	<30	<2
TP-54	0-1	470 J	-----	<30	242	8	48	273	410	0.98	<30	<2
TP-55	0-1	**8000***	5.42	<30	1080	29	117	465	1750	0.83	<30	<2
	2-3	**10000***	-----	-----	-----	21.1	-----	-----	772	-----	-----	-----

Table 2b - Summary of Soil Analytical Data - Paved GMT Remedial Area (b)

Tacoma Metals Site
Tacoma, Washington

Location	Depth (ft)	TPH	PCBs	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Selenium	Silver
	CULs(a)	2000	10	1122	44884	1496	1000000	299224	2000	2900	11221	6359
	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP-55	4-6	**8200***	-----	-----	-----	-----	-----	-----	106	-----	-----	-----
	6-10	**14400***	-----	-----	-----	-----	-----	-----	70	-----	-----	-----
TP-56	0-1	70	-----	<30	63	2	31	88	70	0.12	<30	<2
TP-57	0-1	**6900***	3.68	60	2740	70	145	7410	**2710***	0.6	40	<2
	2-3	164	-----	-----	-----	1.7	-----	-----	28	-----	-----	-----
	4-6	370	-----	-----	-----	-----	-----	-----	80	-----	-----	-----
	6-10	438	-----	-----	-----	-----	-----	-----	23	-----	-----	-----
TP-58	0-1	21	-----	<30	45	<1	29	21	<10	0.06	<30	<2
	2-3	-----	-----	<30	602	17	105	2070	**2340***	62	<30	<2
	4-6	-----	-----	-----	-----	<0.5	-----	-----	9	-----	-----	-----
	6-10	-----	-----	-----	-----	-----	-----	-----	70	-----	-----	-----
TP-59	0-1	1720	**25***	40	871	34	173	3010	**2250***	1.55	<30	2
	2-3	-----	1.22	<30	194	9	35	388	350	0.22	<30	<2
TP-60	0-1	**2680***	**40***	50	1050	30	225	2330	**10800***	77	40	2
	2-3	-----	1.9	<30	1410	20	99	773	**3260***	1.41	<30	<2
	4-6	-----	-----	-----	-----	0.9	-----	-----	116	0.08	-----	-----
	6-10	-----	-----	-----	-----	-----	-----	-----	49	-----	-----	-----
TP-61	0-1	**5600***	3.53	<30	377	10	53	356	**4180***	0.76	<30	<2
	2-3	**10800***	-----	<30	352	1	25	40	80	0.23	<30	<2
	4-6	207	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
TP-62	0-1	1230	-----	<30	201	5	72	208	420	0.92	<30	2
	2-3	-----	-----	<30	265	11	283	407	800	2.05	<30	<2
	4-6	-----	-----	-----	-----	<0.5	-----	-----	-----	<0.04	-----	-----
TP-63	0-1	1440	3.4	<30	584	38	61	304	700	0.37	<30	<2
	2-3	**2960***	-----	<30	637	50	64	299	1800	0.24	30	<2
	4-6	880	-----	-----	-----	0.7	-----	-----	123	-----	-----	-----
	6-10	-----	-----	-----	-----	-----	-----	-----	102	-----	-----	-----
TP-64	0-1	480	-----	<30	163	5	31	459	450	0.98	<30	<2
TP-65	0-1	<16.3	0.15	<30	58	<1	28	19	<10	0.05	<30	<2
TP-B	0-0.8	-----	-----	46.1	587	27.8	118	-----	1870	1.91	1.98	1.26

Table 2b - Summary of Soil Analytical Data - Paved GMT Remedial Area (b)

Tacoma Metals Site
Tacoma, Washington

Location	Depth (ft)	TPH	PCBs	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Selenium	Silver
	CULs(a)	2000	10	1122	44884	1496	1000000	299224	2000	2900	11221	6359
	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP-B	2-3	-----	-----	-----	-----	0.18	-----	-----	71.1	-----	-----	-----
TP-C	0.3-1.3	-----	-----	33.1	1340	82	143	-----	**2740***	3.75	10.5	4.78
TP-D	0.5-1.5	-----	-----	20.2	1920	39.3	71.8	-----	1430	0.573	3.26	0.91
TP-E	0-2	-----	-----	30.5	1200	51.9	122	-----	**6700***	2.36	2.17	1.61
TP-F	2.5-3.5	-----	-----	9.89	267	8.69	48.6	-----	1240	1.09	3.48	1.27
TP-I	1-2	-----	-----	14.7	666	17.6	64.5	-----	1780	1.31	2.9	1.41
	2-3	-----	-----	-----	-----	3.31	-----	-----	148	-----	-----	-----
TP-J	0.5-1.5	-----	-----	32.7	1470	49.3	124	-----	**3900***	3.04	3.64	2.84
	2-3	-----	-----	-----	-----	12.3	-----	-----	1070	0.513	-----	-----
TP-K	1.5-3.5	-----	-----	38.4	1360	23.5	69.3	-----	**2950***	1.35	1.76	1.08
TP-L	0.4-1.4	-----	-----	37.1	1540	38	217	-----	**4530***	9.52	1.76	3.79
TP-N	0.3-1.3	-----	-----	6.58	121	3.39	41.7	-----	264	6.13	1.21	0.26
TP-O	1-3	-----	-----	49.3	1090	26.7	141	-----	**6100***	47.1	2.78	2.19
TP-P	0.5-3	-----	-----	52.1	671	21.1	170	-----	**4200***	9.01	10.7	1.71
TP-Q	1.5-3	-----	-----	69.8	875	45.4	203	-----	**3340***	16.1	2.05	2.84

Sources: Aspect (2018); DOF (2020)

(a) - CUL point of compliance (POC) - 0' to 15'

(b) - Bold and "*" indicates concentration higher than cleanup level

Historic Structure
Historic Unpaved Area
Existing Structure
Site Boundary
Pierce County Parcels

0 100 200
Feet

Historical Operations

Revised Draft Remedial Investigation/Feasibility Study
Tacoma Metals, Inc. Site
Tacoma, Washington

DOF - FIGURE 1 - June 2021

Aspect CONSULTING	FEB-2018	BY: ACG / EAC	FIGURE NO. 3
	PROJECT NO. 160420-03	REVISED BY: ---	

Basemap Layer Credits | | Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

GIS Path: T:\projects_8\Sussman_160420\Delivered\Draft\Final\R\03 Historical Operations.mxd | | Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet | | Date Saved: 2/27/2018 | | User: ecrumbaker | | Print Date: 2/27/2018

General Metals Remedy Performance Area (except creosote contamination)

Triangular Area - General Metals Performance Area (except creosote contamination)

International Paper Remedy Performance Area (except shallow metals contamination within yellow lined area and triangular area to left of blue line)

Blue Line

Puyallup River

Lincoln Ave

East Portland Ave

St Paul Ave

Legend

- A-Q DOF "TCLP" Test Pit - 2020
- Monitoring Well (Aspect RI)
- Piezometer
- Soil Boring
- Surface Water
- Test Pit (Aspect RI)
- Site Boundary

0 100
Scale in Feet

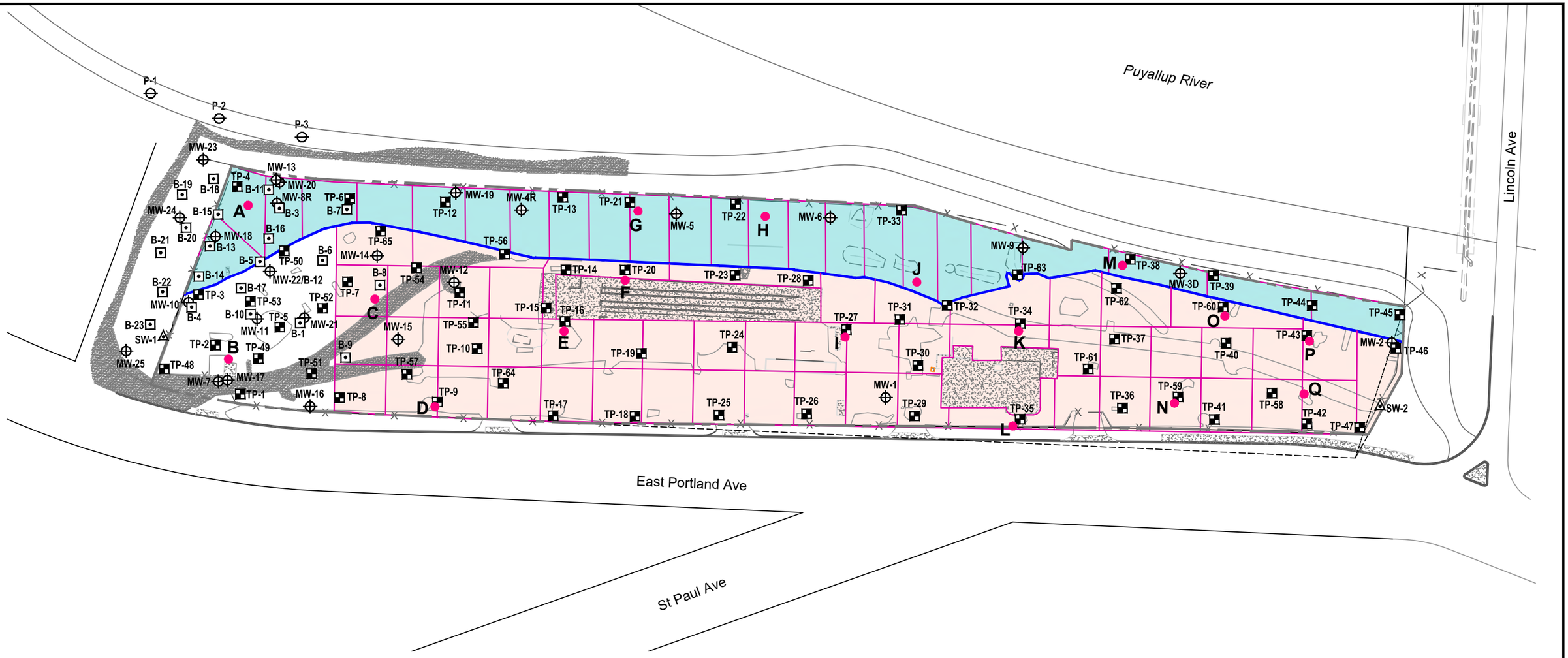
Tacoma Metals
Tacoma, Washington

Remedial Areas and Test Pit and Monitoring Well Locations On-Property Area

DALTON OLMSTED FUGLEVAND

FIGURE
2
03/29/2021

PLOT TIME: 3/29/2021 2:01 PM MOD TIME: 3/29/2021 2:01 PM USER: Kelley Begley DWG: P:\Tacoma Metals\CAD\Figures\2021-03\2021-03 Tacoma Metals-Test Pit-Mon Well Locs.dwg



Legend

- A-Q DOF "TCLP" Test Pit - 2020
- Monitoring Well (Aspect RI)
- Piezometer
- Soil Boring
- Surface Water
- Test Pit (Aspect RI)
- Site Boundary
- Surface Delineation Line
- Grid Line
- Unpaved Area
- Paved Area
- Concrete Foundation

0 100
Scale in Feet

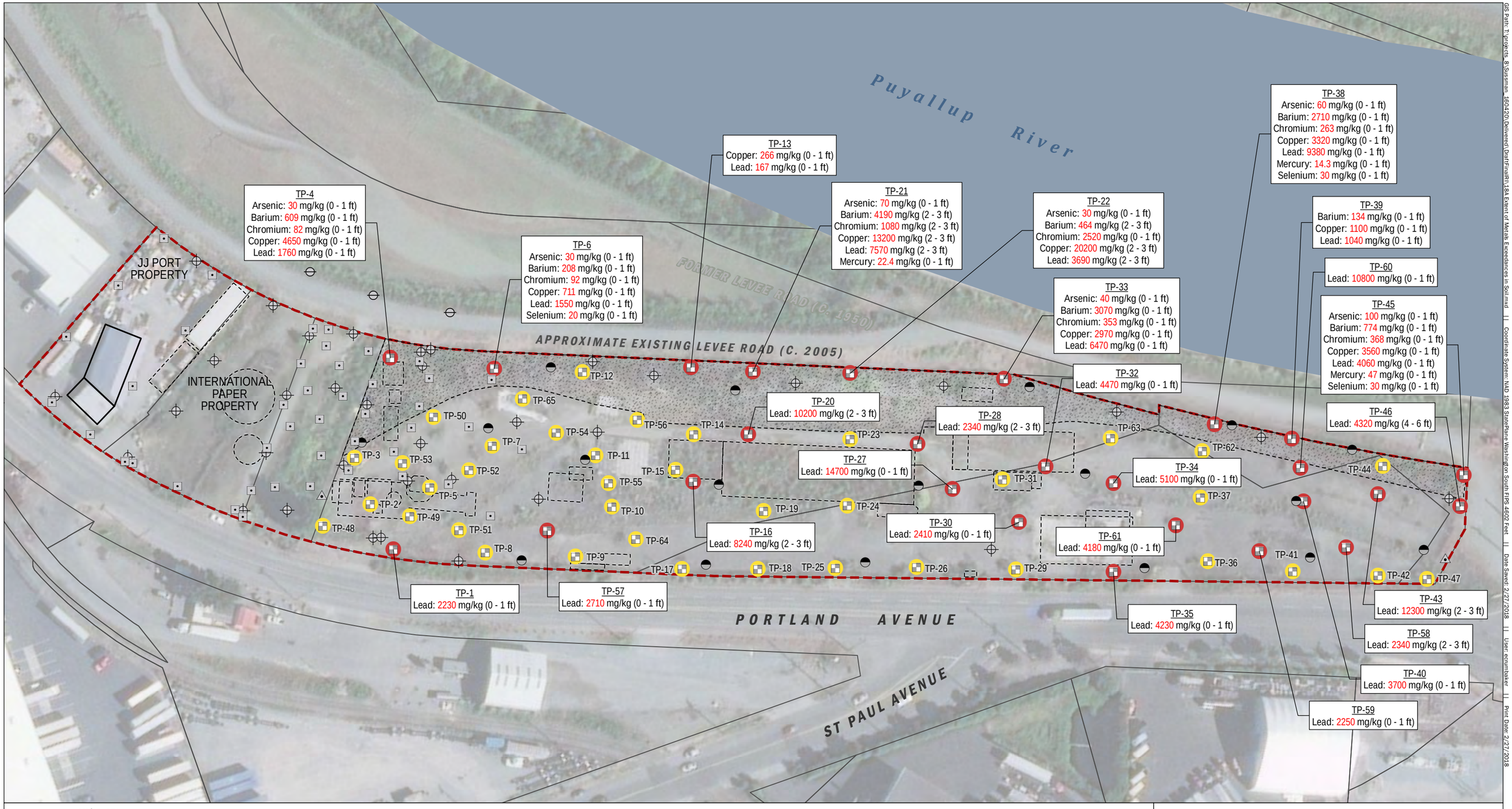
Tacoma Metals
Tacoma, Washington

Proposed Sampling/Remediation Grid
On-Property Area

DALTON OLMSTED FUGLEVAND

FIGURE
3
05/14/2021

PLOT TIME: 5/14/2021 12:43 PM MOD TIME: 5/14/2021 12:43 PM USER: Kelley Begley DWG: P:\Tacoma Metals\CAD\Figures\2021-05\2021-05 Tacoma Metals-Prop Sampling Remed Grid.dwg



Location Name
TP-13
Copper: 266 mg/kg (0 - 1 ft)
Lead: 167 mg/kg (0 - 1 ft)
Result
Depth

Note: Only results that exceed cleanup levels are shown. The result posted is from the sample depth where the maximum concentration was observed.

- Monitoring Well
- Piezometer
- Reconnaissance Groundwater Sample
- Soil Boring
- Surface Water
- Test Pit
- Metals Detected at Concentrations Less than the Cleanup Level.
- Metals Detected at Concentrations Greater than the Cleanup Level.
- Historic Structure
- Historic Unpaved Area
- Existing Structure
- Site Boundary
- Pierce County Parcels

0 100 200
Feet

Extent of Metals Exceedances in Soil

Revised Draft Remedial Investigation/Feasibility Study
Tacoma Metals, Inc. Site
Tacoma, Washington

DOF - FIGURE 4a - June 2021

Aspect Consulting	FEB-2018	BY: ACG / EAC	FIGURE NO. 18A
	PROJECT NO. 160420-03	REVISED BY: RAP	

Basemap Layer Credits || Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

GIS Path: T:\projects_8\Sussman_160420\Delivered\Draft\Final\Ph1&4 Extent of Metals Exceedances in Soil.mxd || Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet || Date Saved: 2/27/2018 || User: ecrumbaker || Print Date: 2/27/2018

Puyallup River

South Side Channel Area

CORMIE RIVER ROAD (c. 1950)

JJ PORT PROPERTY

INTERNATIONAL PAPER PROPERTY

B36 AREA

AREA D

AREA B

APPROXIMATE EXISTING LEVEE

E 1 RIGHT WAY

PORTLAND AVENUE

ST PAUL AVENUE

TP-A (0-0.8')
Pb=1130 mg/kg
TCLP=1.3 mg/l

TP-B (0'-0.8')
Pb=1870 mg/kg
TCLP=111 mg/l
TP-B (2'-3')
Pb=71 mg/kg

TP-1 (0'-1')
Pb=2230 mg/kg
TCLP=11.7 mg/l

TP-C (0.3-1.3')
Pb=2740 mg/kg
TCLP=15 mg/l

TP-D (0.5-1.5')
Pb=1430 mg/kg
TCLP=19.7 mg/l

TP-14 (6'-10')
Pb=152 mg/kg
TCLP=<0.1 mg/l

TP-55 (0'-1')
Pb=1750 mg/kg
TCLP=26.5 mg/l

TP-21 (2'-3')
Pb=7570 mg/kg
TCLP=74.7 mg/l

TP-16 (2'-3')
Pb=8240 mg/kg
TCLP=3.3 mg/l

TP-G (0'-2.5')
Pb=3800 mg/kg
TCLP=57.2 mg/l

TP-F (2.5'-3.5')
Pb=1240 mg/kg
TCLP=85.8 mg/l

TP-E (0'-2')
Pb=6700 mg/kg
TCLP=54.2 mg/l

TP-H (0.5'-2')
Pb=6640 mg/kg
TCLP=70.4 mg/l

TP-I (1'-2')
Pb=1780 mg/kg
TCLP=5.4 mg/l
TP-I (2'-3')
Pb=148 mg/kg

TP-33 (2'-3')
Pb=4560 mg/kg
TCLP=22.4 mg/l

TP-K (1.5'-3.5')
Pb=2950 mg/kg
TCLP=10.6 mg/l

TP-J (0.5'-1.5')
Pb=3900 mg/kg
TCLP=49.8 mg/l
TP-J (2'-3')
Pb=1070 mg/kg
TCLP=9.9

TP-L (0.4'-1.4')
Pb=4530 mg/kg
TCLP=60.3 mg/l

TP-M (0'-1.2')
Pb=2790 mg/kg
TCLP=11.3 mg/l

TP-61 (0'-1')
Pb=4180 mg/kg
TCLP=12.2 mg/l

TP-38 (0'-1')
Pb=9380 mg/kg
TCLP=20.6 mg/l

TP-N (0.3'-1.3')
Pb=264 mg/kg
TCLP=0.97 mg/l

TP-40 (2'-3')
Pb=2050 mg/kg
TCLP=6.9 mg/l

TP-39 (0'-1')
Pb=1040 mg/kg
TCLP=0.13 mg/l

TP-O (1.0'-3.0')
Pb=6100 mg/kg
TCLP=4.8 mg/l

TP-43 (2'-3')
Pb=12300 mg/kg
TCLP=63.6 mg/l

TP-Q (1.5'-3.0')
Pb=3340 mg/kg
TCLP=24.6 mg/l

TP-P (0.5'-3.0')
Pb=4200 mg/kg
TCLP=61.2 mg/l

Estimated Excavation Depth (0.5' contours)

Total cPAHs and Naphthalene Extent at or Below Water Table

TPH DRO/ORO Extent at or Below Water Table

2020 Test Pit Location w TCLP Test

2001 Sample Location w/ TCLP Test

TP-1 (0'-1') — Sample Designation and Depth (ft)
Pb=2230 mg/kg—Total Lead Concentration (mg/kg)
TCLP=11.7 mg/l—TCLP Lead Concentration (mg/l)

Historic Unpaved Area

Historic Structure

Existing Structure

Pierce County Parcels

Area of Soil to Remove

No Soil to Remove

Site Boundary

Interim Action Areas (AECOM, 2017)

Area B In Situ Solidification

Area D In Situ Solidification

B36 Area In Situ Solidification

Source: AECOM. Final Interim Action Work Plan In Situ Soil Solidification. November 17, 2017.

0 100 200
Feet

Ref: Tac Metals LocAa.cdr

Basemap Layer Credits || Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

TCLP Test Pit Locations and Lead Conc.

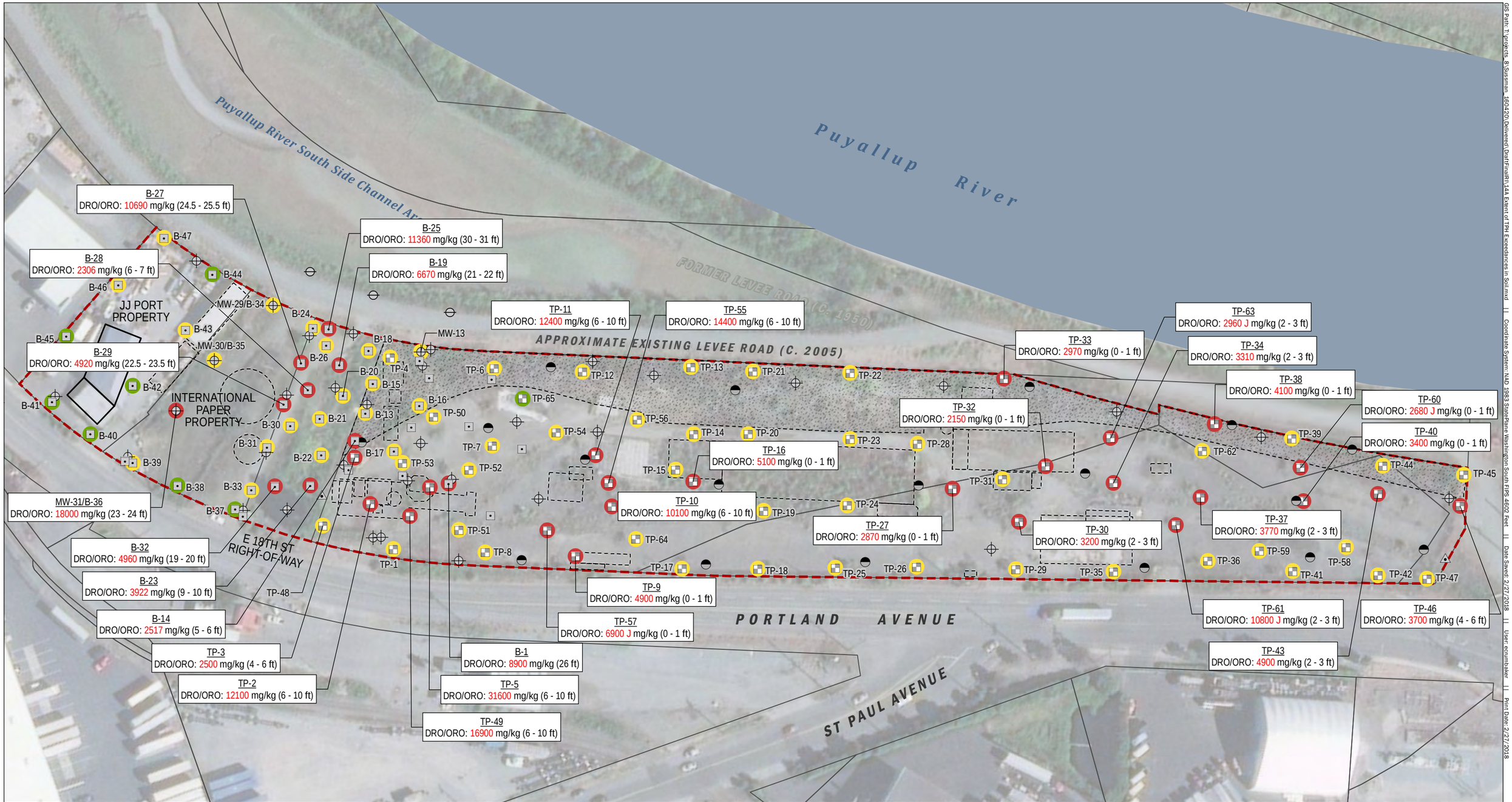
Preferred Remedial Alternative

Revised Draft Remedial Investigation/Feasibility Study
Tacoma Metals, Inc. Site
Tacoma, Washington

DOF - Figure 4b - June 2021

Aspect CONSULTING

JUN-2018	BY: ACG / EAC	FIGURE NO. 20
PROJECT NO. 160420-03	REVISED BY: RAP	



Location Name
B-1
DRO/ORO: 8900 mg/kg (26 ft)
Result
Depth

Note: Only results that exceed cleanup levels are shown. The result posted is from the sample depth where the maximum concentration was observed.

- Monitoring Well
- Piezometer
- Reconnaissance Groundwater Sample
- Soil Boring
- Surface Water
- Test Pit
- TPH DRO/ORO Not Detected.
- TPH DRO/ORO Detected at Concentrations Less than the Cleanup Level.
- TPH DRO/ORO Detected at Concentrations Greater than the Cleanup Level.
- Historic Structure
- Historic Unpaved Area
- Existing Structure
- Site Boundary
- Pierce County Parcels

N

0 100 200
Feet

Extent of TPH Exceedances in Soil

Revised Draft Remedial Investigation/Feasibility Study
Tacoma Metals, Inc. Site
Tacoma, Washington

DOF - FIGURE 4c - June 2021

Aspect Consulting	FEB-2018	BY: ACG / EAC	FIGURE NO. 14A
	PROJECT NO. 160420-03	REVISED BY: ACG	

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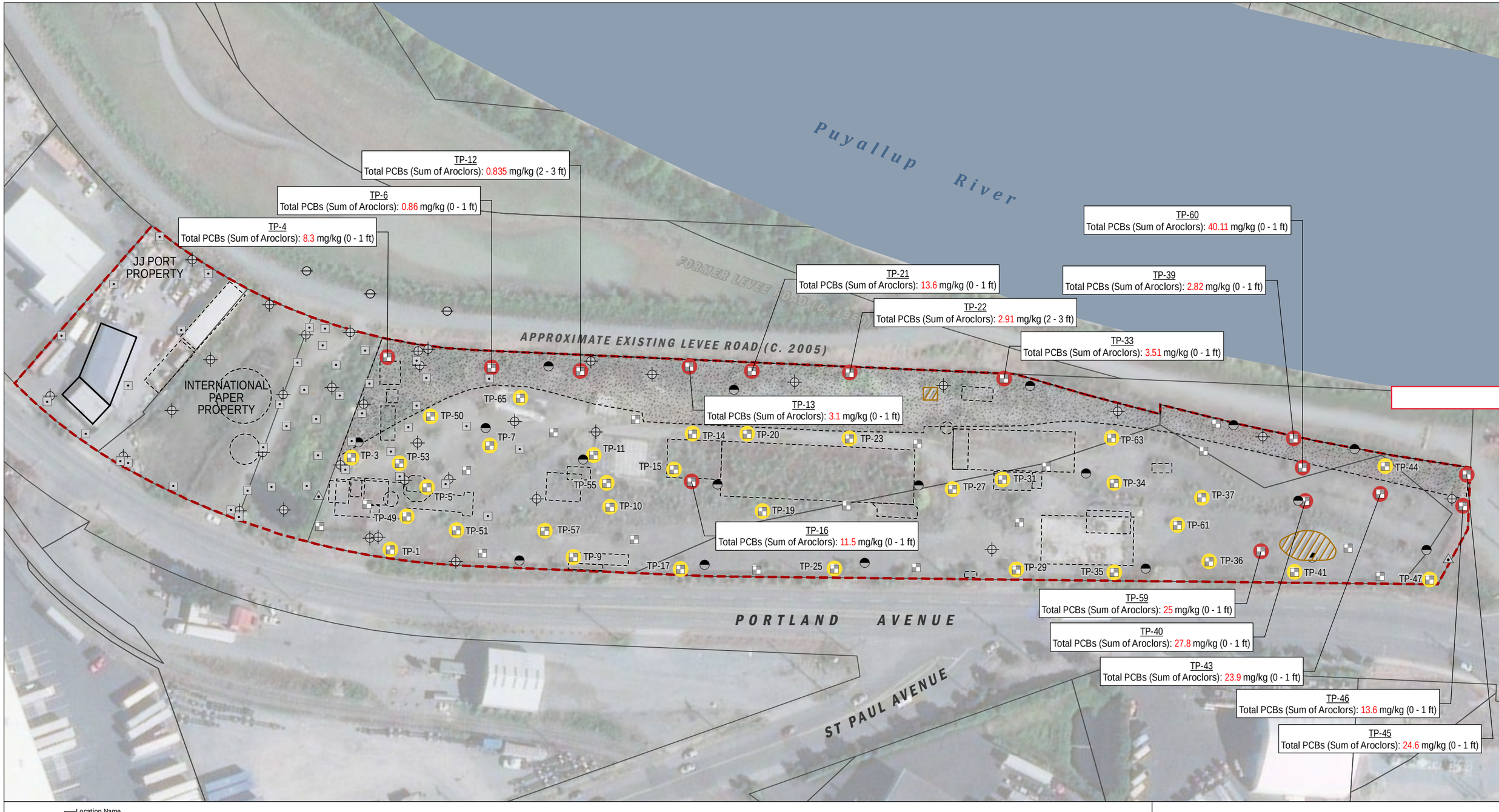
GIS Path: T:\projects_8\Suissman_160420\Deliverech\Draft\Final\Ri\14A Extent of TPH Exceedances in Soil.mxd || Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet || Date Saved: 2/27/2018 || User: ecumbaker || Print Date: 2/27/2018



Location Name
TP-12
Total PCBs (Sum of Aroclors): 0.835 mg/kg (2 - 3 ft)
Result
Depth

- Monitoring Well
- Piezometer
- Reconnaissance Groundwater Sample
- Soil Boring
- Surface Water
- Test Pit
- Total PCBs Detected at Concentrations Less than the Cleanup Level.
- Total PCBs Detected at Concentrations Greater than the Cleanup Level.
- Historic Structure
- Historic Unpaved Area
- Existing Structure
- Site Boundary
- Pierce County Parcels
- 1989 Cleanup Extent

Note: Only results that exceed cleanup levels are shown. The result posted is from the sample depth where the maximum concentration was observed.

0 100 200
Feet

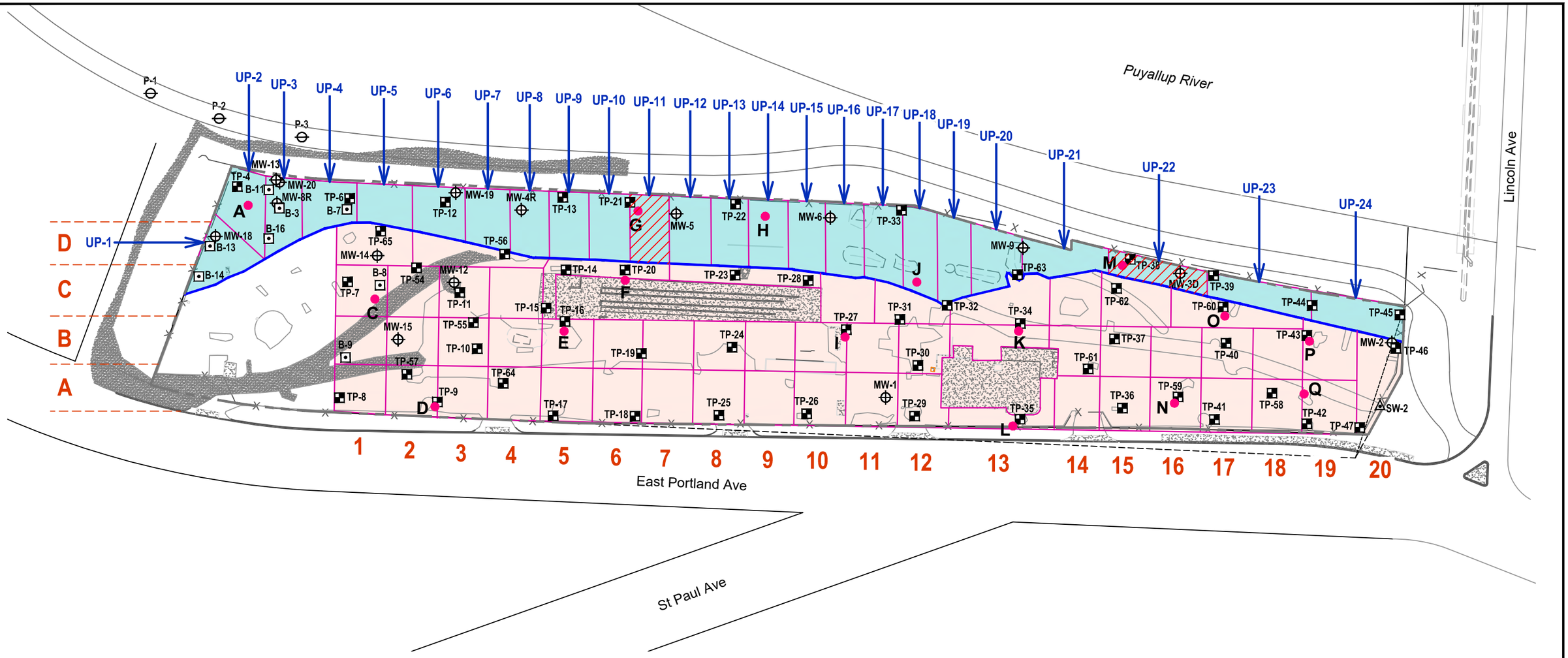
Extent of Total PCBs in Soil

Revised Draft Remedial Investigation/Feasibility Study
Tacoma Metals, Inc. Site
Tacoma, Washington

DOF - FIGURE 4d - June 2021

Aspect CONSULTING	FEB-2018	BY: ACG / EAC	FIGURE NO. 16A
	PROJECT NO. 160420-03	REVISED BY: ACG	

Basemap Layer Credits | | Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend

- A-Q DOF "TCLP" Test Pit - 2020
- Monitoring Well (Aspect RI)
- Piezometer
- Soil Boring
- Surface Water
- Test Pit (Aspect RI)
- Site Boundary
- Boundary Paved/Unpaved Area
- Grid Line
- Unpaved Area (GMRPA)
- Paved Area (GMRPA)
- Concrete Foundation
- Grid Area
- Pilot Treatability Test Area

0 100
Scale in Feet

Tacoma Metals
Tacoma, Washington

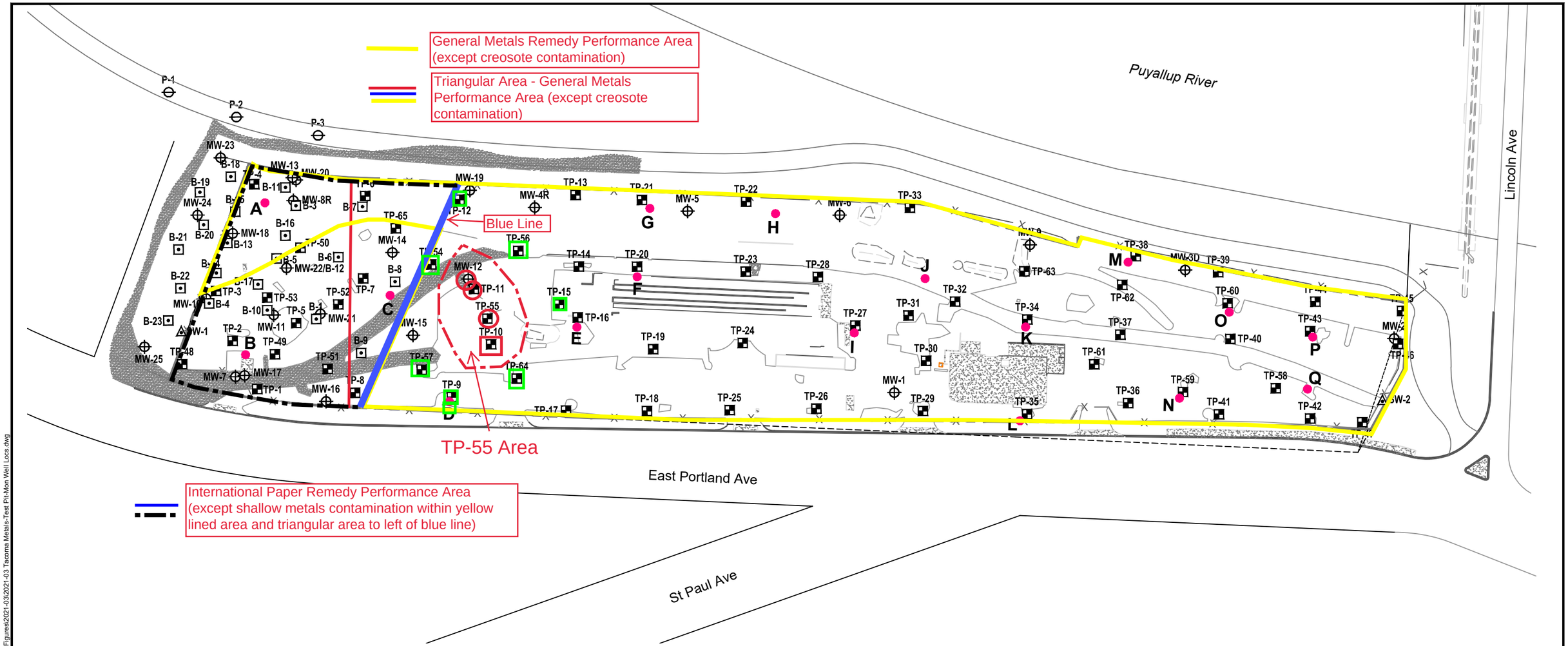
Grid-Area Designations
On-Property Area

DALTON OLMSTED FUGLEVAND

FIGURE 5

06/19/2021

PLOT TIME: 6/19/2021 6:41 PM MOD TIME: 6/19/2021 6:41 PM USER: Kelley Begley DWG: P:\Tacoma Metals\CAD\Figures\2021-06\2021-06 Tacoma Metals-Prop Sampling Remed Grid.dwg



Legend

- A-Q DOF "TCLP" Test Pit - 2020
- Monitoring Well (Aspect RI)
- Piezometer
- Soil Boring
- Surface Water
- Test Pit (Aspect RI)
- Site Boundary

- LNAPL Detected
- High DRO+RRO Concentrations in Soil
- No Indication of Oily Materials

0 100
Scale in Feet

Tacoma Metals
Tacoma, Washington

TP-55 Area and
Test Pit and Monitoring Well Locations
On-Property Area

DALTON OLMSTED FUGLEVAND

FIGURE
6
03/29/2021

PLOT TIME: 3/29/2021 2:01 PM MOD TIME: 3/29/2021 2:01 PM USER: Kelley Begley DWG: P:\Tacoma Metals\CAD\Figures\2021-03\2021-03 Tacoma Metals-Test Pit-Mon Well Locs.dwg

ATTACHMENT A
Kennedy/Jenks Test Pit Descriptions

Former Tacoma Metals Facility
Tacoma, Washington

Dalton, Olmsted & Fuglevand, Inc.

APPENDIX B

SUMMARY OF TEST PIT OBSERVATIONS
Former Tacoma Metals Facility

Test Pit Number	Test Pit Location	Depth (feet)	Unit Depths (feet)	Noticeable Odors[a]	Water Sheen[b]	OVM (ppm)	Soil Sample Number[c]	Description	USCS Symbol	Comments
TP-1	Grid Location	10	0.0-0.5	NONE	NS	—[e]	TP-1-0-1[f]	Crushed surface top coarse (CSTC) = gravel fill, dense (compacted)	GP	
			0.5-2.0	NONE	NS			Fill=Sandy Gravel, well-graded gravel (50-60%), mixed fine-medium sand, dense, brown, dry	GW	contains some organic fragments, mixed
			2.0-5.0	decaying wood	NS	---	TP-1-2-3	Fill=Gravelly Sand, Fine-medium sand, well-graded gravel (15-25%); dense, brown/dark gray, dry	SW	contains some brick fragments, mixed.
			5.0-7.5	decaying wood	NS	—	TP-1-4-6	Fill=wood debris, Sandy silt matrix; fine-medium gravel (10-15%), brown, moist to wet	(ML)	contains wood debris below 5.0', mixed
			7.5-10.0+	NONE	NS	---	TP-1-6-10	Silty Clay w/Very Fine Sand, very soft, moderately plastic, gray, wet to saturated, laminar, water @9.0'	CL	contains some decaying tree fragments (limbs), organics (estuary grass?)
TP-2	Grid Location	10	0.0-0.4	NONE	NS			CSTC	GP	0.2' asphalt cover
			0.4-0.8	NONE	NS	—	TP-2-0-1	Fill=Gravelly Sand, fine-medium sand, well-graded gravel (15-25%), dense, brown, dry	SW	
			0.8-2.2	VSL creosote/PH	MS	—	TP-2-2-3	Fill=Gravelly Sand, fine-medium sand, well-graded gravel (20-30%), dense, rusty brown/gray, dry	SW	wood planks @ 2.2' (former platform)- extends 18' S & 14' NW
			2.2-6.0	VSL creosote/PH	MS	---	TP-2-4-6	Fill=Gravelly Sand, fine-medium sand, well-graded gravel (20-30%), dense, dark brown, dry to moist	SW-GW	fissile wood layer (charcoalized?) from 5-6' (saturated w/creosote/PH product)
			6.0-8.0	SL creosote/PH	SS	—	TP-2-6-10	Fill=wood debris (logs, timber, chips), sandy matrix, fine-medium sand, medium dense	(SP)	predominantly wood debris
			8.0-10.0+	VSL creosote/PH	HS			Sandy Silt/Silty Clay, very fine sand, gray, stiff, wet, laminar, water@8.0'	ML-CL	product in sampling spoon; 1-2" product floating on water surface
TP-3	Grid Location	10	0.0-3.0	NONE	NS	—	TP-3-0-1	Fill=Sandy Gravel/Gravelly Sand, well-graded sand, well-graded gravel (35-60%), dense, brown, dry	GW-SW	0.2' asphalt cover; gravel content increases w/depth
				NONE	NS	—	TP-3-2-3			
			3.0-4.5	NONE	NS	—	TP-3-4-6	Fill=Silty Fine Sand, trace small gravel (<3%), medium dense, brown, dry, non-plastic silt (30%)	SM	contains some organics
			4.5-6.0	VSL PH	NS			Fill=Silty Sand, highly organic, fine sand, silt (30-35%), dark brown, medium dense	SM	
			6.0-10.0+	SL-MOD PH	SS-HS	---	TP-3-6-10	Fill=wood debris, sandy clayey silt matrix, water@8.0'	(ML-CL)	predominantly wood debris, logs, timber, chips
TP-4	Grid Location	10	0.0-3.0	NONE	NS	—	TP-4-0-1	Fill=Gravelly Sand, fine to medium sand (predominantly medium sand), well-graded gravel (20-25%), loose, brown, dry, <5% fines	SW	contains some small metal/glass/concrete debris
			3.0-5.0	NONE	NS	---	TP-4-2-3	Fill=medium Sand, poorly-graded sand, contains some fine sand, medium dense to loose, brown, dry, mixed	SP	contains some small metal/glass debris
			5.0-6.0	NONE	NS	---	TP-4-4-6	Fill=Gravelly Sand, fine to medium sand, well-graded gravel (30-35%), medium dense, brown, dry, mixed	SW	contains some small metal/glass/wood debris
			6.0-7.0	NONE	NS			Fill=Fine Sand, contains some silt (<10%), medium dense to dense, gray, dry to moist, mixed	SP	contains some small metal debris
			7.0-8.0	NONE	NS	—	TP-4-6-10	Fill=Silty Sand, fine sand (20-30%), non-plastic silt, dense, gray, moist, laminar	SM	
			8.0-10.0	MOD PH	NS			Fill=wood debris, clayey sandy silt matrix (65-75%), soft, mod to highly plastic fines, gray, wet, mixed	(ML-MH)	large decaying logs and boards
TP-5	Grid Location	8.5	0.0-3.5	NONE	NS	26	TP-5-0-1	Fill=Sandy Gravel, well-graded gravel (55-60%), loose, brown, dry,	GW	note: TP in center of former octagon findn; appx. 1.5' below surrounding grade
				NONE	NS	5.3	TP-5-2-3	Fill=Sandy Gravel, well-graded gravel (55-60%), loose, brown, dry,	GW	
			3.5-7.0	MOD-VS PH	VSS-HS	303	TP-5-4-6	Fill=Gravelly Sand, well-graded sand, well-graded gravel (30-40%), ~10% fines, medium dense, brown	SW	abundant wood debris below 6.0', wet at 7.0'
			7.0-8.5+	VS PH	HS	1176(?)	TP-5-6-10	Fill=wood debris, silty sand matrix, fine-medium sand, fine-course gravel (20%), medium dense, brown	(SW-SM)	refusal at 8.5' (large limbers at bottom of TP)
TP-6	Grid Location	10	0.0-1.0	NONE	NS	1653(?)	TP-6-0-1	Fill=Gravelly Sand, fine-medium sand, well-graded gravel (20-30%), no fines, loose, brown, dry, mixed	SW	
			1.0-2.5	NONE	NS	1.1	TP-6-2-3	Fill=Sandy Gravel, well-graded gravel (60-65%), fine to medium sand, <10% fines, loose, brown, dry, mixed	GW	
			2.5-5.0	NONE	NS	66.1	TP-6-4-6	Fill=Fine to medium Sand, trace gravel, medium dense, brown, dry, mixed	SP	
			5.0-8.0	NONE	NS			Fill=wood debris (wood chips, pressboard, etc), mixed gravelly sand/silty sand/sand matrix, medium dense, wet, mixed	(SP/SM)	6.0-7.0 feet entirely wood debris (no soil matrix)
			8.0-9.0	VSL PH	NS	2.3	TP-6-6-10	Fill=Sandy Silty Clay, silt (~35%), v. fine sand (~10%), very soft to medium stiff, gray, wet, moderately plastic, mixed	ML	
			9.0-10.0	VSL PH	NS			Fill=wood debris, clay/silt/fine sand matrix	(ML)	
TP-7	Grid Location	10	0.0-0.8	NONE	NS	1485	TP-7-0-1	CSTC	GP	0.4' asphalt cover
			0.8-4.0	NONE	NS	1573	TP-7-2-3	Fill=Gravelly Sand, well-graded sand, well-graded gravel (30-40%), dense, gray/brown, dry, mixed	SW	Soil stained from 0.8'-2.0'; contains metal debris
			4.0-6.5	SL-MOD PH	NS	35.8	TP-7-4-6	Fill=Gravelly Sand with Silt, fine to medium sand, well-graded gravel (15-30%), silt (10-15%), dense, moist, mixed	SW	soil stained, contains some wood debris
			6.5-8.5	VS PH	NS	53.2	TP-7-6-10	Fill=wood debris, no soil matrix	—	wood chips, pressboard
			8.5-10.0	NONE	NS			Fill=wood debris, clayey silt matrix with very fine sand (3%) and clay (20%), soft, wet, plastic	(ML)	contains abundant wood debris
TP-8	Grid Location	10	0.0-2.0	SL unknown	SS	838	TP-8-0-1	Fill=Sandy Gravel/Gravelly Sand, well-graded gravel (45-55%), well-graded sand, <5% fines, dense, dry, mixed	GW-SW	0.3' asphalt cover; soil stained from 0-0.6'
			2.0-6.0	MOD PH	VSS	139	TP-8-2-3	Fill=Gravelly Sand, fine to medium sand, fine-medium gravel (10-25%), medium dense, dark gray, dry	SW	no odor below 4.0'
			6.0-10.0	decaying organic	NS	42.2	TP-8-4-6	Fill=wood debris, gravelly fine to medium sand matrix, fine-medium gravel (10-25%), medium dense, dark gray, moist to wet	(SW)	soil content 25-30%
			10.0+	decaying organic	NS	40	TP-8-6-10	Fill=wood debris, sandy clayey silt matrix, soft, wet	(ML)	
TP-9	Grid Location	10.5	0.0-2.0	SL PH	VSS	89.1	TP-9-0-1	Fill=Gravelly Sand, well-graded sand, well-graded gravel (35-45%), dense, dark gray, dry, mixed	SW	0.3' asphalt cover; soil heavily stained, contains abundant glass fragments
			2.0-4.0	VS PH	SS	20.5	TP-9-2-3	Fill=Sandy Gravel, well-graded gravel (55-60%), well-graded sand, dense, gray, dry, mixed	GW	contains some small cobbles (max. = 0.3').
			4.0-7.0	VS PH	SS	9.8	TP-9-4-6	Fill=Gravelly Sand, fine-medium sand, well-graded gravel (15-20%), 10% fines, medium dense, gray, dry, mixed	SW	contains wood debris @ 5.5'-7.0'
			7.0-8.5	NONE	NS	4.2	TP-9-6-10	Fill=Fine to medium Sand, some silt (<10%) trace small gravel (<3%), medium dense gray, dry	SW	
			8.5-10.5+	NONE	NS			Sandy Clayey Silt; very fine sand (10-15%), clay (~20%), medium stiff, low plasticity, gray, moist to wet, stratified	ML	contains decaying estuary grasses; layers of sandy clayey silt and silty sand

APPENDIX B

SUMMARY OF TEST PIT OBSERVATIONS
Former Tacoma Metals Facility

Test Pit Number	Test Pit Location	Depth (feet)	Unit Depths (feet)	Noticeable Odors[a]	Water Sheen[b]	OVM (ppm)	Soil Sample Number[c]	Description	USCS Symbol	Comments
TP-10	Adjacent to former vault/ metal crusher	10	0.0-9.0	NONE	NS	4.1	TP-10-0-1	Fill=Sandy Gravel, well-graded gravel (55-60%), well-graded sand, dense, gray, dry to moist, mixed	GW	0.4' asphalt cover
				NONE	NS	0.8	TP-10-2-3			
				S PH below 6.0	SS	13.8	TP-10-4-6			
			9.0-10.0	MOD PH	NS	145	TP-10-6-10	Fill=wood debris (wood chips, timber, manufactured wood)	—	No soil matrix
			10.0+	MOD PH	NS			Silty Sand, fine sand, dense, gray/brown, wet, stratified(?)	SM	contains decaying estuary grasses
TP-11	Grid Location	10	0.0-2.8	NONE	VSS	212	TP-11-0-1	Fill=Gravelly Sand, fine to medium sand, well-graded gravel (25-35%), loose, brown, dry, mixed	SW	
			2.8-5.0	NONE	SS	>2000?	TP-11-2-3	Fill=Sandy Gravel, well-graded gravel (55-65%), well-graded sand, dense, brown, dry, mixed	GW	
				NONE	SS	26.1	TP-11-4-6			
			5.0-6.0	SL-S PH	SS	7.0	TP-11-6-10	Fill=Gravelly Sand, fine to medium sand, well-graded gravel (15-20%), silt (<10%), medium dense, brown, dry mixed	SW	contains some wood fragments and metal debris
			6.0-10.0	S PH	HS			Fill=wood debris, silty sand to fine sand matrix, medium dense, light gray/brown, moist, mixed	(SM)	free oil product layer at 9.8' bgs (clear amber liquid, 0.3' thick)
TP-12	Grid Location	10	0.0-1.5	NONE	NS	118	TP-12-0-1	Fill=Gravelly Sand, well-graded sand, well-graded gravel (35-40%), loose, brown, dry, mixed	SW	contains metal debris
			1.5-3.5	NONE	NS	>2000?	TP-12-2-3	Fill=medium Sand, some gravel (<10%), loose, grey, dry, mixed	SP-SW	contains some small debris
			3.5-6.0	NONE	NS	80	TP-12-4-6	Fill=Silty Sand, very fine sand, fine gravel (5-10%), medium dense, light gray/brown, dry to wet	(SM)	contains abundant wood debris; bedding planes noted
			6.0-10.0	NONE	NS	11.8	TP-12-6-10	Fill=wood debris, sandy clayey silt matix, very fine sand (~15%), clay (20%), medium stiff, very soft, gray, wet, mixed	(ML)	old boards, timber, wood chips
			@10.0	NONE	NS			Fill=wood debris, clayey silty sand matix, very fine sand, silt (30-40%), clay (10-15%), loose, gray, wet, mixed	(ML)	contains wood planks, timber, manuf. Wood
TP-13	Grid Location	10	0.0-4.0	NONE	NS	14817	TP-13-0-1	Fill=Sandy Gravel, well-graded gravel (55-65%), silt (<10%) well-graded sand, loose, brown, dry, mixed, contains ashes	GW	contains abundant metal debris 0-0.6'
				NONE	NS	>2000?	TP-13-2-3			
			4.0-6.0	NONE	NS	>2000?	TP-13-4-6	Fill=medium Sand, contains some fine sand, some fine-medium gravel (~5%), loose, dark gray, dry,mixed	SP	contains some small wood & glass debris
			6.0-7.0	NONE	NS	415?	TP-13-6-10	Fill=Fine Sand, poorly-graded sand, medium dense, light brown, dry, slight Fe-oxidation mottling	SP	
			7.0-10.0+	NONE	NS			Fill=wood debris, fine sand to silty sand matrix, medium dense, gray, dry, mixed	(SP-SM)	logs, boards, timbers; matrix % decreases with depth
TP-14	Northeast side of former red brick building	10	0.0-9.0	NONE	NS	5.6	TP-14-0-1	Fill=Sandy Gravel, well-graded gravel (50-70%), well-graded sand, dense, gray, dry to moist, mixed	GW	SW layer at 2.0-2.5'
				NONE	NS	105	TP-14-2-3			2 steel pipes in TP that are perpendicular to former red brick bldg. concrete vault;
				NONE	NS	38.3	TP-14-4-6			1 pipe (12" dia.) is 7.5' and other (6" dia.) is 13.5' from 'south' end of vault; 5.0' bgs
			9.0-10.0	SL PH	NS	34.8	TP-14-6-10	Fill=Sandy Gravel, well-graded gravel (55-60%), well-graded sand, silt (~10%) and clay (~5-10%), dense, moist-wet	GW	contains wood debris
			10.0-10.5	decaying organic	NS			Fill=wood debris, silty sandy gravel matrix, wet	(GM)	wood chips, timber, pressboard
TP-15	Grid Location	10	0.0-4.0	NONE	NS	—	TP-15-0-1	Fill=Sandy Gravel, well-graded gravel (55-60%), well-graded sand, medium dense to dense, gray, dry, mixed	GW	
						—	TP-15-2-3			
			4.0-8.0	NONE	NS	—	TP-15-4-6	Fill=Gravelly Sand, fine to medium sand, well-graded gravel (30-35%), medium dense, brown, dry, mixed	SW-(SW)	contains abundant wood fragments from 6.0-8.0' bgs
			8.0-10.0	NONE	NS	—	TP-15-6-10	Fill=wood debris, sandy silt matrix, v. fine sand (~30-45%), clay (~10%), soft, gray, wet, moderately plastic	(ML)	wood timbers, logs, chips
			@10.0	NONE	NS			Silty Sand, fine to medium sand, silt (30-35%), medium dense, gray, moist	SM	native material?
TP-16	SW side red brick building	3.5	0.0-3.5	VS PH	MS	---	TP-16-0-1	Fill=Gravelly Sand/Sandy Gravel, well-graded gravel (45-55%), well-graded sand, medium dense to dense, brown/gray/black, moist to wet, mixed	SW-GW	0.4' asphalt cover; contains abundant auto/machinery battery casings; heavily stained; water perched in TP@2.5' bgs (remained perched for 6 days); possible vault (40'x17') on western side of former red brick building
				VS PH	HS	—	TP-16-2-3			
TP-17	Grid Location	10	0.0-4.4	NONE	NS	—	TP-17-0-1	Fill=Sandy Gravel, well graded gravel (55-65%) medium-course sand, dense, mixed	GW	heavily stained black from 0-1.5'
			4.4-7.0	SL PH @5.0'	NS	---	TP-17-2-3	Fill=Gravelly Sand, fine-medium sand, subrounded-subangular gravel (20-35%), medium dense, moist	SW	wood fragments @ 6'
			7.0-8.5	NONE	NS	—	TP-17-4-6	Fill=wood debris (logs, pressboard, chips) in silty sand matrix, fine-medium sand, silt (10-20%) loose, medium-dense, wet	(SM)	
			8.5-10	NONE	NS	---	TP-17-6-10	Sandy Clayey Silt, very fine sand (25-30%) medium stiff, mod-plastic, grey, moist, laminar, w/organics (marsh grass?)	ML	Water at 7.5 ', native materials?
TP-18	Grid Location	10	0.0-4.3	NONE	NS	---	TP-18-0-1	Fill=Sandy Gravel, well graded gravel (55-60%), medium-course sand, moist, mixed, gray	GW	
			4.3-6.5	NONE	NS	—	TP-18-2-3	Gravelly Sand, fine-medium sand, well graded gravel (30-35%) medium dense, moist, mixed	SW	contains brick fragments; wood fragments above 6.0', abundant below 6.0'
			6.5-7.8	NONE	NS	---	TP-18-4-6	Fill=wood debris, silty sand matrix (15%), medium-dense, moist, mixed	(SM)	timbers, wood chips, boards
			7.8-10.0	NONE	NS	—	TP-18-6-10	Silty Sand, fine-medium sand, (10-20%) silt, laminated/stratified, medium dense-dense, moist, some organics (esturary grasses)	SM	native materials?

APPENDIX B

SUMMARY OF TEST PIT OBSERVATIONS
Former Tacoma Metals Facility

Test Pit Number	Test Pit Location	Depth (feet)	Unit Depths (feet)	Noticeable Odors[A]	Water Sheen[B]	OVM (ppm)	Soil Sample Number[C]	Description	USCS Symbol	Comments
TP-19	Grid Location	10.5	0.0-2.0	NONE	NS	—	TP-19-0-1	Fill= Gravelly Sand, fine-medium, well graded gravel (25-45%), loose, dry, mixed	SW	contains brick and demolished concrete
			2.0-8.0	NONE	NS	—	TP-19-2-3	Fill=Gravelly Sand, fine-medium sand, well-graded gravel (30-40%), medium dense, dry, mixed, brown-light brown	SW	contains white bricks at 6.0'
			8.0-9.0	NONE	NS	—	TP-19-4-6	Fill=Gravely Sand, well-graded gravel (45-60%), medium dense, dry, mixed, medium-coarse sand	SW-GW	
			9.0-9.5	NONE	NS	—	TP-19-6-10	Fill=Gravelly Sand, fine-medium gravel (25-35%) dense, dry, mixed, gray	SW	
			9.5-10.5	NONE	NS			Clayey Silty Sand, fine-medium sand, silt (25-35%), clay (10-15%), laminated, medium dense, stiff, moist, gray	SM-ML	native material?
TP-20	Grid Location	10.5	0.0-2.2	NONE	NS	—	TP-20-0-1	Fill=Sandy Gravel, gravel (50-60%), medium course sand, dense, compacted, moist, mixed	GW	
			2.2-4.3	SL PH	NS	—	TP-20-2-3	Fill=Sandy Gravel/Gravelly Sand, well-graded gravel (45-55%), well graded sand, dry, dense, mixed, stained	GW-SW	contains brick, metal and wood debris
			4.3-6.0	NONE	NS	—	TP-20-4-6	Fill= Sandy Gravel, 50-60% gravel, course sand, dense, compacted, dry, mixed	GW	
			6.0-7.5	NONE	NS	—	TP-20-6-10	Fill=Sandy Gravel, 55-60% gravel, some sand 40% silt, moist, dense, mixed	GM	
			7.5-10.5	NONE	NS			Fill=wood debris in sandy clayey silt matrix (15-25%), medium-stiff, wet, gray	(ML)	boards, timber, chips, pressboard
TP-21	Grid Location	10	0.0-3.0	NONE	NS	—	TP-21-0-1	Fill=Gravelly Sand, medium-course sand, gravel (20-25%), loose, dry, mixed, brown,	SW	contains metal debris, capacitors, and other debris
			3.0-5.0	NONE	NS	—	TP-21-2-3	Fill=Gravelly Sand/Sandy Gravel, well graded gravel (45-60%), dense, dry, brown, mixed	GW-SW	contains lenses of sandy silt
			5.0-7.0	NONE	NS	—	TP-21-4-6	Fill=Gravelly Sand, medium sand, fine-medium gravel (10%), loose, dry, gray	SW	
			7.0-10.0	NONE	NS	—	TP-21-6-10	Fill=wood debris, matrix 10-15%, sand and silty sand with clay, loose, dry, mixed	(SM-ML)	wood chips, boards, timbers
TP-22	Grid Location	10	0.0-4.0	NONE	NS	—	TP-22-0-1	Fill=Gravelly Sand w/ ash cinders, poorly graded fine-medium sand, well-graded gravel (25-30%), loose, dry, mixed, brown, stained	SW	Contains metal debris, stained, oxidized (Cu)
			4.0-5.0	NONE	NS	—	TP-22-2-3	Fill=Sandy Gravel , well graded gravel (55-60%), well-graded sand, dense, dry, mixed, brown	GW	
			5.0-7.0	NONE	NS	—	TP-22-4-6	Fill=Gravelly Sand, medium sand , fine-medium gravel (20%), loose, dense, dry, mixed, brown	SW	
			7.0-8.0	NONE	NS	—	TP-22-6-10	Fill=Fine-Medium Sand, medium dense, dry, mixed, brown	SP	
			8.0-10.0	NONE	NS			Fill=wood debris, matrix 20%, brown silty sand, silt (30-35%), medium dense, moist	(SM)	logs, timbers, chips; entirely wood debris 8.0-10.0', matrix present at 10.0'
TP-23	Grid Location	10	0.0-2.0	NONE	NS	0.0	TP-23-0-1	Fill=Sandy Gravel, well graded gravel (50-55%), medium course sand, dense, moist, mixed, gray	GW	
			2.0-7.0	MOD PH	NS	19.4?	TP-23-2-3	Fill=Gravelly Sand/Sandy Gravel, well graded sand, well graded gravel (45-55%), dense, mixed, stained, brown	GW-SW	contains metal debris
			7.0-8.0	NONE	NS	13.4?	TP-23-4-6	Fill=wood debris, no soil	—	logs, chips, timber, boards
			8.0-10.0	NONE	NS	17.2?	TP-23-8-10	Clayey Silty Sand, very fine sand, silt (35%), clay (10%), medium dense, plastic fines, moist-wet, laminar, some organics (grasses), gray	ML	native material?
TP-24	Grid Location	10	0.0-2.0	NONE	NS	1.4?	TP-24-0-1	Fill=Gravelly Sand/Sandy Gravel, well graded gravel (45-60%), well graded sand, dense, mixed, moist, brown	GW-SW	contains some brick debris
			2.0-5.8	NONE	NS	10.6?	TP-24-2-3	Fill=Gravelly Sand, well graded gravel (25-40%), dense, dry, brown	SW	gravel content increases with depth
			5.8-8.0	SL ORGANIC	NS	5.6?	TP-24-4-6	Fill=wood debris, dark brown fine-medium sand and gray silty fine sand matrix	(SP-SM)	wood chips, timber
			8.0-10.0	NONE	NS	4.3?	TP-24-6-10	Sandy Clayey Silt, very fine sand (20%), clay (20%), silt (60%), medium-stiff, moderately plastic, gray	ML	native materials?
TP-25	Grid Location	10.3	0.0-4.1	NONE	NS	17.8?	TP-25-0-1	Fill=Sandy Gravel, fine-medium gravel (35-45%), coarse sand, dense, compacted, moist, brown	SW	
			4.1-6.8	NONE	NS	148?	TP-25-2-3	Fill=Fine to Medium Sand, some fine-medium gravel (<10%), medium-dense, dry, dark gray	SP	
			6.8-8.0	NONE	NS	163?	TP-25-4-6	Fill=wood debris in sandy silt/fine sand matrix (25%), very soft, plastic, wet, mixed, brown	(ML)	timber, logs, wood chips, wood dust
			8.0-9.8	NONE	NS	3.5?	TP-25-6-10	Fill=Sandy Clayey Silt, very fine sand (20-30%), clay (20-30%), stiff, mod-plastic, moist, w/organics (estuary grasses), blocky, gray	ML	
			9.8-10.3	NONE	NS			Fill=wood debris, no soil	—	logs, chips, dust, timbers
TP-26	Grid Location	10	0.0-4.5	NONE	NS	12.2	TP-26-0-1	Fill=Gravelly Sand, well graded sand, well graded medium gravel (35-45%), dense, moist-dry, brown	SW	
			4.5-6.0	NONE	NS	13.3	TP-26-2-3	Fill=Gravelly Sand, medium-course sand, well graded gravel (30-35%), contains charcoal, medium dense, dry, dk. Gray	SW	
			6.0-8.0	NONE	NS	1171	TP-26-4-6	Fill=Silty Sand, silt (30%), medium stiff, moist, mixed, grades to sandy silt @ 7.0', fine sand (30%)	SM-ML	some wood debris
			8.0-10.0	NONE	NS	65.6	TP-26-6-10	Fill=Silty Sand/Sandy Silt, some clay (5-15%), very fine sand, silt (35-55%), contains abundant organics, dense, moist, gray	ML	abundant wood debris at 10'
TP-27	Southeast of former UST area	10	0.0-2.0	MD PH	MS	>2000?	TP-27-0-1	Fill=Gravelly Sand, well graded sand, well graded medium gravel (35-40%), dense, mixed, dry, brown, stained	SW	contains metal debris
			2.0-5.5	VSL	NS	566	TP-27-2-3	Fill=Sandy Gravel, medium-course sand, well graded gravel (50-55%), dense, compact, moist	GW	slight unknown oder (detergent-like)
			5.5-9.0	VSL	NS	22.3	TP-27-4-6	Fill=Gravelly Sand, medium-course sand, well graded gravel (30-35%), dense, brown	SW	
			9.0-9.5	NONE	NS	17.6	TP-27-6-10	Fill?=Clayey Silt, clay (25-35%), moist, stiff to very stiff, plastic,brown	ML	native material?
			9.5-10.0	NONE	NS			Fill?=Gravelly Sand, medium sand, well graded gravel (30-35%), dense, dry, brown	SW	native material?

APPENDIX B

SUMMARY OF TEST PIT OBSERVATIONS
Former Tacoma Metals Facility

Test Pit Number	Test Pit Location	Depth (feet)	Unit Depths (feet)	Noticeable Odors[a]	Water Sheen[b]	OVM (ppm)	Soil Sample Number[c]	Description	USCS Symbol	Comments
TP-28	Grid Location	10	0.0-0.9	NONE	NS	2.4	TP-28-0-1	Fill=Gravelly Sand, medium-course sand, well graded gravel (45-50%), dense, dry, brown	SW	
			0.9-3.5	VS PH	MS	58.4	TP-28-2-3	Fill=Gravelly Sand,well graded sand, well graded gravel (40-50%), dense, dry, brown	SW	contains metal debris, heavily stained, (Cu) oxidation @ 0.9-1.2'
			3.5-6.0	NONE	NS	8	TP-28-4-6	Fill=Gravelly Sand/Sandy Gravel, medium-course sand, well graded gravel (40-55%), dense, moist, brown	SW-GW	
			8.0-9.0	NONE	NS	5.3	TP-28-6-10	Fill=wood debris, clayey sandy silt matrix, very fine sand (30%), clay (10-15%), medium stiff, wet, mod-plastic, gray	(ML)	
			9.0-10.0	NONE	NS			Silty Sand, silt (30-35%), stratified	SM	native material?
TP-29	Grid Location	10	0.0-4.5	NONE	NS	1100?	TP-29-0-1	Fill=Sandy Gravel, well graded gravel (50-60%), medium-coarse sand, dense, moist, brown/gray	GW	
			4.5-7.0	NONE	NS	560?	TP-29-2-3	Fill=Gravelly Sand, fine-medium sand, well graded gravel (35-40%), medium-dense, moist, brown	SW	
			7.0-8.0	NONE	NS	480?	TP-29-4-6	Fill=wood debris, no soil	—	timber, wood chips
			8.0-10.0	NONE	NS	—	TP-29-6-10	Sandy Clayey Silt, very fine sand (20%), clay (15-20%), stiff, moist, plastic, laminar, contains organics (estuary grasses)	ML	native material?
TP-30	South corner of former foundation	10	0.0-1.8	MOD PH	MS	—	TP-30-0-1	Fill=Gravelly Sand, well graded sand, well graded gravel (30-40%), medium-dense, stained	SW	contains abundant metal debris
			1.8-5.0	NONE	NS	—	TP-30-2-3	Fill=Sandy Gravel/Gravelly Sand, medium-course sand, well graded gravel (45-55%), dense, dry-moist, brown	GW-SW	
			5.0-7.0	NONE	NS	—	TP-30-4-6	Fill=Gravelly Sand/Sandy Gravel, medium-course sand, well graded gravel (45-55%), dense, moist, brown	GW-SW	
			7.0-8.0	NONE	NS			Fill=Silty Sand, silt (10%), dense, moist, mixed	SM	
			8.0-9.0	NONE	NS	---	TP-30-6-10	Fill=wood debris, brown silty sand matrix (20%), wet, dense	(SM)	logs, boards, wood chips, logs
			9.0-10.0	NONE	NS			Clayey Sandy Silt, clay (15%), very fine sand (30%), soft, medium stiff, plastic, w/organics (estuary gass), gray	ML	native material?
TP-31	Grid Location	10.3	0.0-2.2	MOD PH	MS	---	TP-31-0-1	Fill=Gravelly Sand, well graded sand, well graded gravel (30-40%), medium-dense, stained, brown	SW	contains abundant metal debris
			2.2-6.0	NONE	NS	---	TP-31-2-3	Fill= Gravelly Sand/ Sandy Gravel, medium-course sand, well graded gravel (45-55%), dense, dry, gray	GW-SW	
			6.0-7.0	MOD ORGANIC	NS	---	TP-31-4-6	Fill= medium sand w/ some gravel, poorly graded sand, fine-medium gravel (5-10%), dense, dry, mixed, brown	SP-SW	
			7.0-9.0	NONE	NS	---	TP31--6-10	Fill=wood debris, no soil	---	wood chips, timber, logs, boards, bark dust
			9.0-10.3	NONE	NS	---		Clayey Silty Sand/Clayey Sandy Silt, silt (40-55%), clay (10-15%), very fine sand, dense, dry, laminar, contains estuary grasses	ML	native material?
TP-32	West corner of former foundation	2	0.0-2.0	MOD PH	MS	—	TP-32-0-1	Fill=Gravelly Sand, well graded sand, well graded gravel (30-40%), dense, dry, heavily stained, brown	SW	contains abundant metal debris Refusal: concrete pad @2' Pad extends for 25-50' N, E, S, W, of Test Pit
TP-33	Grid Location	10	0.0-2.0	NONE	NS	—	TP-33-0-1	Fill=Gravely Sand, well-graded gravel (20-30%)	SW	contains abundant metal debris, glass, styrofoam, brick, and wood
			2.0-4.5	NONE	NS	—	TP-33-2-3	Fill=Gravelly Sand/Sandy Gravel, medium-course sand, well graded gravel (45-60%), dense, dry, brown, mixed	SW-GW	
			4.5-6.0	NONE	NS	---	TP-33-4-6	Fill=Gravelly Sand/Sandy Gravel, medium course sand, well graded gravel (45-60%), dense, dry, mixed, gray	SW-GW	
			6.0-7.0	NONE	NS	—	TP-33-6-10	Fill=Silty Sand, very fine-fine sand, silt (30-35%), dense, dry, gray/brown	SM-ML	
			7.0-10.0	NONE	NS			Fill=wood debris, silty sand matrix (15%), medium dense, mixed	(SM)	logs, timber, chips, boards
TP-34	Grid Location	10	0.0-4.0	MOD PH	MS	—	TP-34-0-1	Fill=Gravelly Sand, well graded sand, well graded gravel (30-35%), dense, heavily stained	SW	contans abundant metal debris-car parts, sheet metal, cable, wire
			4.0-6.0	NONE	VS	---	TP-34-2-3	Fill=Medium Sand, well graded gravel (10-20%), medium dense, mixed, brown	SW	
			6.0-8.0	NONE	NS	---	TP-34-4-6	Fill=wood debris, no soil	—	boards, wood ships, bark dust, timber
			8.0-10.0	NONE	NS	---	TP-34-6-10	Clayey Silty Sand/Sandy Silt, very fine sand, silt (40-45%), dense/stiff, clay (20%), dry, slightly plastic, gray, estuary grasses	ML	native materials?
TP-35	Grid Location	10	0.0-1.0	NONE	NS	---	TP-35-0-1	Fill=Gravelly Sand, well graded sand, well graded gravel (35-40%), dense, mixed, stained, dk. Gray, moist	SW	some metal debris and oxidation staining
			1.0-5.0	NONE	NS	—	TP-35-2-3	Fill=Gravelly Sand, medium-course sand, well graded gravel (40-50%), dense, moist, brown	SW	
			5.0-7.8	NONE	NS	---	TP-35-4-6	Fill=Gravelly Sand, medium-course sand, well graded gravel (20-35%), medium dense, moist, dk. Brown	SW	
			7.8-9.0	NONE	NS	---	TP-35-6-10	Fill=wood debris, silty sand (fine-medium sand) matrix, medium dense, moist, mixed	(SM)	
			9.0-10.0	NONE	NS	—		Clayey Sandy Silt, very fine sand (20%), clay (20%), stiff, moist, abundant organics (estuary grasses), gray, massive	ML	native materials?
TP-36	Grid Location	10	0.0-4.5	NONE	NS	---	TP-36-0-1	Fill=Gravelly Sand/Sandy Gravel, well graded sand, well graded gravel (35-50%),dense, mixed, brown/gray	SW-GW	heavily stained from 2.7 to 3.4'
			4.5-7.0	NONE	NS	---	TP-36-2-3	Fill=Silty Sand, fine-medium sand, silt (15-20%), dense, dry, mixed, gray	SM	
			7.0-9.0	MOD CREOSOTE	HS	—	TP-36-4-6	Fill=wood debris, fine-medium sand matrix (5-10%), medium dense, mixed	(SP)	logs, timber, chips, boards
			9.0-10.0	NONE	NS	—	TP-36-6-10	Silty Fine-Medium Sand, silt (5%), poorly graded sand, stratified, dense, dry-moist, gray	SP-SM	native material?

APPENDIX B

SUMMARY OF TEST PIT OBSERVATIONS
Former Tacoma Metals Facility

Test Pit Number	Test Pit Location	Depth (feet)	Unit Depths (feet)	Noticeable Odors[a]	Water Sheen[b]	OVM (ppm)	Soil Sample Number[c]	Description	USCS Symbol	Comments
TP-37	Grid Location	10	0.0-0.5	NONE	NS	1010?	TP-37-0-1	CSTC	GW	
			0.5-3.3	MOD PH	SS	781?	TP-37-2-3	Fill=Gravelly Sand, well graded sand, well graded gravel (35-40%), dense, mixed, brown	SW	contains metal debris and brick
			3.3-4.0	NONE	NS			Fill=Gravelly Sand, well graded sand, well graded gravel (30-40%), dense, dry, mixed, gray	SW	
			4.0-5.2	NONE	NS	620?	TP-37-4-6	Fill=Fine-Medium Sand, trace gravel (3-5%), loose, dry, brown/charcoal gray	SP	
			5.2-7.0	SL PH	NS	600?	TP-37-6-10	Fill=Fine-Medium Sand, medium-course gravel (10%), dry, brown	SP-SW	abundant wood debris
			7.0-8.0	SL ORGANIC	NS			Fill=wood debris, medium-fine sand matrix (5%)	(SP)	logs, timber, chips, boards
			8.0-10.0	NONE	NS			Clayey Sandy Silt, very fine sand (30-40%), clay (10-20%), silt (40-50%), very stiff, dry, mod-plastic, gray, estuary grasses	ML	native material?
TP-38	Grid Location	10	0.0-3.0	NONE	NS	625?	TP-38-0-1	Fill=Gravelly Sand, fine-medium sand, well-graded gravel (20-25%), loose-medium dense, dry, brown	SW	contains metal debris 0-2', charcoal cinders 1.5-2'
			3.0-5.5	NONE	NS	700?	TP-38-2-3	Fill=Medium Sand, some gravel (5-10%), some fine sand, loose, dry, brown	SW-SP	
			5.5-6.5	NONE	NS	965?	TP-38-4-6	Fill=wood debris, silty sand matrix (20%), fine-medium sand, silt (15-20%), medium-dense, dry	(SM)	logs, timber, boards, wood chips; piling in test pit from 6.0' down
			6.5-10.0	NONE	NS	800?	TP-38-6-10	Fine-Medium Sand, silt (10%), non-plastic fines, medium-dense, moist, gray, stratified, contains estuary grasses	SP-SM	native material?
TP-39	Grid Location	10.5	0.0-1.8	NONE	NS	2000?	TP-39-0-1	Fill=Fine-Medium Sand, well-graded gravel (15-25%), poorly graded sand, loose, dry, brown	SW	slag material 1.6-1.8'
			1.8-3.0	NONE	NS	2000?	TP-39-2-3	Fill=Gravelly Sand/Sandy Gravel w/ cobble (0.7"), well graded sand, well graded gravel (40-55%), dense, dry, brown	SW-GW	
			3.0-5.2	NONE	NS	685?	TP-39-4-6	Fill=Fine-Medium Sand, trace well graded gravel (3-5%), loose, dry, brown	SP	
			5.2-7.0	NONE	NS	780?	TP-39-6-10	Fill=wood debris, brown fine-medium sand to silty sand matrix (5-15%)	(SP-SM)	timbers, logs, chips, boards
			7.0-10.5	NONE	NS			Medium-course sand, medium dense, wet	SP	native material?
TP-40	Grid Location	10	0.0-4.0	MOD PH	SS	---	TP-40-0-1	Fill=Gravelly Sand, well graded sand, well graded gravel (30-35%), dense, stained	SW	contains abundant metal and brick debris
			4.0-5.0	NONE	NS	—	TP-40-2-3	Fill=Gravelly sand, medium-course sand, well graded gravel (40-45%), dense, moist, gray, mixed	SW	
			5.0-6.0	NONE	NS	—	TP-40-4-6	Fill=medium Sand, charcoal gray/mauvish, loose, dry, massive	SP	
			6.0-7.0	NONE	NS	—	TP-40-6-10	Fill=wood debris, no soil matrix	—	logs, chips, bark, timber
			7.0-10.0	NONE	NS			Fine-Medium Sand, some silt, contains estuary grasses, dense, dry, gray, stratified	SM	contains silty sand lenses, native material?
TP-41	Grid Location	11.8	0.0-5.0	NONE	NS	—	TP-41-0-1	Fill=Gravelly Sand, medium-course sand,well graded gravel (40-50%), dense, moist, gray	SW	
						---	TP-41-2-3			
			5.0-9.0	NONE	NS	—	TP-41-4-6	Fill=Fine-Medium Sand, fine-medium gravel (10-15%), poorly graded sand,medium dense, dry, mixed, gray	SP	contains some wood debris
			9.0-11.8	NONE	NS	---	TP-41-6-10	Fill=wood debris, no soil matix	—	logs, timber, chips, dust
TP-42	Grid Location	10	0.0-6.8	NONE	NS	---	TP-42-0-1	Fill-Gravelly Sand, medium-course sand, well graded gravel (35-50%), dense, moist, gray, mixed	SW	
						—	TP-42-2-3			
						—	TP-42-4-6			
			6.8-10.0	NONE	NS	—	TP-42-6-10	Fill=wood debris, no soil matrix	—	timber, wood chips, boards, sawdust, bark
TP-43	Grid Location	10	0.0-3.5	NONE	NS	—	TP-43-0-1	Fill=Gravelly Sand, well graded sand, well graded gravel (30-35%), dense, moist, mixed, stained, dk. Brown	SW	contains metal and brick debris, Cu oxidation stains
			3.5-4.2	NONE	NS	—	TP-43-2-3	Fill=Gravelly Sand, medium-course sand, well graded gravel (40-40%), dense, moist, gray/brown	SW	
			4.2-7.0	NONE	NS	—	TP-43-4-6	Fill=Medium-Course Sand, medium gravel (5%), medium-dense, moist, dk gray	SP	
			7.0-9.0	NONE	NS	—	TP-43-6-10	Fill=wood debris, brown silty sand/sandy silt matrix	(SM-ML)	logs, chips, timber, boards, no soil below 7.8'
			9.0-10.0	NONE	NS			Clayey Sandy Silt , very fine sand (30%), clay (10%), plastic fines, soft-medium, stiff, moist-wet, laminar, contains estuary grass	ML	
TP-44	Grid Location	11	0.0-2.2	NONE	NS	—	TP-44-0-1	Fill=Gravelly Sand, well graded sand, well graded gravel (20-45%), dense, dry, mixed, brown	SW	
			2.2-5.0	NONE	NS	---	TP-44-2-3	Fill=Fine-Medium Sand, trace well graded gravel (3-5%), loose, dry, brown	SP	
			5.0-8.0	NONE	NS	—	TP-44-4-6	Fill=wood debris, sand/clay/silt matrix	(ML)	board, logs, chips; matrix 25-35% @ 7.0', entirely wood 6.0-7.0'
			8.0-11.0	NONE	NS	—	TP-44-6-10	Medium-Course Sand, medium gravel (5%), medium-dense, moist, dk gray	SP	native material?
TP-45	Grid Location	10.5	0.0-3.0	NONE	NS	0	TP-45-0-1	Fill=Gravelly Sand, fine-medium sand, well-graded gravel (15-20%), loose, dry, brown, mixed, stained	SW	contains metal, brick, and concrete debris
			3.0-7.0	NONE	NS	0	TP-45-2-3	Fill=Gravelly Sand, well graded sand, well graded gravel (30-35%), medium dense, dry, light brown	SW	
			7.0-8.5	NONE	NS	0	TP-45-4-6	Fill=wood debris, clayey sandy silt matrix at 8.0'	(ML)	no soil at 7.0-8.0'
			8.5-9.2	NONE	NS	0	TP-45-6-10	Clayey Silty Sand, very fine sand, plastic fines, silt (30-35%), clay (10-15%), medium dense, moist, some organics, gray, laminar	ML	native material?
			9.2-10.5	NONE	NS			Medium-Course Sand, trace fine gravel (3%), medium-dense, moist-wet, dk gray	SP	native material?

APPENDIX B

SUMMARY OF TEST PIT OBSERVATIONS
Former Tacoma Metals Facility

Test Pit Number	Test Pit Location	Depth (feet)	Unit Depths (feet)	Noticeable Odors[a]	Water Sheen[b]	OVM (ppm)	Soil Sample Number[c]	Description	USCS Symbol	Comments
TP-46	Grid Location	10	0.0-2.5	NONE	NS	0	TP-46-0-1	Fill=Gravelly Sand, well graded sand, well graded gravel (20-25%), dense, mixed, dark brown	SW	contains some metal debris and Cu oxidization, stained
			2.5-3.4	NONE	NS	0	TP-46-2-3	Fill=Gravelly Sand, well graded sand, well graded gravel (35-40%), dense, mixed, dry, brown	SW	contains metal debris
			3.4-5.9	MOD HC	MS	0	TP-46-4-6	Fill=Gravelly Sand, well graded sand, well graded gravel (25-35%), dense, mixed, charcoal gray	SW	abundant metal and glass debris, heavily stained
			5.9-8.8	NONE	NS	0	TP-46-6-10	Fill=Gravelly Sand, well graded sand, well graded gravel (40-45%), dense, moist, gray, mixed	SW	
			8.8-10	NONE	NS			Fill=wood debris, no soil matrix	—	logs, timber, boards, chips
TP-47	Grid Location	10.5	0.0-1.4	NONE	NS	0	TP-47-0-1	Fill=Medium Sand, some gravel (5%), loose, dry, brown	SP	
			1.4-8.0	NONE	NS	0	TP-47-2-3	Fill=Gravelly Sand, medium-course sand, well graded gravel (35-50%), dense, dry, brown	SW	
						0	TP-47-4-6			
			8.0-10.5	NONE	NS	0	TP-47-6-10	Fill=wood debris, brown silty sand matrix (30%), fine-medium sand, silt (35%)	(SM)	timber, boards, chips
TP-48	Northwest corner of property	8.5	0.0-1.4	NONE	NS	0	TP-48-0-1	Fill=Gravelly Sand, well graded sand, well graded gravel (30-35%), dense, dry, brown	SW	
			1.4-4.4	NONE	NS	0	TP-48-2-3	Fill=Fine-Medium Sand, some fine-medium gravel (<5%), loose, dry, gray	SP	
			4.4-8.5	SL PH	MS	0	TP-48-4-6	Fill=wood debris, silty sand matrix (<10%), moist, mixed	(SM)	wood chips, boards, bark, wood dust
						0	TP-48-6-8.5			water at 7.4', heavy sheen on water surface
TP-49	Former creosoting plant area	10	0.0-2.0	NONE	NS	0	TP-49-0-1	Fill=Gravelly Sand, well graded sand, well graded gravel (40-50%), dense, dry-moist, gray	SW	
			2.0-3.3	SL PH	NS	0.2	TP-49-2-3	Fill=Gravelly Sand, medium sand, well graded gravel (25-30%), dense, dry, mixed, gray	SW	
			3.3-7.0	VS CREOSOTE	HS	6.5	TP-49-4-6	Fill=Fine-Course Sand, well graded gravel (20-25%), dark gray	SW	heavily stained, locally saturated with PH/creosote product, contians wood debris
			7.0-10.0	VS CREOSOTE	HS	1.7	TP-49-6-10	Fill=wood debris, brown silty sand matrix (10-30%), loose, moist, mixed	(SM)	wood chips, boards, bark; water @ 8.5', PH product on surface; heavily stained
TP-50	South of NMW-3 (north corner)	10	0.0-3.3	NONE	NS	0.4	TP-50-0-1	Fill=Gravelly Sand, medium-coarse sand, well graded gravel (35-45%), dry, mixed, gray	SW	
			3.3-6.3	SL PH	NS	0.2	TP-50-2-3	Fill=Gravelly Sand, medium-coarse sand, well graded gravel (25-35%), medium-dense, stained, brown, mixed	SW	contains wood, brick, slag, cable, glass debris
			6.3-7.5	NONE	NS	0	TP-50-4-6	Fill=Gravely Sand, well graded sand, well graded gravel (25-30%), silt (30%), wet, mixed, brown	SP-SM	contains 45-55% wood debris
			7.5-10	MOD CREOSOTE	SS	0	TP-50-6-10	Fill-wood debris, silty sand matrix (20-40%), very fine to fine sand, brown, il gray, wet, sandy clayey silt matrix @ 9'	(SM-ML)	chips, boards, timber
TP-51	SW Corner	8	0.0-1.0	NONE	NS	0	TP-51-0-1	Fill=Sandy Gravel, well-graded gravel (60-65%), fine to medium sand, <10% fines, loose, brown, dry, mixed	GW	some metal and rubber debris
			1.0-4.3	NONE	NS	0	TP-51-2-3	Fill=Sandy Gravel, well-graded gravel, fine to medium sand (40-45%), gray	GW	
			4.3-5.0	NONE	NS	0	TP-51-4-6	Fill=Fine Sand, poorly graded sand, some gravel (<5%), brown, mixed	SP	
			5.0-6.5	NONE	NS			Fill=Fine Sand, sand/sil/clay mixture, 15-20% wood debris	SM-ML	fibrous to blocky wood debris
			6.5-8.0	NONE	NS	0	TP-51-6-8	Fill=wood debris, silty clay matrix (5-20%), brown, wet	(ML-CL)	sheen visible on water in the test pit
TP-52	East of TP-5	10	0.0-0.8	NONE	NS	0	TP-52-0-1	Fill=Sandy Gravel, well-graded gravel (55-60%), gray/brown, dry, mixed	GW	
			0.8-1.8	NONE	NS			Fill=Sandy Gravel, well-graded gravel with sand/silt, dark brown, dry, mixed	GW	some metal debris
			1.8-2.2	NONE	NS	0	TP-52-2-3	Fill=Sandy Gravel, well-graded gravel, gray, dry, mixed	GW	
			2.2-5.0	MOD CREOSOTE	MS	2.3	TP-52-4-6	Fill=wood debris, clayey sandy silt matrix (10-20%)	(SM-ML)	
			5.0-10.0	MOD CREOSOTE	MS	2.5	TP-52-6-10	Fill=wood debris, silty/clayey matrix (10%)	(ML-CL)	water @ 9.8', heavy sheen/product film on water surface
TP-53	North of TP-5	7	0.0-2.3	NONE	NS	0	TP-53-0-1	Fill=Sandy Gravel, well-graded gravel (55-60%) with sandy matrix, gray/brown, dry, mixed	GW	trace silt in dark brown fayers
			2.3-3.8	NONE	NS	0	TP-53-2-3	Fill?=Silty Clay and Fine Sand, layered, hard, crumbly, light brown	ML-CL	gradational with underlying material
			3.8-4.5	NONE	NS	0	TP-53-4-6	Fill?=Silt, isolated small pods/lenses of fine sand/silt/clay	ML	pilings are visible in the pit sidewall below 4.5', no other wood material
			4.5-7.0	MOD CREOSOTE	MS	1.2	TP-53-6-7	Fill?=Gravelly Sand, sand to fine gravel material, cumbly, granular texture, dark brown, mixed	SP-SW	water @7.4", slight sheen on surface, gravel content increases with depth
TP-54	East of TP-7	10	0.0-1.5	NONE	NS	0	TP-54-0-1	Fill=Sandy Gravel, well graded gravel with sand and some silt, brown/tan, dry, mixed	GW	
			1.5-3.0	NONE	VSS	0	TP-54-2-3	Fill=Sandy Gravel, well graded gravel with sand and silt, dark brown	GW	contians some wood chip and metal debris
			3.0-5.2	NONE	NS	0	TP-54-4-6	Fill=Fine Sand, poorly graded sand, some gravel (5%), uniform texture	SP	
			5.2-6.0	NONE	NS			Fill=wood debris, silty/clayey matrix (5%), red/brown	(ML-CL)	primarily wood chips
			6.0-10.0	VSL	SS	0.6	TP-54-6-10	Fill=wood debris, silty/clayey matrix (5-10%)	(ML-CL)	decaying wood material, coarser with depth, wood surfaces coated with silt/clay

APPENDIX B

SUMMARY OF TEST PIT OBSERVATIONS
Former Tacoma Metals Facility

Test Pit Number	Test Pit Location	Depth (feet)	Unit Depths (feet)	Noticeable Odors[a]	Water Sheen[b]	OVM (ppm)	Soil Sample Number[c]	Description	USCS Symbol	Comments
TP-55	NE of TP-10	10	0.0-1.5	NONE	NS	0.7	TP-55-0-1	Fill=Sandy Gravel, well graded gravel with sand and some silt, brown/grey, dry, mixed	GW	contains some metal debris
			1.5-2.9	MOD HC	MS	3.6	TP-55-2-3	Fill=Gravelly Sand, well graded sand, gray, slightly moist, mixed	SW	
			2.9-3.8	MOD HC	NS	4.1	TP-55-4-6	Fill=Sandy Gravel, well graded gravel with sand and some silt, gray, mixed	GW	
			3.8-6.0	MOD HC	MS			Fill=Fine Sand, poorly graded, mixed with silt below 5.0', dark gray/brown, mixed	SP-SM	3" diameter pipe at 4' depth, oriented N-S, with HC product inside
			6.0-10.0	MOD HC	MS	4.2	TP-55-6-10	Fill=wood debris, sand/silt matrix (80-90%), dark brown, wet	(SP-SM)	water @ 9.5', dark brown HC product entering at sides of TP
TP-56	East of TP-11	10	0.0-0.6	NONE	SS	0.7	TP-56-0-1	Fill=Sandy Gravel, well graded gravel with sand and silt, dark brown, mixed	GW	
			0.6-3.0	NONE	SS	1.4	TP-56-2-3	Fill=Sandy Gravel, well graded gravel (55-60%) with sand, brown, slightly moist, mixed	GW	
			2.0-3.4	NONE	SS	1.9	TP-56-4-6	Fill=Gravelly Sand, well graded sand, gravel (45%), trace silt, dk brown, slightly moist, mixed	SW	
			3.4-5.8	NONE	NS			Fill=Fine Sand, slightly moist, dark brown	SP	
			5.8-10.0	NONE	NS	1.2	TP-56-6-10	Fill=wood debris, silt/clay/fine sand matrix (10-20%), dark red/brown, slightly moist	(ML-CL)	planks, wood chips, wood material becomes coarser with depth
TP-57	North of TP-9	10	0.0-0.3	NONE	NS	4.3	TP-57-0-1	Fill=Sandy Gravel, well graded gravel with sand, brown, mixed	GW	
			0.3-1.8	NONE	SS			Fill=Gravelly Sand, well graded sand, gravel (30-35%), some silt (5%), dark brown, mixed	SW	contains 20% metal and glass debris
			1.8-3.4	MOD HC	SS	16.2	TP-57-2-3	Fill=Sandy Grevel, gravel (55-60%), gray, dry, mixed	GW	
			3.4-6.2	NONE	VSS	6.7	TP-57-4-6	Fill=Fine Sand, granular coarse sand with some fine gravel, dark brown, trace silt, dry	SP	
			6.2-10.0	NONE	VSS	16	TP-57-6-10	Fill=wood debris, silty/clayey matrix (75-85%) with some fine sand, moist, dark red/brown to gray	(ML-CL)	wood content increases with depth and coarsens with depth
TP-58	North of TP-42	10	0.0-1.2	NONE	NS	0	TP-58-0-1	Fill=Sandy Gravel, well graded gravel (55-60%), medium sand, brown/tan, mixed	GW	
			1.2-2.2	NONE	VSS	0	TP-58-2-3	Fill=Sandy Gravel, well graded gravel (50-55%), well graded sand (40%), silt (5%), dk brown, mixed	GW	contains abundant metal debris (plates, cans pipes), bricks, minor glass
			2.2-5.8	NONE	NS	0	TP-58-4-6	Fill=Sandy Gravel, well graded gravel (55-60%), fine/medium sand (35-40%), silt (<5%), gray/brown, moist, mixed	GW	
			5.8-9.2	NONE	NS	0	TP-58-6-10	Fill=Sandy Gravel, well graded gravel (60%), medium sand, slightly moist, gray/brown	GW	
			9.2-10.0	NONE	NS			Fill=wood debris, silt matrix (15%), dark red/brown	(ML)	
TP-59	North of TP-41	10	0.0-0.6	NONE	NS	0	TP-59-0-1	Fill=Sandy Gravel, well graded gravel (55-60%), silt (5%), brown/tan, mixed	GW	
			0.6-2.0	NONE	NS	0	TP-59-2-3	Fill=Sandy Gravel, well graded gravel with sand and silt, red/brown, mixed	GW	contains abundant metal debris, granular charcoal-like material in 2-6" layer
			2.0-8.5	NONE	NS	0	TP-59-4-6	Fill=Sandy Gravel, well graded gravel (60%), sand (35-40%), trace silt, brown/tan, mixed	GW	
			8.5-10	NONE	NS	0	TP-59-6-10	Fill=wood debris, silt/clay matrix (10%) coating between wood fragments, brown, moist	(ML-CL)	coarse wood material
TP-60	East of TP-40	10	0.0-1.1	NONE	NS	0	TP-60-0-1	Fill=Sandy Gravel, well graded gravel (55-60%), sand, minor silt (<5%), tan/brown, dry, mixed	GW	
			1.1-4.3	NONE	NS	0	TP-60-2-3	Fill=Sandy Gravel, well graded gravel (50-55%), fine sand (30%), silt (15%), brown, dry, mixed	GW	contains 5-10% metal, brick, and glass debris
			4.3-6.5	NONE	NS	0	TP-60-4-6	Fill=Fine Sand, poorly gradad, fine gravel (5%), dark gray	SP	
			6.5-8.10	NONE	NS	0	TP-60-6-10	Fill=wood debris; silt matrix, red/brown, moist, mixed	(ML)	contains some brick and metal debris
			8.10-10.0	NONE	NS			Silt, fine sand (5%), gray, moist	ML	native material?
TP-61	North of TP-36	10	0.0-3.2	SL HC	NS	0	TP-61-0-1	Fill=Sandy Gravel, well graded gravel (50-55%), fine sand (35%), silt (10-15%), gray/brown, dry, mixed	GW/GM	abundant brick, metal, glass, and rubber debris
			3.2-4.2	SL HC	SS	2.2	TP-61-2-3	Fill=Sandy Gravel, well graded gravel (55-60%), sand (35%), trace silt (5%), gray, dry, mixed	GW	
			4.2-6.10	SL HC	SS	0.6	TP-61-4-6	Fill=Fine to Medium Sand, poorly graded, locally with 10-15% silt, brown, dry	SP/SM	wood debris with silt at 4.2 to 4.8'
			6.10-7.10	NONE	NS	0	TP-61-6-10	Fill=wood debris, silt matrix (10-15%), red/brown, moist, mixed	(ML)	
			7.10-10.0	NONE	NS			Sandy Silt, silt (60-70%), fine sand (~30%), trace clay (<5%), moist, gray, irregularly layered, blocky at 10.0'	ML	wood pilings at 10', native material?
TP-62	SE of TP-38	10	0.0-1.0	NONE	NS	0	TP-62-0-1	Fill=Sandy Gravel, well graded gravel (55-60%), medium/fine sand (35%), trace silt (<5%), brown, dry, mixed	GW	
			1.0-3.5	NONE	NS	0	TP-62-2-3	Fill=Sandy Gravel, well graded gravel (50-55%), sand (30%), silt (15-20%), dark brown, dry, mixed	GW	
			3.5-4.0	NONE	VSS	0	TP-61-4-6	Fill=Sandy Gravel, well graded gravel with sand, trace silt, gray/brown, dry, mixed	GW	
			4.0-7.0	NONE	NS			Fill=Fine Sand, up to 5% coarse sand and fine gravel	SP	
			7.0-9.2	NONE	NS	0	TP-62-6-10	Fill=Silt, moderate organic content, moist, dark brown	ML-OL	contians wood, brick and metal debris (30-40% above 8.5'), wood abundant below 8.5'
			9.2-10.0	NONE	NS			Clayey Silt, silt (90%), clay (10%), gray, moist	ML	wood pilings at 9.5', native material?

APPENDIX B

SUMMARY OF TEST PIT OBSERVATIONS
Former Tacoma Metals Facility

Test Pit Number	Test Pit Location	Depth (feet)	Unit Depths (feet)	Noticeable Odors[a]	Water Sheen[b]	OVM (ppm)	Soil Sample Number[e]	Description	USCS Symbol	Comments
TP-63	East of TP-32	10	0.0-0.8	NONE	NS	4.3	TP-63-0-1	Fill=Sandy Gravel, poorly graded gravel (55-60%), medium sand (40%), trace silt, brown, dry, mixed	GW	three foot diameter steel pipe along west sidewall oriented east-west
			0.8-2.4	MOD HC	SS	15.1	TP-63-2-3	Fill=Sandy Gravel, well graded gravel with sand and silt, dark brown, mixed	GW	abundant metal debris (30%), springs, wire, hubcaps, sheet metal, minor glass debris
			2.4-4.5	MOD HC	SS-MOD			Fill=Sandy Gravel, gravel with sand and silt, gray/brown, moist, mixed	GW	liquid with strong HC sheen seeping into pit at top of gravel layer
			4.5-6.10	NONE	SS	15.2	TP-63-4-6	Fill=wood debris, silt matrix (30%), brown, moist, mixed	(ML)	soft brown silt above wood debris (4.5-5.2'), contains brick debris
			6.10-10.0	NONE	NS	0	TP-63-6-8	Clayey Silt, silt (90%), clay (10%), gray, moist	ML	interbedded silt/clay/clayey silt at 9.0-10.0', native material?
TP-64	NE of TP-17	8	0.0-0.9	NONE	NS	0	TP-64-0-1	Fill=Sandy Gravel, well graded gravel with sand, trace silt, brown, dry, mixed	GW	
			0.9-4.0	NONE	VSS	0	TP-74-2-3	Fill=Sandy Gravel, well graded gravel (55-65%), sand (30-35%), trace silt (<5%), gray/brown, dry, mixed	GW	contains 10-15% metal and glass debris at 1.0-1.5'
			4.0-4.6	NONE	NS	0	TP-64-4-6	Fill=Sandy Gravel, well graded fine gravel with sand and silt, dark brown, mixed	GW	contains coarse wood debris
			4.6-5.8	NONE	NS			Fill=Fine Sand, poorly graded, local pods of silt/clayey silt (15%), brown, mixed	SP-SM	
			5.8-7.10	NONE	VSS	0	TP-64-6-8	Fill=wood debris, silt matrix (10%), red/brown, mixed	(ML)	coarse wood material
			7.10-8.0	NONE	NS			Silty Clay/Clayey Silt, gray, moist, contains roots	ML-CL	water entering test pit @ 9'
TP-65	NE of TP-7	9	0.0-1.2	NONE	NS	0	TP-65-0-1	Fill=Sandy Gravel, well graded gravel with sand and trace silt, brown/tan, dry, mixed	GW	
			1.2-3.0	NONE	NS	0	TP-65-2-3	Fill=Sandy Gravel, well graded gravel (55-60%), sand (30-35%), some silt, dark brown, dry, mixed	GW	3" diameter pipe at ~3' depth, exposed from east side of pit oriented E-W
			3.0-5.0	NONE	NS	0	TP-65-4-6	Fill=Gravelly Sand, poorly graded medium to fine sand with 5-10% fine gravel, brown, mixed	SP-SW	
			5.0-7.0	NONE	NS	0	TP-65-6-9	Fill=wood debris, silt/clay matrix (10%), brown/gray, moist, mixed	(ML-CL)	
			7.0-9.0	SL Creosote	VSS			Fill=wood debris, clayey silt to silty clay matrix (10%), brown/gray, mixed	(ML-CL)	water entering test pit @ 9', coarse wood material

Notes:

(a) Noticeable odors: none = no odor, VSL = very slight, SL = slight, MOD = moderate, S = strong, VS = very strong, PH = petroleum hydrocarbon

(b) Water sheen: NS = no sheen, VSS = very slight sheen, SS = slight sheen, MS = moderate sheen, HS = heavy sheen.

(c) OVM = organic vapor meter. Photoionization detector (PID) calibrated to 100 ppm isobutylene. Background = 0.0 ppm; ? = PID/OVM data questionable

(e) – = not tested

(f) Soil sample number with depth of soil sample indicated (i.e., sample TP-1-6-10 is a composite sample obtained from 6.0 to 10.0 feet below ground surface [bgs]).

ATTACHMENT B
DOF TCLP Test Results
August 17, 2020

Former Tacoma Metals Facility
Tacoma, Washington

Dalton, Olmsted & Fuglevand, Inc.

DOF DALTON OLMSTED FUGLEVAND

6034 N. Star Rd., Ferndale, Washington 98248
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TECHNICAL MEMORANDUM

TO: Andy Smith – Department of Ecology

FROM: Matt Dalton

DATE: August 17, 2020

SUBJECT: TCLP Test Results
Former Tacoma Metals Site
Tacoma, Washington

REF. NO: WKG-001-TCLP

CC: Mark Myers
Loren Dunn
Clark Davis

This technical memorandum presents the results of Toxicity Characteristic Leaching Procedure (TCLP) and bench-scale testing for the former Tacoma Metals Site (TMS), Tacoma, Washington. The site is generally located north and northeast of the intersection of Portland Avenue and St. Paul Avenue (Figure 1).

The purpose of the work was as follows:

- Collect TCLP data to determine the likely designation of soil that exceeds metals cleanup levels and confirm previous TCLP testing completed by Kennedy/Jenks in 2001.
- Assess a possible on-site treatment method to remove the hazardous/dangerous waste (DW) designation to reduce off-site disposal costs.
- Assess the viability of using a field XRF analyzer to screen for metal soil concentrations during future remediation.

BACKGROUND

In general, the Site consists of two remedial areas with some overlap. These include 1) "*Off-Property Area*" including three property parcels (JJ Port Property, International Paper Property, and City of Tacoma Right of Way [E 18th St. Right-of-Way]) located on the northwest end of the property where releases of materials associated with a wood treating (creosote) operation occurred, and 2) "*On-Property Area*" where metal recycling activities occurred. The On-Property Area is further divided into two areas – historically paved (by the 1970s) and historically

unpaved. Wood treating (creosote plant) also occurred on the northwest end of the metal recycling parcel and a coke plant operated within the central portion of this parcel.

The focus of this work was the On-Property Area (metals recycling portion of the Site) where soil testing identified metals concentrations exceeding remediation levels (RLs) and cleanup levels (CULs). Locations that exceed metals RLs/CULs are illustrated on Figure 2, based on data collected by Kennedy/Jenks (K/J) in 2001 (K/J 2014) and compiled by Aspect Consulting (Aspect 2018).

Aspect Consulting (Aspect 2018) prepared a draft Remedial Investigation/Feasibility Study (RI/FS) report, primarily using available K/J information and results (K/J 2014). The contaminants of concern for the metals recycling area (not including creosote releases) include metals, diesel-/heavy-oil range organics (DRO/ORO) and polycyclic aromatic hydrocarbons (PAHs). The preferred remedial alternative (Alternative 2) includes soil excavation with off-site disposal with an environmental cap placed over the "*paved*" portion of the Site, post excavation. CULs were developed for the portion of the Site to remain unpaved, and RLs were developed for the portion of the Site where an environmental cap would be placed. These levels are summarized below in Table 1.

Table 1 – Metal Soil CULs and RLs

Metal	Unpaved Area		Capped Area
	Shallow Soil CULs (mg/kg)	Deep Soil CULs (mg/kg)	RLs (mg/kg)
Arsenic	10	10	1,122
Barium	102	1,650	44,884
Cadmium	14	726	1,496
Chromium (III)	67	25,907	1,000,000
Copper	217	53,333	299,244
Lead	118	1,601	2,000
Mercury	5.5	13	2,900
Selenium	0.3	233	11,221
Silver	1,133	1,133	6,359

Notes: Shallow soil – 0 to 6 feet; deep soil 6 to 15 feet; CUL – Cleanup Level; RL – Remediation Level

Most of the metal exceedances occur in "*Metal Debris Fill*" that covers portions of the Site to depths of up to four feet. A deposit termed "*Mixed Fill*" underlies the metal debris fill, where present, the bottom of which lies at depths of approximately two to nine feet. Underlying these deposits is a "*Wood Fill*" that appears to be present beneath most of the Site and ranges in thickness from one to twelve feet. These deposits are described as follows:

- **Metal Debris Fill** – *Abundant mixed metal and other debris with soil matrix. Debris includes cable, wire, sheet metal, springs, machine parts, scrap metal, rubber, glass, brick, concrete, and other material. Matrix material is typically sand and gravel mixture.*

- **Mixed Fill** – *Variable fill material typically including well graded sand and gravel, poorly graded sand, silty sand and gravel, and some silt and clay. Commonly contains some metal, glass, brick, concrete, and other debris.*

- **Wood Fill** – *Mixed debris includes logs, boards, bark, chips, wood dust, planks, and pilings. Matrix material includes medium to fine, sand, silt, and clay mixtures. Matrix content is typically 0-20%.*

TEST PIT LOCATIONS AND SOIL SAMPLING

Seventeen (17) test pits (A to Q) were excavated and sampled in May 2020 at the locations shown on Figure 3 using a Deere 310SL, extend-a-hoe with a 2-foot bucket, provided by Holt Services. Test pit locations were selected to provide a range of coverage over the site and soil samples with a range of lead concentrations (low to high) for TCLP testing, based on data in the Aspect 2018 draft RI/FS.

Test pit excavation depths ranged between eight (8) and ten (10) feet. As soils were exposed, they were described by Dave Cooper, Principal Geologist with DOF using ASTM D2488 as a general guide. Test pit logs are presented in Attachment A. Evidence of possible contamination was noted such as odors, sheens and the presence of debris. Field measurements were made for volatile vapors and metal concentrations as follows:

- **Volatile Vapors**. A portion of each sample was placed in a one-quart plastic bag. The probe of a Photoionization Detector (PID - MiniRAE 3000) was inserted into the head space of the bag and the measurement recorded (in parts per million on the test pit logs).

- **Metal Concentrations**. An Olympus DCC-2000 portable X-ray Fluorescence Analyzer (XRF) was used to analyze soil metal concentrations to evaluate the XRF for possible use as a screening tool during remedial excavation. The XRF data are summarized in attached Table 2. XRF lead concentrations are also summarized on the test pit logs.

Selected samples were placed into laboratory supplied 16-ounce glass containers for analysis of total and TCLP RCRA metals (barium, chromium, lead, silver, arsenic, cadmium, selenium and mercury). Samples were labeled and placed into chilled coolers for transport to Analytical Resources Inc. (ARI) in Tukwila, Washington. Sample handling was documented using standard chain-of-custody procedures. The chain-of-custody records are included with the laboratory reports in Attachment B.

SOIL OBSERVATTIONS

In general, shallow soils between the surface and one (1) to four (4) feet consisted of sand and gravelly sand with metal (wire, metal pieces including swarf – metal turnings) and other debris (glass, plastic, rubber, brick/fire brick, wood). Below shallow soil w/ debris, soils generally consisted of sand and gravelly sand to six (6) to eight (8) feet. At most locations wood debris was first encountered at depths from five (5) to eight (8) feet below ground surface. Other observations included the following:

- A white to blue-white precipitate was observed at a depth of up to 4.0 feet at TP-F, TP-G, TP-H, TP-L, and TP-O. The XRF measurements in these materials indicated a copper concentraton greater than 1.3% (>13,000 mg/kg).
- Battery casings were encountered to a depth of ten (10) feet (bottom of pit) at TP-E. A shallow water level of 2.5 feet was observed that indicates the casings are present within a structure.
- Car parts and/or large metal scrap were encountered at TP-J and TP-K.

Groundwater seepage was only observed at locations TP-A (6-feet), TP-C (8-feet) and TP-D (7-feet). At other locations no groundwater seepage was observed to depths of approximately 8-feet at the time/duration of excavation.

LABORATORY ANALYSES AND RESULTS

ARI analyzed selected soil samples for total and TCLP RCRA metals using the following methods:

- Total barium, lead, chromium, silver – EPA Method 6020A
- Total arsenic, cadmium, selenium – EPA Method 6020A UCT-KED
- Total mercury – EPA Method 7471B
- TCLP arsenic, barium, cadmium, chromium, lead, selenium, silver – EPA 6010C
- TCLP mercury – EPA 7470A

The results are summarized in attached Table 3.

The need to test soil using the TCLP is based on a set of threshold concentration criteria provided by the disposal facilities based on state and federal regulations. These criteria are summarized below in Table 4, along with the highest detected total metal concentration. Based on total metal concentrations, barium, silver, arsenic, and selenium would not require TCLP testing for disposal purposes, but chromium, lead, cadmium and mercury would require such testing.

Table 4 – Total and Threshold Concentrations (for TCLP testing)

RCRA Metal	Testing Threshold Conc. (mg/kg)	Highest Total Conc. (mg/kg)	Require TCLP Testing
Barium	2000	1920	No
Chromium	100	1460	Yes
Lead	100	6700	Yes
Silver	100	37.3	No
Arsenic	100	69.8	No
Cadmium	20	82	Yes
Selenium	20	10.7	No
Mercury	4	47.1	Yes

TCLP threshold criteria to designate as characteristic DW are summarized in attached Table 3, along with the TCLP testing results. Most samples were tested for TCLP lead and cadmium, and five (5) samples were tested for all eight (8) RCRA metals. TCLP testing indicates that barium, chromium, silver, arsenic, cadmium, selenium and mercury soil concentrations would not designate as characteristic DW. However, the TCLP lead designation criterion (5 mg/l) was exceeded in most of the soil samples tested.

Figure 3 shows the locations, sample depths and results for soil samples collected and analyzed in 2001 (K/J) and 2020 (DOF). The 2001 data are summarized in Attachment D. Figure 4 shows a plot of total lead vs. TCLP lead. The 2020 TCLP test results are similar to the 2001 results with TCLP concentrations generally increasing with the concentration of total lead. There is a substantial amount of variability in the data which indicates different forms of lead with differing solubilities under the TCLP test conditions are present at the site. The plot suggests that soils with lead concentrations greater than approximately 500 to 1000 mg/kg would generally designate as DW.

FIELD XRF TEST RESULTS

Attached Table 2 provides a summary of laboratory and field (portable) XRF total metals concentration data. A portable XRF analyzer was used during the May 2020 test pit sampling to assess how its use could increase the efficiency of future soil remediation. Data presented in the June 2018 Aspect RI/FS indicates lead likely will be the primary remedial driver. Therefore, the following discussion focuses on lead.

Figure 5 shows two plots of XRF vs. laboratory lead data. The upper plot includes all data. The plot indicates no apparent difference in how the XRF responds to soil in the paved and unpaved areas of the site. In general, the XRF shows a good correspondence with the laboratory data to approximately 4,500 mg/kg total lead. Samples with laboratory lead concentrations above 6,000 mg/kg appear to saturate the instruments detector and provide unreliable measurements.

The lower plot shows XRF and laboratory lead concentrations for laboratory concentrations less than 5,000 mg/kg. There is a high correlation (R=0.96) and a line fit plot accounts for approximately 92% (R^2=0.92) of the variability. The data indicate the XRF reads low as an XRF measurement of 1,500 mg/kg would equate to approximately 2,000 mg/kg lead in a laboratory analysis. Accounting for the variability in the samples:

- **Paved Area** - An XRF measurement of approximately 1,000 mg/kg or higher would indicate that the sample could be above the paved area RL of 2,000 mg/kg.

- **Unpaved Area** - An XRF measurement of higher than 50 to 100 mg/kg would indicate that the sample could be above the paved area CUL of 118 mg/kg. Note that the CUL in the unpaved area is applied using the three criteria in WAC 173-340-745(8).

Information developed during the May 2020 test pit sampling indicates that the XRF would be a reliable field screening instrument to assist in making field decisions as to the extent and depth of remedial excavations, especially in the paved area with an RL of 2,000 mg/kg. The XRF field measurements would need to be confirmed using laboratory analyses.

BENCH-SCALE TREATABILITY TESTING

TCLP testing indicates that a substantial portion of target soil on the former Tacoma Metals Site would designate as a hazardous/dangerous waste (DW) because of lead and needs to be handled accordingly. Bench-scale stabilization[i] testing was completed as outlined in the Ecology approved TCLP Testing Plan (DOF 2020).

Samples with high TCLP leachable lead concentrations were sent to The TDJ Group, Inc., Barrington, IL for bench scale testing using Blastox 215, a calcium silicate-based additive for stabilizing metals in soil. Technical data for Blastox 215 is included in Attachment C. Soil samples from test pits “B” and “P” were sent to TDJ for bench-scale testing. The sample from TP-B had TCLP leachable lead of 111 mg/l (DOF) and 5.5 mg/l (TDJ), while the sample from TP-P had a TCLP leachable concentration of 61.2 mg/l (DOF) and 160 mg/l (TDJ).

[i] Stabilization chemically limits the hazard potential of dangerous waste by converting the constituents into less soluble form.

The bench-scale results are presented in Attachment C (TDJ letter to DOF). TDJ treated sample B with 4% Blastox (by weight) and sample P with 3% Blastox. Post-treatment TCLP testing concentrations were well below the DW threshold (5 mg/L); TP-B – 0.066 mg/l and TP-P – not detected (<0.05 mg/l). Bench-scale testing indicates that Blastox could be used to treat soil on-site to below DW threshold values so treated soil could be disposed at a Subtitle D landfill facility.

CLOSING

The services described in this memorandum were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this document.

REFERENCES

Aspect (Aspect Consulting), 2018, Revised Draft, Remedial Investigation and Feasibility Study, Tacoma Metals, Inc. Site, Prepared for Estate of Sophie Sussman; June 22, 2018.

DOF (Dalton, Olmsted Fuglevand, Inc.), 2020, TCLP Testing Plan, Tacoma Metals, Inc. Site, Tacoma, Washington; May 13, 2020.

K/J (Kennedy/Jenks Consultants), 2014, Revised Augmented Remedial Investigation and Feasibility Study Report, Former Tacoma Metals Site, Tacoma, Washington; prepared for Portland Avenue Associates, LLC; September 2014.

Attachments

Table 2 – Soil Total Metals Data (Lab. v. XRF) – May 2020
Table 3 – Soil Metals TCLP Data – May 2020
Figure 1 – Historical Operations
Figure 2 – Extent of Metals Exceedances in Soil
Figure 3 – TCLP Test Pit Locations and Lead Conc.
Figure 4 – Total vs. TCLP Lead

Attachment A – May 2020 Test Pit Logs
Attachment B – Laboratory Reports – May 2020 Test Pit Sampling
Attachment C – Bench-Scale Treatability Test Results
Attachment D – 2001 TCLP Test Results

TABLE 2 - Soil Total Metals Data (Lab. v. XRF) - May 2020

Former Tacoma Metals Site
Tacoma, WA

Location	Depth (ft)	Barium (mg/kg)		Chromium (mg/kg)		Lead (mg/kg)		Silver (mg/kg)		Arsenic (mg/kg)		Cadmium (mg/kg)		Selenium (mg/kg)		Mercury (mg/kg)	
		Lab.	XRF	Lab.	XRF	Lab.	XRF	Lab.	XRF	Lab.	XRF	Lab.	XRF	Lab.	XRF	Lab.	XRF
Testing Threshold		2000	-----	100	-----	100	-----	100	-----	100	-----	20	-----	20	-----	4	-----
TP-A	0-0.8	297	nd	59	125	1130	753	4.29	nd	28.5	40	12.7	nd	2.02	nd	1.4	nd
TP-G	0-2.5	494	573	382	537	3800	3499	37.3	44	6.53	108	69.2	78	5.6	8.1	5.02	nd
TP-H	0.5-2	334	nd	1460	1108	6640	2318	32.3	30	7.49	56	28.4	38	2.81	6.9	7.85	12
TP-M	0-1.2	1270	1034	140	492	2790	2183	1.43	nd	33.7	92	52.7	29	2.52	28	3.04	nd
TP-B	0-0.8	587	nd	118	234	1870	1182	1.26	nd	46.1	101	27.8	nd	1.98	nd	1.91	nd
TP-B	2-3	nt	521	nt	nd	71.1	50	nt	nd	nt	nd	0.18	nd	nt	nd	nt	nd
TP-C	0.3-1.3	1340	1233	143	232	2740	1503	4.78	nd	33.1	66	82	86	10.5	14.4	3.75	nd
TP-D	0.5-1.5	1920	391	71.8	175	1430	1067	0.91	nd	20.2	54	39.3	nd	3.26	3.7	0.573	nd
TP-E	0-2	1200	647	122	263	6700	2385	1.61	nd	30.5	67	51.9	nd	2.17	nd	2.36	nd
TP-F	2.5-3.5	267	nd	48.6	134	1240	639	1.27	nd	9.89	19	8.69	nd	3.48	nd	1.09	nd
TP-I	1-2	666	1096	64.5	178	1780	1598	1.41	nd	14.7	30	17.6	nd	2.9	7.1	1.31	nd
TP-I	2-3	nt	nd	nt	nd	148	120	nt	nd	nt	13	3.31	nd	nt	nd	nt	nd
TP-J	0.5-1.5	1470	1254	124	243	3900	2296	2.84	nd	32.7	81	49.3	nd	3.64	nd	3.04	nd
TP-J	2-3	nt	nd	nt	nd	1070	444	nt	nd	nt	46	12.3	nd	nt	nd	0.513	nd
TP-K	1.5-3.5	1360	1294	69.3	175	2950	2228	1.08	nd	38.4	nd	23.5	48	1.76	nd	1.35	nd
TP-L	0.4-1.4	1540	nd	217	1835	4530	3313	3.79	nd	37.1	148	38	nd	1.76	nd	9.52	nd
TP-N	0.3-1.3	121	nd	41.7	44	264	358	0.26	nd	6.58	12	3.39	nd	1.21	nd	6.13	8.5
TP-O	1-3	1090	587	141	251	6100	2543	2.19	nd	49.3	84	26.7	nd	2.78	nd	47.1	37
TP-P	0.5-3	671	nd	170	363	4200	3154	1.71	nd	52.1	149	21.1	nd	10.7	nd	9.01	14
TP-Q	1.5-3	875	nd	203	942	3340	2737	2.84	nd	69.8	106	45.4	nd	2.05	nd	16.1	34

nt - Not tested
nd - Not detected using XRF
- Exceeds TCLP testing threshold concentration (TCLP testing required for disposal)
- Sample from unpaved area
- Sample from paved area

TABLE 3 - Soil Metals TCLP Data - May 2020

Former Tacoma Metals Site
Tacoma, WA

Location	Depth (ft)	Barium		Chromium		Lead		Silver		Arsenic		Cadmium		Selenium		Mercury	
		Lab.	TCLP	Lab.	TCLP	Lab.	TCLP	Lab.	TCLP	Lab.	TCLP	Lab.	TCLP	Lab.	TCLP	Lab.	TCLP
		mg/kg	mg/l	mg/kg	mg/l	mg/kg	mg/l	mg/kg	mg/l	mg/kg	mg/l	mg/kg	mg/l	mg/kg	mg/l	mg/kg	mg/l
Testing/DW Threshold		2000	<100	100	<5	100	<5	100	<1	100	<5	20	<1	20	<1	4	<0.2
TP-A	0-0.8	297	-----	59	-----	1130	1.3	4.3	-----	28.5	-----	12.7	0.08	2.0	-----	1.4	-----
TP-B	0-0.8	587	-----	118	-----	1870	111	1.3	-----	46.1	-----	27.8	0.25	2.0	-----	1.9	-----
TP-B	2-3	-----	-----	-----	-----	71.1	-----	-----	-----	-----	-----	0.18	-----	-----	-----	-----	-----
TP-C	0.3-1.3	1340	-----	143	-----	2740	15.0	4.8	-----	33.1	-----	82	0.94	10.5	-----	3.75	-----
TP-D	0.5-1.5	1920	-----	71.8	-----	1430	19.7	0.91	-----	20.2	-----	39.3	0.49	3.3	-----	0.57	-----
TP-E	0-2	1200	4.3	122	0.01	6700	54.2	1.6	<0.02	30.5	0.05	51.9	0.78	2.2	<0.25	2.36	<0.0001
TP-F	2.5-3.5	267	-----	48.6	-----	1240	85.8	1.3	-----	9.89	-----	8.69	0.22	3.5	-----	1.09	-----
TP-G	0-2.5	494	-----	382	-----	3800	57.2	37.3	-----	6.53	-----	69.2	0.57	5.6	-----	5.02	-----
TP-H	0.5-2	334	5.5	1460	0.02	6640	70.4	32.3	<0.02	7.49	0.02	28.4	0.19	2.8	<0.25	7.85	0.0001
TP-I	1-2	666	-----	64.5	-----	1780	5.4	1.4	-----	14.7	-----	17.6	0.32	2.9	-----	1.31	-----
TP-I	2-3	-----	-----	-----	-----	148	-----	-----	-----	-----	-----	3.31	-----	-----	-----	-----	-----
TP-J	0.5-1.5	1470	-----	124	-----	3900	49.8	2.8	-----	32.7	-----	49.3	0.97	3.6	-----	3.04	-----
TP-J	2-3	-----	-----	-----	-----	1070	9.9	-----	-----	-----	-----	12.3	0.14	-----	-----	0.513	-----
TP-K	1.5-3.5	1360	-----	69.3	-----	2950	10.6	1.1	-----	38.4	-----	23.5	0.50	1.8	-----	1.35	-----
TP-L	0.4-1.4	1540	2.0	217	0.02	4530	60.3	3.8	<0.02	37.1	0.06	38	0.59	1.8	<0.25	9.52	0.00002
TP-M	0-1.2	1270	-----	140		2790	11.3	1.4	-----	33.7	-----	52.7	0.44	2.5	-----	3.04	-----
TP-N	0.3-1.3	121	-----	41.7	-----	264	0.97	0.26	-----	6.58	-----	3.39	0.08	1.2	-----	6.13	-----
TP-O	1-3	1090	2.8	141	0.02	6100	4.8	2.2	<0.02	49.3	0.04	26.7	0.39	2.8	<0.25	47.1	0.00015
TP-P	0.5-3	671	2.3	170	0.02	4200	61.2	1.7	<0.02	52.1	0.06	21.1	0.47	10.7	<0.25	9.01	0.00004
TP-Q	1.5-3	875	-----	203	-----	3340	26.4	2.8	-----	69.8	-----	45.4	0.68	2.1	-----	16.1	-----
Highest Concenration		1920	5.5	1460	0.02	6700	111	37.3	0.015	69.8	0.06	82	0.97	10.7	0.25	47.1	0.00015

Would not require TCLP test based on total metal concentration or did not exceed TCLP threshold DW value.
Would require TCLP Test based on total metal concentration.
Exceeded TCLP DW threshold value.
DW - Dangerous Waste

Historic Structure
Historic Unpaved Area
Existing Structure
Site Boundary
Pierce County Parcels

N

0 100 200
Feet

Historical Operations

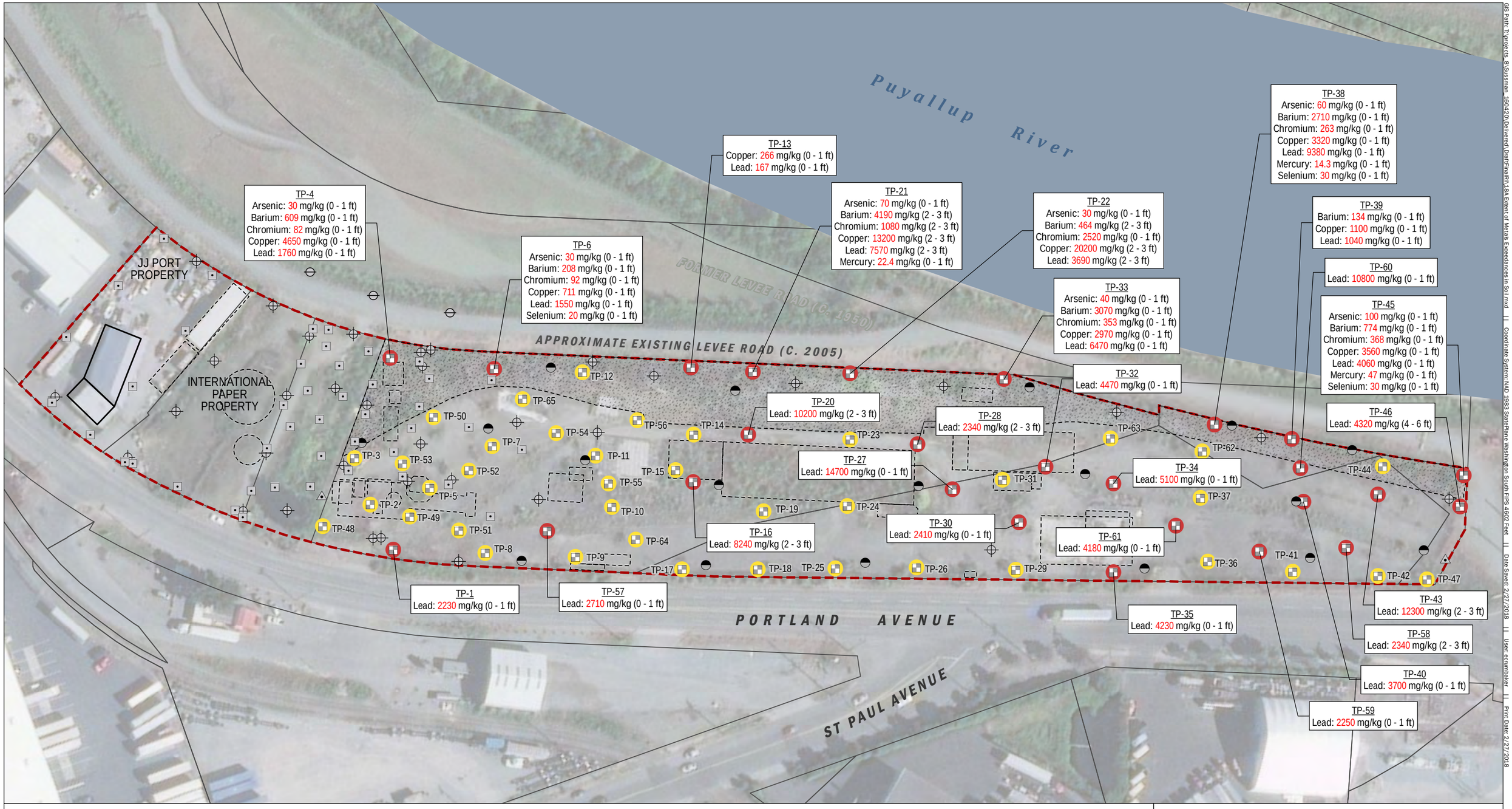
Revised Draft Remedial Investigation/Feasibility Study
Tacoma Metals, Inc. Site
Tacoma, Washington

DOF - FIGURE 1 - March 2020

Aspect CONSULTING	FEB-2018	BY: ACG / EAC	FIGURE NO. 3
	PROJECT NO. 160420-03	REVISED BY: ---	

Basemap Layer Credits || Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

GIS Path: T:\projects_8\Suisman_160420\Deliverech\Draft\Final\R\03 Historical Operations.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 2/27/2018 || User: ecrumbaker || Print Date: 2/27/2018



Location Name
TP-13
Copper: 266 mg/kg (0 - 1 ft)
Lead: 167 mg/kg (0 - 1 ft)
Result
Depth

Note: Only results that exceed cleanup levels are shown. The result posted is from the sample depth where the maximum concentration was observed.

- Monitoring Well
- Piezometer
- Reconnaissance Groundwater Sample
- Soil Boring
- Surface Water
- Test Pit
- Metals Detected at Concentrations Less than the Cleanup Level.
- Metals Detected at Concentrations Greater than the Cleanup Level.
- Historic Structure
- Historic Unpaved Area
- Existing Structure
- Site Boundary
- Pierce County Parcels

N

0 100 200
Feet

Extent of Metals Exceedances in Soil

Revised Draft Remedial Investigation/Feasibility Study
Tacoma Metals, Inc. Site
Tacoma, Washington

DOF - FIGURE 2 - March 2020

Aspect CONSULTING	FEB-2018	BY: ACG / EAC	FIGURE NO. 18A
	PROJECT NO. 160420-03	REVISED BY: RAP	

Basemap Layer Credits || Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

GIS Path: T:\projects_8\Sussman_160420\Delivered\Draft\Final\Ch.18A Extent of Metals Exceedances in Soil.mxd || Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet || Date Saved: 2/27/2018 || User: ecrumbaker || Print Date: 2/27/2018

Puyallup River

South Side Channel Area

CORMIE RIVER ROAD (c. 1950)

JJ PORT PROPERTY

INTERNATIONAL PAPER PROPERTY

B36 AREA

AREA D

AREA B

APPROXIMATE EXISTING LEVEE

E 1 RIGHT WAY

PORTLAND AVENUE

ST PAUL AVENUE

TP-A (0-0.8')
Pb=1130 mg/kg
TCLP=1.3 mg/l

TP-B (0'-0.8')
Pb=1870 mg/kg
TCLP=111 mg/l
TP-B (2'-3')
Pb=71 mg/kg

TP-1 (0'-1')
Pb=2230 mg/kg
TCLP=11.7 mg/l

TP-C (0.3-1.3')
Pb=2740 mg/kg
TCLP=15 mg/l

TP-D (0.5-1.5')
Pb=1430 mg/kg
TCLP=19.7 mg/l

TP-14 (6'-10')
Pb=152 mg/kg
TCLP=<0.1 mg/l

TP-55 (0'-1')
Pb=1750 mg/kg
TCLP=26.5 mg/l

TP-21 (2'-3')
Pb=7570 mg/kg
TCLP=74.7 mg/l

TP-16 (2'-3')
Pb=8240 mg/kg
TCLP=3.3 mg/l

TP-G (0'-2.5')
Pb=3800 mg/kg
TCLP=57.2 mg/l

TP-F (2.5'-3.5')
Pb=1240 mg/kg
TCLP=85.8 mg/l

TP-E (0'-2')
Pb=6700 mg/kg
TCLP=54.2 mg/l

TP-H (0.5'-2')
Pb=6640 mg/kg
TCLP=70.4 mg/l

TP-I (1'-2')
Pb=1780 mg/kg
TCLP=5.4 mg/l
TP-I (2'-3')
Pb=148 mg/kg

TP-33 (2'-3')
Pb=4560 mg/kg
TCLP=22.4 mg/l

TP-J (0.5'-1.5')
Pb=3900 mg/kg
TCLP=49.8 mg/l
TP-J (2'-3')
Pb=1070 mg/kg
TCLP=9.9

TP-K (1.5'-3.5')
Pb=2950 mg/kg
TCLP=10.6 mg/l

TP-L (0.4'-1.4')
Pb=4530 mg/kg
TCLP=60.3 mg/l

TP-M (0'-1.2')
Pb=2790 mg/kg
TCLP=11.3 mg/l

TP-61 (0'-1')
Pb=4180 mg/kg
TCLP=12.2 mg/l

TP-38 (0'-1')
Pb=9380 mg/kg
TCLP=20.6 mg/l

TP-N (0.3'-1.3')
Pb=264 mg/kg
TCLP=0.97 mg/l

TP-40 (2'-3')
Pb=2050 mg/kg
TCLP=6.9 mg/l

TP-39 (0'-1')
Pb=1040 mg/kg
TCLP=0.13 mg/l

TP-O (1.0'-3.0')
Pb=6100 mg/kg
TCLP=4.8 mg/l

TP-43 (2'-3')
Pb=12300 mg/kg
TCLP=63.6 mg/l

TP-Q (1.5'-3.0')
Pb=3340 mg/kg
TCLP=24.6 mg/l

TP-P (0.5'-3.0')
Pb=4200 mg/kg
TCLP=61.2 mg/l

Estimated Excavation Depth (0.5' contours)

Total cPAHs and Naphthalene Extent at or Below Water Table

TPH DRO/ORO Extent at or Below Water Table

2020 Test Pit Location w TCLP Test

2001 Sample Location w/ TCLP Test

TP-1 (0'-1') — Sample Designation and Depth (ft)
Pb=2230 mg/kg—Total Lead Concentration (mg/kg)
TCLP=11.7 mg/l—TCLP Lead Concentration (mg/l)

Historic Unpaved Area

Historic Structure

Existing Structure

Pierce County Parcels

Area of Soil to Remove

No Soil to Remove

Site Boundary

Interim Action Areas (AECOM, 2017)

Area B In Situ Solidification

Area D In Situ Solidification

B36 Area In Situ Solidification

Source: AECOM. Final Interim Action Work Plan In Situ Soil Solidification. November 17, 2017.

0 100 200
Feet

Ref: Tac Metals LocAa.cdr

Basemap Layer Credits || Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

TCLP Test Pit Locations and Lead Conc.

Preferred Remedial Alternative

Revised Draft Remedial Investigation/Feasibility Study
Tacoma Metals, Inc. Site
Tacoma, Washington

DOF - FIGURE 3 - July 2020

Aspect CONSULTING

JUN-2018	BY: ACG / EAC	FIGURE NO. 20
PROJECT NO. 160420-03	REVISED BY: RAP	

GIS Path: T:\projects_8\Sussman_160420\Delivered\Final\RI\20 Preferred Remedial Alternative.mxd || User: ecrumbaker || Print Date: 6/6/2018
Date Saved: 6/6/2018 || Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet

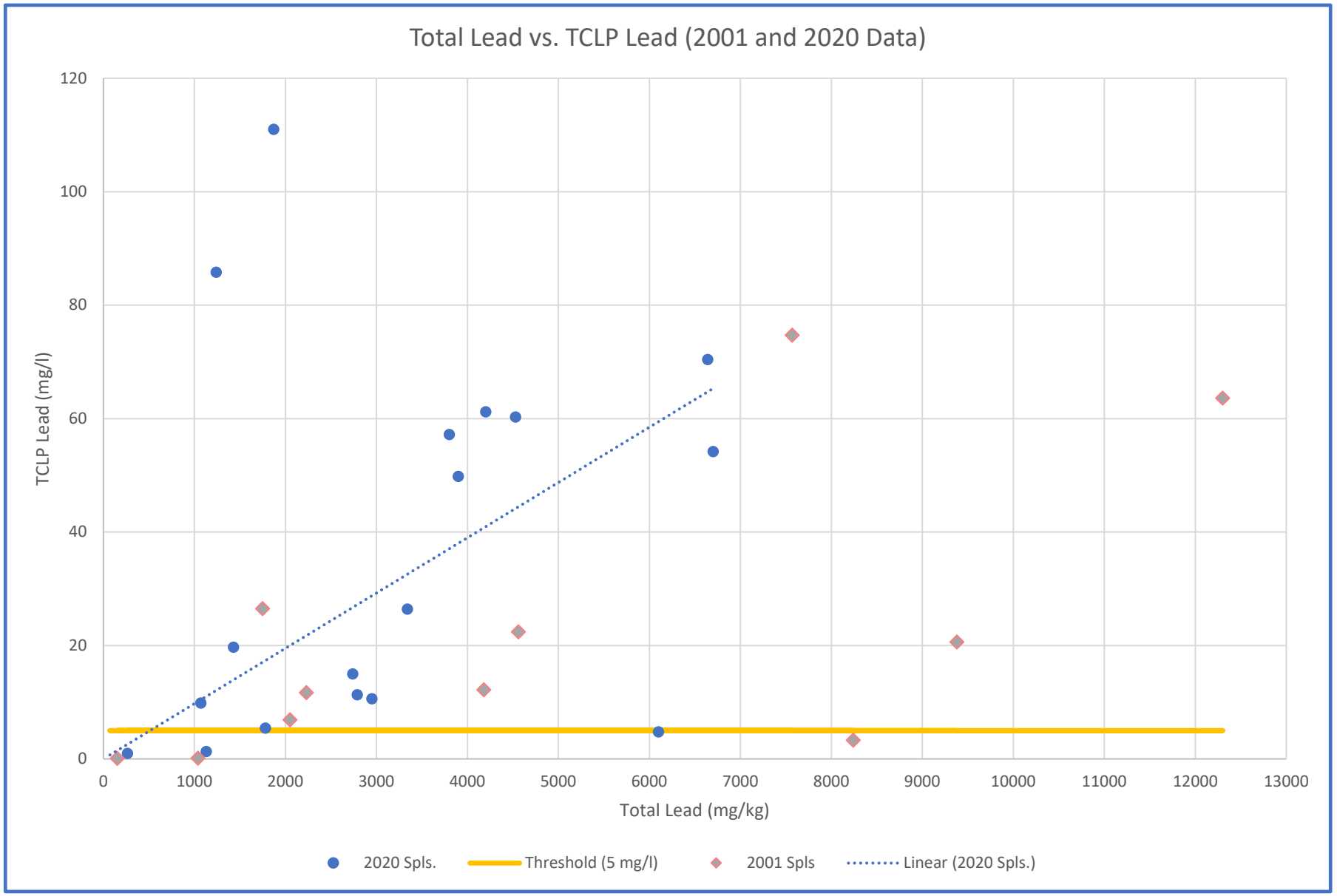
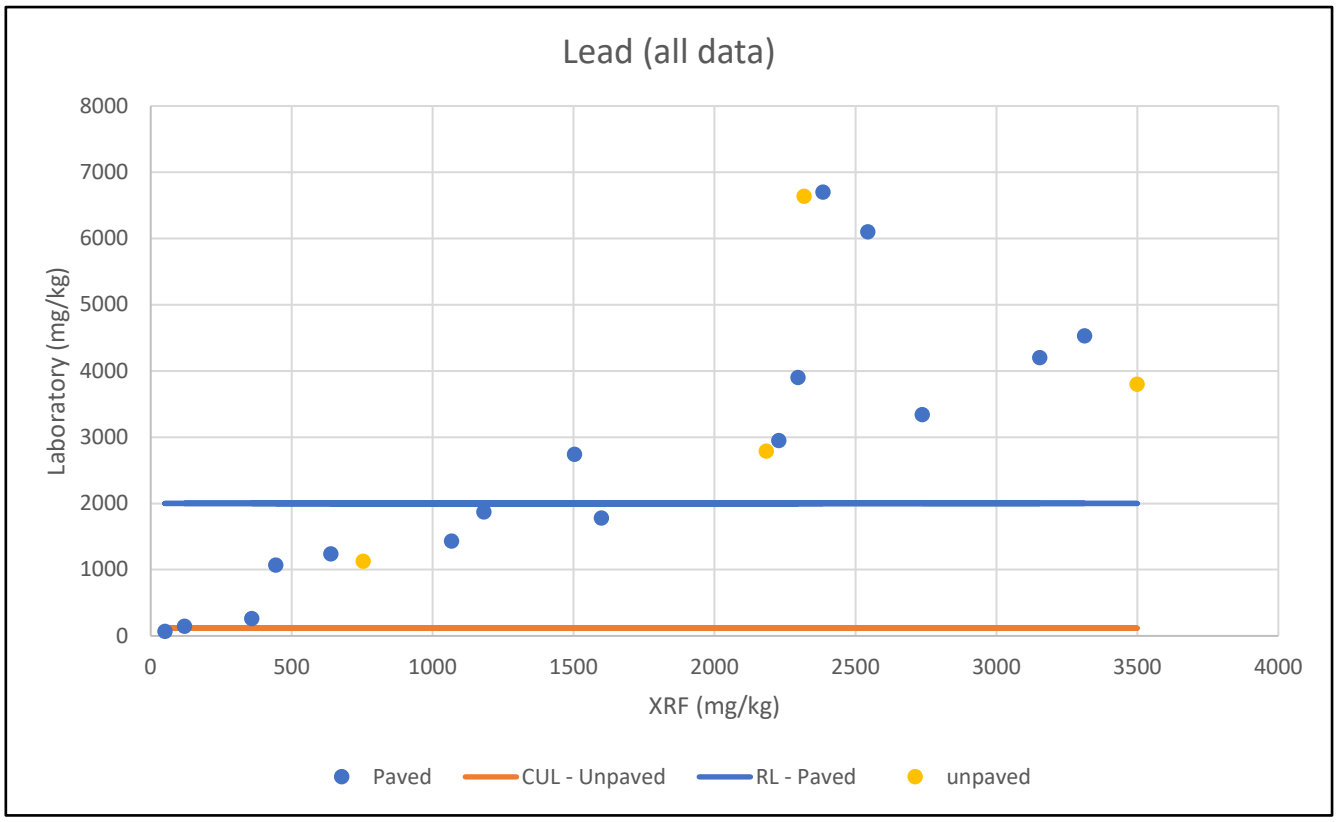
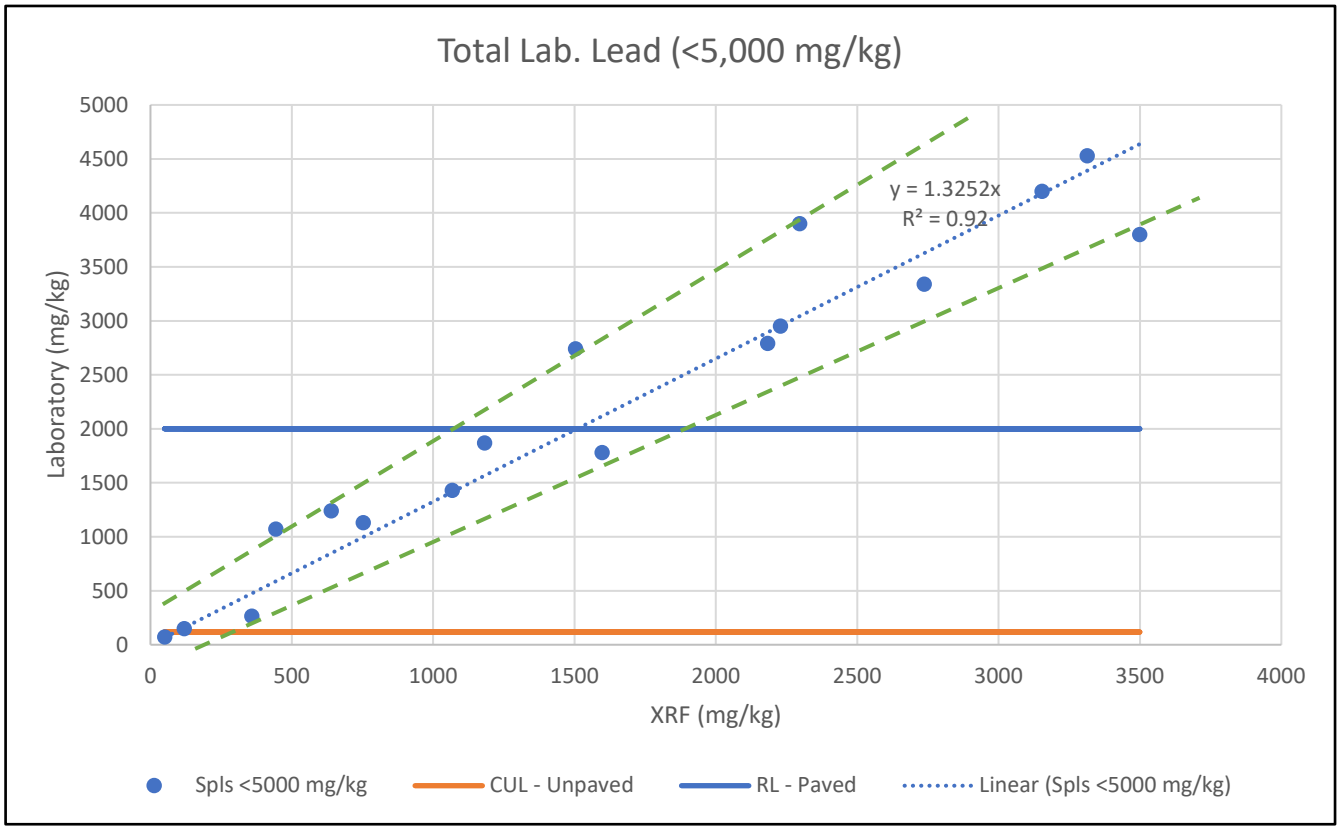


FIGURE 4 - Total vs. TCLP Lead





Dalton Olmsted Fuglevand, Inc.

FIGURE 5 - XRF vs Lab. Data

ATTACHMENT A
MAY 2020 TEST PIT LOGS

Tacoma Metals Site
Tacoma, Washington

Dalton, Olmsted & Fuglevand, Inc.

DOF DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-A**

Location: Former Tacoma Metals N 705407 E 1163969 (NAD83) Date: 5/19/2020

Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket Logged By: D. Cooper

Weather: Cloudy 55F Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF Pb (ppm)	USC	Visual Description
	TP-A_0-0.8			753		
_1		NO/NS	0	785		0-0.8' Loose, damp, mottled dark brown, gravelly, SAND, with silt - 5% metal, wood debris
	TP-A_1-2			9.4		
_2		NO/NS	0	98	SP	0.8-1.8' Loose, moist, light brown, gravelly, SAND with silt, no debris
_3		NO/NS	0	26		1.8-3.4' Loose, moist, gray, Fine to medium SAND no debris
_4		NO/NS	0	119	SM	3.4-5.5' Loose, wet, dark brown, silty, SAND, with organics
_5		NO/NS	0.4	8		
_6		SO/MS	1.5	52	O	5.5-7.0' Loose, wet, dark brown, WOODY DEBRIS strong creosote odor, medium sheen
_7						
_8						Bottom of exploration 7 feet
_9						
_10						

Key USC - Unified Soil Classification PID - Photoionization detector soil headspace reading in parts per million

NO/NS - No odor No sheen XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

Groundwater Seepage @ 6'
Calving of Sidewalls above 6'

PHOTOGRAPH

DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-B**

Location: Former Tacoma Metals N 705316 E 1163873 (NAD83) Date: 5/19/2020

Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket Logged By: D. Cooper

Weather: Cloudy 55F Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
	TP-B_0-0.8			1182		
_1		NO/NS	0	1431		0-0.8' Loose, damp, mottled dark brown, gravelly, SAND, with silt - 10% metal, wood debris
					SP with Debris	0.8-2.0' Loose, moist, light brown, gravelly, SAND with silt, wood at 2'
_2		NO/NS	0	8.2		
	TP-B_2-1			50		2.0-3.0' Loose, moist, gray, Fine to medium SAND mixed fine debris, organics
_3		NO/NS	0	116		
_4		NO/NS	0	7.5		
					SM	3.0-6.0' M Dense, wet, brown, silty, SAND, with trace gravel, mixed fine debris, organics
_5		NO/NS	0	20		
_6		NO/NS	0	20.6		
_7					O	6.0-8.0' Loose, wet, dark brown, WOODY DEBRIS
_8						
_9						Bottom of exploration 8 feet
_10						

Key USC - Unified Soil Classification PID - Photoionization detector soil headspace reading in parts per million

NO/NS - No odor No sheen XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

No Groundwater Seepage
No Sidewall Caving

PHOTOGRAPH

DOF DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-C**

Location: Former Tacoma Metals N 705264 E 1164028 (NAD83) Date: 5/19/2020

Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket Logged By: D. Cooper

Weather: Cloudy 55F Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
	TP-C_0.3-1.3			1503		0-0.3 - Asphalt Concrete
_1		NO/NS	0	2235		0.3-1.3' Loose, moist, dark brown, gravelly, SAND, with silt - 10% metal, glass, plastic, wood debris
_2		NO/NS	0	<7	SP with Debris	1.3-2.0' Loose, moist, light brown, gravelly, SAND with trace silt, no debris
_3		NO/NS	0	<6		2.0-3.0' Medium dense, wet, gray-blue, gravelly, SAND, with trace silt, no debris
	TP-C_3-4			13		3.0-4.0' Loose, moist, gray-brown, gravelly, SAND, with trace silt, mixed fine debris, ash, brick
_4		NO/NS	0	34		
_5		NO/NS	0	9	SM	4.0-6.0' M Dense, wet, dark brown, silty, SAND
_6		NO/NS	0	4.8		
_7					O	6.0-8.0' Loose, wet, dark brown, WOODY DEBRIS decomposed, 1-2' chunks
_8						
_9						Bottom of exploration 8 feet
_10						

Key USC - Unified Soil Classification PID - Photoionization detector soil headspace reading in parts per million

NO/NS - No odor No sheen XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

Rapid Groundwater Seepage @ 8'
No Calving of Sidewalls

PHOTOGRAPH

DOF DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-D**

Location: Former Tacoma Metals N 705139 E 1163990 (NAD83) Date: 5/19/2020

Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket Logged By: D. Cooper

Weather: Cloudy 55F Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
	TP-D_0.5-1.5			1067		0-0.2 - Asphalt Concrete
_1		NO/NS	8.2	1285		0.2-0.5' Loose, moist, brown, gravelly, SAND, basecourse
_2		NO/NS	0.4	<7	SP with Debris	0.5-1.5' Loose, moist, gray-brown, gravelly, SAND with silt, 10-15% debris , glass, metal, plastic
_3		NO/NS	0	<7		1.5-3.0' Medium dense, wet, gray, gravelly, SAND, with trace silt, no debris
	TP-D_3-4			13.8		
_4		NO/NS	0.2	37		
_5		NO/NS	0	13	SP	3.0-6.5' M Dense, wet, gray, Fine to medium SAND
_6		NO/NS	0.1	8		
_7						6.5-8.0' Loose, wet, dark brown, WOODY DEBRIS, mixed with silty sand (20%), large cedar timbers
_8						
_9						Bottom of exploration 8 feet
_10						

Key USC - Unified Soil Classification PID - Photoionization detector soil headspace reading in parts per million

NO/NS - No odor No sheen XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

Slight Groundwater Seepage @ 7'
No Calving of Sidewalls

PHOTOGRAPH

DOF DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-E**

Location: Former Tacoma Metals N 705114 E 1164139 (NAD83)
Date: 5/19/2020
Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket
Logged By: D. Cooper
Weather: Cloudy 55F
Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
_1	TP-E_0-2	NO/NS	0	2385	SP with Debris	0-2' Loose mix of gravelly SAND (20%) and battery casings, metal, plastic
_2						
_3						
_4						
_5					Battery Casings	2.0-10' Scrap Battery Casings, with minor metal debris Standing water at 2.5 feet bgs.
_6						
_7						
_8						
_9						
_10						Bottom of exploration 10 feet

Key USC - Unified Soil Classification
NO/NS - No odor No sheen
PID - Photoionization detector soil headspace reading in parts per million
XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

Standing water @ 2.5' - likely flooded vault/basement
No Calving of Sidewalls

PHOTOGRAPH

DOF DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-F**

Location: Former Tacoma Metals N 705109 E 1164232 (NAD83)
Date: 5/19/2020
Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket
Logged By: D. Cooper
Weather: Cloudy 60F
Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
_1		NO/NS	0	10		0-0.4 - Asphalt Concrete 0.4-2.5' Very dense, moist, light brown, gravelly, SAND no debris
_2		NO/NS	0	<7	SP with Debris	
_3	TP-F_2.5-3.5	NO/NS	0	1253 639		2.5-3.5' Dense, Moist, Mottled brown, gravelly, SAND, with trace silt, 5% debris - wire, brick, metal, white precipitate
_4		NO/NS	0	<8		
_5		NO/NS	0	<10	SP	3.0-5.5' Dense, moist, brown, gravelly SAND, with trace silt, no debris
_6		NO/NS	0	<7		
_7					SP-SM	5.5-8.0' Dense, wet, red brown, gravelly SAND with silt scattered fire-brick
_8						
_9						Bottom of exploration 8 feet
_10						

Key USC - Unified Soil Classification PID - Photoionization detector soil headspace reading in parts per million
NO/NS - No odor No sheen XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

No Seepage
No Calving of Sidewalls

PHOTOGRAPH

DOF DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-G**

Location: Former Tacoma Metals N 705146 E 1164291 (NAD83) Date: 5/19/2020

Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket Logged By: D. Cooper

Weather: Cloudy 60F Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
	TP-G_0-2.5			3499		
_1		NO/NS	0	5329	SP with Debris	0-1' Loose, moist, brown, silty, SAND, with fine wood, roots, white precipitate
_2		NO/NS	0	4663		1-2.5' As above, with higher fraction of blue-white precipitate
_3		NO/NS	0	705		2.5-3.5' Loose, wet, dark brown, organic, silty, SAND
	TP-G_2.5-3.5			936		
_4		NO/NS	0	56		
_5		NO/NS	0	270*	SP	3.5-6.5' M Dense, wet, brown, gravelly SAND, with trace silt (* bucket sample, possible carry-down)
_6		NO/NS	0	22		
_7					SM	6.5-8.0' Loose, wet, dark brown, silty SAND, with organics, large woody debris - decomposed
_8						
_9						Bottom of exploration 8 feet
_10						

Key USC - Unified Soil Classification PID - Photoionization detector soil headspace reading in parts per million

NO/NS - No odor No sheen XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

No Groundwater Seepage
Calving of Sidewalls above 6'

PHOTOGRAPH

DOF DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-H**

Location: Former Tacoma Metals N 705066 E 1164369 (NAD83) Date: 5/19/2020

Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket Logged By: D. Cooper

Weather: Cloudy 60F Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
_1	TP-H_0.5-2.0	NO/NS	0	2200	SP with Debris	0-0.5' Thick root mat
_2		NO/NS	0	2542		0.5-3.0' Loose, wet, mottled white-brown, silty, SAND, with gravel, many roots, scattered wood, metal, white-blue precipitate thoughout
_3	TP-H_2-3	NO/NS	0	1863		
_4		NO/NS	0	13.6		
_5		NO/NS	0	5.7	SP	3.0-6.0' Loose, wet, brown, gravelly, SAND, with trace silt, scattered wood
_6		NO/NS	0	6.5		
_7					SP	6.0-8.0' Loose, wet, dark gray, Fine to medium SAND, with large WOODY DEBRIS
_8						
_9						Bottom of exploration 8 feet
_10						

Key USC - Unified Soil Classification PID - Photoionization detector soil headspace reading in parts per million

NO/NS - No odor No sheen XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

No Groundwater Seepage
Slight Calving of Sidewalls

PHOTOGRAPH

DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-I**

Location: Former Tacoma Metals N 7048915146 E 1164354 (NAD83) Date: 5/19/2020

Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket Logged By: D. Cooper

Weather: Cloudy 60F Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
_1		NO/NS	0	27		0-0.3 Asphalt Concrete 0.3-1.3' Dense, moist, brown, gravelly SAND, with trace silt, no debris
	TP-I_1-2			1598	SP	
_2		NO/NS	0	894	with Debris	1.3-3.4' Very dense, moist, mottled brown, gravelly SAND with silt, fine debris (10%) brick, glass, metal, asphalt
	TP-I_2-3			129		
_3		NO/NS	0	85		
_4		NO/NS	0	9		
_5		NO/NS	0	<6	SP	3.4-7.5' Dense, moist, brown, gravelly SAND, with trace silt no debris
_6						
_7		NO/NS	0	<6		
_8					SM	7.5-8.0' loose, wet, dark brown, silty SAND, with organics
_9						Bottom of exploration 8 feet
_10						

Key USC - Unified Soil Classification PID - Photoionization detector soil headspace reading in parts per million

NO/NS - No odor No sheen XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

No Groundwater Seepage
No Calving of Sidewalls

PHOTOGRAPH

DOF DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-J**

Location: Former Tacoma Metals N 704893 E 1164455 (NAD83) Date: 5/19/2020

Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket Logged By: D. Cooper

Weather: Cloudy 60F Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
_1		NO/NS	0	2025		0-0.4 Asphalt Concrete 0.4-1.6' Very dense, moist, dark brown, gravelly SAND, with silt, debris (30%) metal, gl;ass, car parts, large scrap
	TP-J_0.5-1.5			2296	SP with Debris	
_2		SLO/NS	7.4	212		
	TP-J_2-3			444		1.6-3.5' Very dense, moist, dark gray/black, larger car parts in a gravelly SAND matrix, slight heavy oil odor
_3		SLO/NS	12.5	684		
_4		NO/NS	1.5	7		
_5		NO/NS	0	<6	SP	3.5-6' Dense, moist, blue-gray, gravelly SAND, with trace silt no debris
_6		NO/NS	0	<6		
_7						6-7' Medium dense, wet, gray, Fine to medium SAND
_8					O	7-8' loose, wet, dark brown, WOODY DEBRIS / silty sand matrix
_9						Bottom of exploration 8 feet
_10						

Key USC - Unified Soil Classification PID - Photoionization detector soil headspace reading in parts per million

NO/NS - No odor No sheen XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

No Groundwater Seepage
No Calving of Sidewalls

PHOTOGRAPH

DOF DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-K**

Location: Former Tacoma Metals N 704807 E 1164479 (NAD83) Date: 5/19/2020

Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket Logged By: D. Cooper

Weather: Cloudy 60F Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
_1		NO/NS	0	<5.6	SP with Debris	0-0.4 Asphalt Concrete 0.4-1.5' Medium dense, moist, light brown, gravelly, SAND, with trace silt, no debris
_2	TP-J_1.5-3.5	NO/NS	0	1913 2228		1.5-3.5' Dense, moist, dark brown, gravelly, SAND, with silt, 10-20% debris - large metal scrap, wire, glass, fire brick
_3		NO/NS	0	1610		
_4		NO/NS	0	7	SP	3.5-4.5' Dense, moist, blue-gray, gravelly SAND, with trace silt, no debris
_5		NO/NS	0	16		
_6					SM	7-8' Medium dense, wet, silty, Fine SAND, with woody debris
_7						
_8						
_9						Bottom of exploration 8 feet
_10						

Key USC - Unified Soil Classification PID - Photoionization detector soil headspace reading in parts per million

NO/NS - No odor No sheen XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

No Groundwater Seepage
No Calving of Sidewalls

PHOTOGRAPH

DOF DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-L**

Location: Former Tacoma Metals N 704807 E 1164479 (NAD83) Date: 5/19/2020

Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket Logged By: D. Cooper

Weather: Cloudy 60F Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
_1	TP-L_0.4-1.4	NO/NS	0	1451	SP with Debris	0-0.4 Asphalt Concrete 0.4-1.4' Dense, moist, Dark brown, gravelly, SAND, with trace silt, 10% debris - metal swarf, wire, glass, white precipitate
_2		NO/NS	0	<7		
_3		NO/NS	0	<8	SP	1.4-5' Dense, moist, brown, gravelly SAND, with trace silt, no debris
_4		NO/NS	0	<8		
_5		NO/NS	0	19		
_6		NO/NS	0	9.8		
_7					SM	5-8' Loose, wet, dark brown, silty, Fine SAND, with woody debris
_8						
_9						Bottom of exploration 8 feet
_10						

Key USC - Unified Soil Classification PID - Photoionization detector soil headspace reading in parts per million

NO/NS - No odor No sheen XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

No Groundwater Seepage
No Calving of Sidewalls

PHOTOGRAPH

DOF DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-M**

Location: Former Tacoma Metals N 704782 E 1164610 (NAD83)
Date: 5/19/2020
Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket
Logged By: D. Cooper
Weather: Cloudy 60F
Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
_1	TP-M_0-1.2	NO/NS	0	3000 2183	SP with Debris	0-1.2' Loose, moist, Dark brown, silty, SAND, with gravel, fine debris - metal, wire, glass, organics
_2		NO/NS	0	11.1		1.4-3' Loose, wet, mottled brown, interbedded gravelly, sand and silty, sand, trace debris - brick wood
_3		NO/NS	0	9		
_4		NO/NS	0	7	SP	3-5' Loose, wet, brown, SAND, with gravel and trace silt
_5		NO/NS	0	7		
_6					O	5-8' Loose, wet, dark brown, WOODY DEBRIS
_7						
_8						
_9						Bottom of exploration 8 feet
_10						

Key USC - Unified Soil Classification PID - Photoionization detector soil headspace reading in parts per million
NO/NS - No odor No sheen XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

No Groundwater Seepage
Calving of Sidewalls 1-2'

PHOTOGRAPH

DOF DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-N**

Location: Former Tacoma Metals N 704645 E 1164557 (NAD83) Date: 5/19/2020

Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket Logged By: D. Cooper

Weather: Cloudy 60F Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
_1	TP-N_0.3-1.3	NO/NS	0	128 358	SP with Debris	0-0.3 Asphalt Concrete 0.3-1.3' Dense, moist, mottled brown, gravelly, SAND, with silt, Trace wood, staining
_2		NO/NS	0	<5.4		
_3		NO/NS	0	<5.3	SP	1.3-6' Dense, moist, brown, gravelly SAND, with trace silt, no debris
_4		NO/NS	0	<5.4		
_5						
_6		NO/NS	0	<6		
_7					SP-O	6-8' Loose, wet, brown, silty, Fine SAND, with scattered woody debris
_8						
_9						Bottom of exploration 8 feet
_10						

Key USC - Unified Soil Classification PID - Photoionization detector soil headspace reading in parts per million

NO/NS - No odor No sheen XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

No Groundwater Seepage
No Calving of Sidewalls

PHOTOGRAPH

DOF DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-O**

Location: Former Tacoma Metals N 704671 E 1164655 (NAD83) Date: 5/19/2020

Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket Logged By: D. Cooper

Weather: Cloudy 60F Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
_1		NO/NS	0	2415	SP with Debris	0-0.4 Asphalt Concrete 0.4-0.8 Loose moist, light brown, gravelly, SAND, basecourse
	TP-OP_1-3			2543		
_2		NO/NS	0	3025		0.8-4.0' Medium dense, moist, mottled brown, gravelly, SAND, with silt, 5-10% debris - brick, metal, wire, glass, white precipitate
_3		NO/NS	0	1326		
	TP-O_3-4			1130		
_4		NO/NS	0	6.2		
_5		NO/NS	0	11		4-5' Medium dense, wet, gray, gravelly, SAND, with trace silt
_6					SP	5-8' Loose, moist, gray, Fine to medium SAND, uniform
_7						
_8						
_9	DUPL-1 (duplicate of TP-O_1-3)					Bottom of exploration 8 feet
_10						

Key USC - Unified Soil Classification PID - Photoionization detector soil headspace reading in parts per million

NO/NS - No odor No sheen XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

No Groundwater Seepage
Slight Calving of Sidewalls

PHOTOGRAPH

DOF DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-P**

Location: Former Tacoma Metals N 704604 E 1164694 (NAD83)
Date: 5/19/2020
Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket
Logged By: D. Cooper
Weather: Cloudy 60F
Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
						0-0.3 Asphalt Concrete
_1		NO/NS	0	3977	SP with Debris	0.3-0.5 Loose moist, light brown, gravelly, SAND, basecourse
	TP-P_0.5-3			3154		
_2		NO/NS	0	3328		0.5-2.5' Dense, moist, mottled brown, gravelly, SAND, with silt, 5-10% debris - brick, metal, rubber, wire, glass
_3		NO/NS	0	959		2.5-3.0 Moist, black, Cinder-Coke-Coal like interbed
	TP-P_3-4			1605		3-4' Very dense, wet, brown, gravelly SAND with trace silt
_4		NO/NS	0	9		no debris
_5		NO/NS	0	12		
_6					SP	4-8' Loose, moist, gray, Fine to medium SAND, uniform
_7						
_8						
_9						Bottom of exploration 8 feet
_10						

Key USC - Unified Soil Classification PID - Photoionization detector soil headspace reading in parts per million
NO/NS - No odor No sheen XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

No Groundwater Seepage
No Calving of Sidewalls

PHOTOGRAPH

DOF DALTON OLMSTED FUGLEVAND

TEST PIT LOG

TEST PIT NO. **TP-Q**

Location: Former Tacoma Metals N 704566 E 1164660 (NAD83)
Date: 5/19/2020
Contractor: HOLT - Deere 310SL Extend-a-hoe w/2' bucket
Logged By: D. Cooper
Weather: Cloudy 60F
Reviewed By: M. Dalton

Depth Ft.	Sample Number	Odors or Sheens	PID (ppm)	XRF-Pb (ppm)	USC	Visual Description
_1		NO/NS	0	7.3	SP	0-0.4 Asphalt Concrete 0.4-1.5' Dense, moist, light brown, gravelly, SAND, basecourse
_2		NO/NS	0	2805	SP with Debris	1.5-4.0' Very dense, moist, mottled gray, gravelly, SAND, with silt, 0% debris - wire, metal sheet, red brick, fire brick, glass
	TP-Q_1.5-3			2737		
_3		NO/NS	0	427		
	TP-O_3-4			149		
_4		NO/NS	0	64		
_5						
_6		NO/NS	0	<5.4	SP	4-8' Medium dense wet, gray, gravelly, SAND, with trace silt
_7						
_8						
_9						Bottom of exploration 8 feet
_10						

Key USC - Unified Soil Classification
NO/NS - No odor No sheen
PID - Photoionization detector soil headspace reading in parts per million
XRF Pb - Lead concentration using Olympus DCC-2000 XRF

SEEPAGE / STABILITY OBSERVATIONS

No Groundwater Seepage
Calving of Sidewalls below 4'

PHOTOGRAPH

ATTACHMENT B
LABORATORY REPORTS – May 2020 Test Pit Sampling

Tacoma Metals Site
Tacoma, Washington

Dalton, Olmsted & Fuglevand, Inc.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

29 June 2020

Dave Cooper
Dalton, Olmsted & Fuglevand, Inc
1420 - 156th Ave., NE STE C1
Bellevue, WA 98007

RE: Former Tacoma Metals

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
20E0270	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in it entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20E0270	Turn-around Requested: Normal	Date: 5/22/20	
ARI Client Company: Dalton Olmsted & Fuglevand	Phone: 206-660-3466	Page: 1 of 3	
Client Contact: Matt Dalton / Dave Cooper		No. of Coolers: 3	Cooler Temps: 3.4, 4.3, 5.3
Client Project Name: Former Tacoma Metals			
Client Project #: WKG-001	Samplers: DG Cooper		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: RCRA Metas (As, Ba, Cd, Cr, Hg, Pb, Se, Ag)	Cd, Pb only									Notes/Comments
TP-A_0-0.8	5/19/2020	1130	SOIL	2	X										
TP-A_I-2	5/19/2020	1140	SOIL	2											(archive)
TP-B_0-0.8	5/19/2020	0930	SOIL	2	X										
TP-B_2-3	5/19/2020	0940	SOIL	2		X									
TP-C_0.3-1.3	5/19/2020	1020	SOIL	2	X										
TP-C_3-4	5/19/2020	1030	SOIL	2											(archive)
TP-D_0.5-1.5	5/19/2020	1230	SOIL	2	X										
TP-D_3-4	5/19/2020	1240	SOIL	2											(archive)
TP-E_0-2	5/19/2020	1330	SOIL	2	X										
TP-F_2.5-3.5	5/19/2020	1430	SOIL	2	X										
TP-G_0-2.5	5/19/2020	1400	SOIL	2	X										
TP-G_2.5-3.5	5/19/2020	1410	SOIL	2											(archive)

Comments/Special Instructions	Relinqushed by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: N. Cooper	Printed Name: Shelly Fisher	Printed Name:	Printed Name:
	Company: DGF	Company: ARI	Company:	Company:
	Date & Time: 5/22/20 1150	Date & Time: 5/22/2020 1150	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20E0270	Turn-around Requested: Normal	Date: 5/22/20	
ARI Client Company: Dalton Olmsted & Fuglevand	Phone: 206-660-3466	Page: 2 of 3	
Client Contact: Matt Dalton / Dave Cooper		No. of Coolers: 3	Cooler Temps: 3.4, 4.3, 5.3
Client Project Name: Former Tacoma Metals			
Client Project #: WKG-001	Samplers: DG Cooper		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: RCRA Metas (As, Ba, Cd, Cr, Hg, Pb, Se, Ag)	Analysis Requested: Cd, Pb only	Notes/Comments
TP-H_0.5-2	5/19/2020	1700	SOIL	2	X		
TP-H_2-3	5/19/2020	1710	SOIL	2			(archive)
TP-I_1-2	5/20/2020	0830	SOIL	2	X		
TP-I_2-3	5/20/2020	0840	SOIL	2		X	
TP-J_0.5-1.5	5/20/2020	0930	SOIL	2	X		
TP-J_2-3	5/20/2020	0940	SOIL	2		X	
TP-K_1.5-3.5	5/20/2020	1015	SOIL	2	X		
TP-L_0.4-1.4	5/20/2020	1130	SOIL	2	X		
TP-M_0-1.2	5/20/2020	1200	SOIL	2	X		
TP-N_0.3-1.3	5/20/2020	1300	SOIL	2	X		
TP-O_1-3	5/20/2020	1340	SOIL	2	X		
TP-O_3-4	5/20/2020	1315	SOIL	2			(archive)

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: DG Cooper	Printed Name: Shelly Fishel	Printed Name:	Printed Name:
	Company: DOF	Company: ARI	Company:	Company:
	Date & Time: 5/22/20 1150	Date & Time: 5/22/2020 1150	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20E0270	Turn-around Requested: Normal	Date: 5/22/20	
ARI Client Company: Dalton Olmsted & Fuglevand	Phone: 206-660-3466	Page: 3 of 3	
Client Contact: Matt Dalton / Dave Cooper		No. of Coolers: 3	Cooler Temps: 3.4, 4.3, 5.3
Client Project Name: Former Tacoma Metals			
Client Project #: WKG-001	Samplers: DG Cooper		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: RCRA Metas (As, Ba, Cd, Cr, Hg, Pb, Se, Ag)	Analysis Requested: Cd, Pb only	Notes/Comments
TP-P_0.5-3	5/19/2020	1430	SOIL	2	X		
TP-P_3-4	5/19/2020	1440	SOIL	2			(archive)
TP-Q_1.5-3	5/20/2020	1530	SOIL	2	X		
TP-Q_3-4	5/20/2020	1540	SOIL	2			(archive)
DUPL-1	5/20/2020	1345	SOIL	2	X		

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: DG Cooper	Printed Name: Shelly L Fisher	Printed Name:	Printed Name:
	Company: DOF	Company: ARI	Company:	Company:
	Date & Time: 5/22/20 1150	Date & Time: 5/22/2020	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: Normal	Date: 5/22/20
ARI Client Company: Dalton Olmsted & Fuglevand	Phone: 206-660-3466	Page: 1 of 3
Client Contact: Matt Dalton / Dave Cooper		No. of Coolers: 3 Cooler Temps: 3.4, 4.3 5.3
Client Project Name: Former Tacoma Metals		
Client Project #: WKG-001	Samplers: DG Cooper	

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: RCRA Metas (As, Ba, Cd, Cr, Hg, Pb, Se, Ag)	Cd, Pb only	TCLP RCRA metals	TCLP Pb+Cd							Notes/Comments
															TCLP-Request M. DALTON 6/11/20
TP-A_0-0.8	5/19/2020	1130	SOIL	2	X			⊗							
TP-A_I-2	5/19/2020	1140	SOIL	2											(archive)
TP-B_0-0.8	5/19/2020	0930	SOIL	2	X			⊗							
TP-B_2-3	5/19/2020	0940	SOIL	2		X									
TP-C_0.3-1.3	5/19/2020	1020	SOIL	2	X			⊗							
TP-C_3-4	5/19/2020	1030	SOIL	2											(archive)
TP-D_0.5-1.5	5/19/2020	1230	SOIL	2	X			⊗							
TP-D_3-4	5/19/2020	1240	SOIL	2											(archive)
TP-E_0-2	5/19/2020	1330	SOIL	2	X		⊗								
TP-F_2.5-3.5	5/19/2020	1430	SOIL	2	X			⊗							
TP-G_0-2.5	5/19/2020	1400	SOIL	2	X			⊗							
TP-G_2.5-3.5	5/19/2020	1410	SOIL	2											(archive)

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: N. Cooper	Printed Name: Shelly Fisher	Printed Name:	Printed Name:
	Company: DF	Company: ARI	Company:	Company:
	Date & Time: 5/22/20 1150	Date & Time: 5/22/2020 1150	Date & Time:	Date & Time:

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: Normal	Date: 5/22/20
ARI Client Company: Dalton Olmsted & Fuglevand	Phone: 206-660-3466	Page: 2 of 3
Client Contact: Matt Dalton / Dave Cooper		No. of Coolers: 3 Cooler Temps: 3.4, 4.3, 5.3
Client Project Name: Former Tacoma Metals		
Client Project #: WKG-001	Samplers: DG Cooper	

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: RCRA Metas (As, Ba, Cd, Cr, Hg, Pb, Se, Ag)	Cd, Pb only	TCLP RCRA metals	TCLP Pb+Cd	Notes/Comments
TP-H_0.5-2	5/19/2020	1700	SOIL	2	X		X		
TP-H_2-3	5/19/2020	1710	SOIL	2					(archive)
TP-I_1-2	5/20/2020	0830	SOIL	2	X			X	
TP-I_2-3	5/20/2020	0840	SOIL	2		X			
TP-J_0.5-1.5	5/20/2020	0930	SOIL	2	X			X	
TP-J_2-3	5/20/2020	0940	SOIL	2		X		X	
TP-K_1.5-3.5	5/20/2020	1015	SOIL	2	X			X	
TP-L_0.4-1.4	5/20/2020	1130	SOIL	2	X		X		
TP-M_0-1.2	5/20/2020	1200	SOIL	2	X			X	
TP-N_0.3-1.3	5/20/2020	1300	SOIL	2	X			X	
TP-O_1-3	5/20/2020	1340	SOIL	2	X		X		
TP-O_3-4	5/20/2020	1315	SOIL	2					(archive)

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: DG Cooper	Printed Name: Shelly Fisher	Printed Name:	Printed Name:
	Company: DOF	Company: ARI	Company:	Company:
	Date & Time: 5/22/20 1150	Date & Time: 5/22/2020 1150	Date & Time:	Date & Time:

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: Normal	Date: 5/22/20	
ARI Client Company: Dalton Olmsted & Fuglevand	Phone: 206-660-3466	Page: 3 of 3	
Client Contact: Matt Dalton / Dave Cooper		No. of Coolers: 3	Cooler Temps: 3.4, 4.3, 5.3
Client Project Name: Former Tacoma Metals			
Client Project #: WKG-001	Samplers: DG Cooper		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: RCRA Metas (As, Ba, Cd, Cr, Hg, Pb, Se, Ag)	Cd, Pb only	TCLP RCRA metals	TCLP Pb+Cd	Notes/Comments
TP-P_0.5-3	5/19/2020	1430	SOIL	2	X		X		
TP-P_3-4	5/19/2020	1440	SOIL	2					(archive)
TP-Q_1.5-3	5/20/2020	1530	SOIL	2	X			X	
TP-Q_3-4	5/20/2020	1540	SOIL	2					(archive)
DUPL-1	5/20/2020	1345	SOIL	2	X				

Comments/Special Instructions	Relinquished by (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: D.G. COOPER	Printed Name: Shelly L Fisher	Printed Name:	Printed Name:
	Company: DOF	Company: ARI	Company:	Company:
	Date & Time: 5/22/20 1150	Date & Time: 5/22/2020	Date & Time:	Date & Time:

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TP-A_0-0.8	20E0270-01	Solid	19-May-2020 11:30	26-May-2020 11:50
TP-A_1-2	20E0270-02	Solid	19-May-2020 11:40	26-May-2020 11:50
TP-B_0-0.8	20E0270-03	Solid	19-May-2020 09:30	26-May-2020 11:50
TP-B_2-3	20E0270-04	Solid	19-May-2020 09:40	26-May-2020 11:50
TP-C_0.3-1.3	20E0270-05	Solid	19-May-2020 10:20	26-May-2020 11:50
TP-C_3-4	20E0270-06	Solid	19-May-2020 10:30	26-May-2020 11:50
TP-D_0.5-1.5	20E0270-07	Solid	19-May-2020 12:30	26-May-2020 11:50
TP-D_3-4	20E0270-08	Solid	19-May-2020 12:40	26-May-2020 11:50
TP-E_0-2	20E0270-09	Solid	19-May-2020 13:30	26-May-2020 11:50
TP-F_2.5-3.5	20E0270-10	Solid	19-May-2020 14:30	26-May-2020 11:50
TP-G_0-2.5	20E0270-11	Solid	19-May-2020 14:00	26-May-2020 11:50
TP-G_2.5-3.5	20E0270-12	Solid	19-May-2020 14:10	26-May-2020 11:50
TP-H_0.5-2	20E0270-13	Solid	19-May-2020 17:00	26-May-2020 11:50
TP-H_2-3	20E0270-14	Solid	19-May-2020 17:10	26-May-2020 11:50
TP-I_1-2	20E0270-15	Solid	20-May-2020 08:30	26-May-2020 11:50
TP-I_2-3	20E0270-16	Solid	20-May-2020 09:40	26-May-2020 11:50
TP-J_0.5-1.5	20E0270-17	Solid	20-May-2020 09:30	26-May-2020 11:50
TP-J_2-3	20E0270-18	Solid	20-May-2020 09:40	26-May-2020 11:50
TP-K_1.5-3.5	20E0270-19	Solid	20-May-2020 10:15	26-May-2020 11:50
TP-L_0.4-1.4	20E0270-20	Solid	20-May-2020 11:30	26-May-2020 11:50
TP-M_0-1.2	20E0270-21	Solid	20-May-2020 12:00	26-May-2020 11:50
TP-N_0.3-1.3	20E0270-22	Solid	20-May-2020 13:00	26-May-2020 11:50
TP-O_1-3	20E0270-23	Solid	20-May-2020 13:40	26-May-2020 11:50
TP-O_3-4	20E0270-24	Solid	20-May-2020 13:15	26-May-2020 11:50
TP-P_0.5-3	20E0270-25	Solid	19-May-2020 14:30	26-May-2020 11:50
TP-P_3-4	20E0270-26	Solid	19-May-2020 14:40	26-May-2020 11:50
TP-Q_1.5-3	20E0270-27	Solid	20-May-2020 15:30	26-May-2020 11:50
TP-Q_3-4	20E0270-28	Solid	20-May-2020 15:40	26-May-2020 11:50
DUPL-1	20E0270-29	Solid	20-May-2020 13:45	26-May-2020 11:50

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

Work Order Case Narrative

Total Metals - EPA Method 6020A and 7471

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) contained lead. Only samples that are non-detect or ten times greater the method blank were reported. Samples that contain analyte have been flagged with a "B" qualifer.

The LCS percent recoveries were within control limits.

The matrix spike/matrix spike duplicate recoveries and RPD were within limits with the exception of analytes flagged on the associated forms.

TCLP Metals

The samples were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank has Barium detected above the reporting limit. This is normal filter contamination. Associated detetcted results and QC have been flagged with "B" qualifiers. No further corrective action was taken.

A matrix spike, matrix spike duplicate and duplicate were prepared in conjunction with sample TP-D_0.5-1.5. The duplicate has a Chromium concetration <=5 times the reporting limit and the replicate control limit defaults to +/- the reporting limit instead of 20% the RPD. The Chromium has been flagged with an "L" on the duplicate. The results are advisory. All other matrix spike, matrix spike duplicate and duplicate percent recoveries and/or RPD were within QC limits. No further corrective action was taken.

A matrix spike, matrix spike duplicate and duplicate were prepared in conjunction with sample TP-J_2-3. The matrix spike and matrix spike duplicate have natural concentrations of Lead that are so much greater than the concentrations spiked that an accurate determination of spike recovery is not possible. The Lead has been flagged with "HC" qualifiers on the MS/MSD. The results are advisory. All other matrix spike, matrix spike duplicate and duplicate percent recoveries and/or RPD were within QC limits. No further corrective action was taken.

A Mercury matrix spike, matrix spike duplicate and duplicate were prepared in conjunction with sample TP-E_0-2. The matrix spike, matrix spike duplicate and duplicate percent recoveries and/or RPD were within QC limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: DOE Project Name: Former Tacoma Metals

COC No(s): NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 20E0270 Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 3.4 4.3 5.3 ___ ___ ___

Time 1152

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 5201

Cooler Accepted by: _____ Date: 5/22/2020 Time: 1152

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		YES
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?	JG	YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JG Date: 05/26/2020 Time: ~~1227~~ 1255 JG Labels checked by: JG

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

only received 1 container for "DUPL-1" instead of the listed 2 containes.

By: JG Date: 05/26/2020

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-A_0-0.8

20E0270-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/19/2020 11:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 15:15

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-01 A 01
Preparation Batch: BIE0518 — Sample Size: 1.05 g (wet) — Dry Weight:0.93 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 88.97

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	200	0.60	5.35	297	mg/kg	D
Lead	7439-92-1	200	0.73	1.07	1130	mg/kg	B, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 18:46

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-01 A 01
Preparation Batch: BIE0518 — Sample Size: 1.05 g (wet) — Dry Weight:0.93 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 88.97

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.14	0.54	59.0	mg/kg	
Silver	7440-22-4	20	0.02	0.21	4.29	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-A_0-0.8

20E0270-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/19/2020 11:30
Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 18:46

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-01 A 01
Preparation Batch: BIE0518 — Sample Size: 1.05 g (wet) — Dry Weight:0.93 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 88.97

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	28.5	mg/kg	
Cadmium	7440-43-9	20	0.04	0.11	12.7	mg/kg	
Selenium	7782-49-2	20	0.47	0.54	2.02	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-A_0-0.8

20E0270-01 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/19/2020 11:30

Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 13:27

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-01 A

Preparation Batch: BIE0517 — Sample Size: 0.215 g (wet) — Dry Weight:0.19 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 88.97

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	2	0.0110	0.0523	1.39	mg/kg	D

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-A_0-0.8

20E0270-01 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/19/2020 11:30

Instrument: ICP2 Analyst: TCH — Analyzed: 06/25/2020 23:59

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-01 A 03

Preparation Batch: BIF0652 — Sample Size: 25 mL (wet)

Prepared: 06/23/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	5	0.0006	0.0100	0.0838	mg/L	
Lead	7439-92-1	5	0.0065	0.100	1.31	mg/L	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-B_0-0.8

20E0270-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/19/2020 09:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 15:59

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-03 A 01
Preparation Batch: BIE0518 — Sample Size: 1.079 g (wet) — Dry Weight:0.95 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 87.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	200	0.59	5.29	587	mg/kg	D
Lead	7439-92-1	200	0.72	1.06	1870	mg/kg	B, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 18:41

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-03 A 01
Preparation Batch: BIE0518 — Sample Size: 1.079 g (wet) — Dry Weight:0.95 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 87.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.14	0.53	118	mg/kg	
Silver	7440-22-4	20	0.02	0.21	1.26	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-B_0-0.8

20E0270-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/19/2020 09:30
Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 18:41

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-03 A 01
Preparation Batch: BIE0518 — Sample Size: 1.079 g (wet) — Dry Weight:0.95 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 87.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	46.1	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	27.8	mg/kg	
Selenium	7782-49-2	20	0.47	0.53	1.98	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-B_0-0.8

20E0270-03 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/19/2020 09:30
Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 14:12

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-03 A
Preparation Batch: BIE0517 — Sample Size: 0.247 g (wet) — Dry Weight:0.22 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 87.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	2	0.00970	0.0462	1.91	mg/kg	D

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-B_0-0.8

20E0270-03 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/19/2020 09:30

Instrument: ICP2 Analyst: TCH — Analyzed: 06/25/2020 22:24

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-03 B 02

Preparation Batch: BIF0742 — Sample Size: 25 mL (wet)

Prepared: 06/25/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	5	0.0006	0.0100	0.253	mg/L	
Lead	7439-92-1	5	0.0065	0.100	111	mg/L	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-B_2-3

20E0270-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/19/2020 09:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 16:24

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-04 A 01

Preparation Batch: BIE0519 — Sample Size: 1.059 g (wet) — Dry Weight:0.94 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 88.94

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	20	0.07	0.11	71.1	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-B_2-3

20E0270-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/19/2020 09:40

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 21:02

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-04 A 01

Preparation Batch: BIE0519 — Sample Size: 1.059 g (wet) — Dry Weight:0.94 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 88.94

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	20	0.03	0.11	0.18	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-C_0.3-1.3

20E0270-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/19/2020 10:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 14:56

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-05 A 01
Preparation Batch: BIE0518 — Sample Size: 1.057 g (wet) — Dry Weight:0.89 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 84.28

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	500	1.57	14.0	1340	mg/kg	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 19:22

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-05 A 01
Preparation Batch: BIE0518 — Sample Size: 1.057 g (wet) — Dry Weight:0.89 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 84.28

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.15	0.56	143	mg/kg	
Lead	7439-92-1	500	1.91	2.81	2740	mg/kg	B, D
Silver	7440-22-4	20	0.02	0.22	4.78	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-C_0.3-1.3

20E0270-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/19/2020 10:20
Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 19:22

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-05 A 01
Preparation Batch: BIE0518 — Sample Size: 1.057 g (wet) — Dry Weight:0.89 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 84.28

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	33.1	mg/kg	
Cadmium	7440-43-9	20	0.04	0.11	82.0	mg/kg	
Selenium	7782-49-2	20	0.49	0.56	10.5	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-C_0.3-1.3

20E0270-05 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/19/2020 10:20

Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 14:14

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-05 A

Preparation Batch: BIE0517 — Sample Size: 0.249 g (wet) — Dry Weight:0.21 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 84.28

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	5	0.0250	0.119	3.75	mg/kg	D

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-C_0.3-1.3

20E0270-05 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/19/2020 10:20

Instrument: ICP2 Analyst: TCH — Analyzed: 06/25/2020 23:32

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-05 A 03

Preparation Batch: BIF0652 — Sample Size: 25 mL (wet)

Prepared: 06/23/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	5	0.0006	0.0100	0.942	mg/L	
Lead	7439-92-1	5	0.0065	0.100	15.0	mg/L	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-D_0.5-1.5

20E0270-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/19/2020 12:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 16:04

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-07 A 01
Preparation Batch: BIE0518 — Sample Size: 1.057 g (wet) — Dry Weight:0.90 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	200	0.62	5.54	1920	mg/kg	D
Lead	7439-92-1	200	0.75	1.11	1430	mg/kg	B, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 19:27

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-07 A 01
Preparation Batch: BIE0518 — Sample Size: 1.057 g (wet) — Dry Weight:0.90 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.08	0.55	71.8	mg/kg	
Silver	7440-22-4	20	0.02	0.22	0.91	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-D_0.5-1.5

20E0270-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/19/2020 12:30

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 19:27

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-07 A 01

Preparation Batch: BIE0518 — Sample Size: 1.057 g (wet) — Dry Weight:0.90 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	20.2	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	39.3	mg/kg	
Selenium	7782-49-2	20	0.49	0.55	3.26	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-D_0.5-1.5

20E0270-07 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/19/2020 12:30

Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 14:16

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-07 A

Preparation Batch: BIE0517 — Sample Size: 0.257 g (wet) — Dry Weight:0.22 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00479	0.0228	0.573	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-D_0.5-1.5

20E0270-07 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/19/2020 12:30

Instrument: ICP2 Analyst: TCH — Analyzed: 06/25/2020 21:27

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-07 A 04

Preparation Batch: BIF0504 — Sample Size: 25 mL (wet)

Prepared: 06/17/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	5	0.0006	0.0100	0.491	mg/L	
Lead	7439-92-1	5	0.0065	0.100	19.7	mg/L	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-E_0-2

20E0270-09 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/19/2020 13:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 14:51

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-09 A 01
Preparation Batch: BIE0518 — Sample Size: 1.088 g (wet) — Dry Weight:0.92 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 84.69

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1000	3.69	5.43	6700	mg/kg	B, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/04/2020 14:16

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-09 A 01
Preparation Batch: BIE0518 — Sample Size: 1.088 g (wet) — Dry Weight:0.92 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 84.69

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	500	1.44	13.6	1200	mg/kg	D
Chromium	7440-47-3	20	0.14	0.54	122	mg/kg	
Silver	7440-22-4	20	0.02	0.22	1.61	mg/kg	

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-E_0-2

20E0270-09 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/19/2020 13:30
Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 19:32

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-09 A 01
Preparation Batch: BIE0518 — Sample Size: 1.088 g (wet) — Dry Weight:0.92 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 84.69

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	30.5	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	51.9	mg/kg	
Selenium	7782-49-2	20	0.48	0.54	2.17	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-E_0-2

20E0270-09 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/19/2020 13:30

Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 15:02

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-09 A

Preparation Batch: BIE0517 — Sample Size: 0.231 g (wet) — Dry Weight:0.20 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 84.69

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	5	0.0268	0.128	2.36	mg/kg	D

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-E_0-2

20E0270-09 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/19/2020 13:30

Instrument: ICP2 Analyst: TCH — Analyzed: 06/26/2020 15:16

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-09 A 04

Preparation Batch: BIF0504 — Sample Size: 25 mL (wet)

Prepared: 06/17/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	5	0.0140	0.250	0.0552	mg/L	J
Barium	7440-39-3	5	0.0075	0.0150	4.25	mg/L	B
Cadmium	7440-43-9	5	0.0006	0.0100	0.779	mg/L	
Chromium	7440-47-3	5	0.0024	0.0250	0.0141	mg/L	J
Lead	7439-92-1	5	0.0065	0.100	54.2	mg/L	
Selenium	7782-49-2	5	0.0408	0.250	ND	mg/L	U
Silver	7440-22-4	5	0.0022	0.0150	ND	mg/L	U

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-E_0-2

20E0270-09 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 05/19/2020 13:30

Instrument: HYDRA Analyst: BLC — Analyzed: 06/19/2020 12:57

Sample Preparation: Preparation Method: LEM 7470A Digestion of EPA 1311 Elutriate for Hg — Extract ID: 20E0270-09 A 03

Preparation Batch: BIF0505 — Sample Size: 20 mL

Prepared: 06/17/2020 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000007	0.000100	ND	mg/L	U

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-F_2.5-3.5

20E0270-10 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/19/2020 14:30

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 16:09

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-10 A 01

Preparation Batch: BIE0518 — Sample Size: 1.005 g (wet) — Dry Weight:0.92 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 91.15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	200	0.74	1.09	1240	mg/kg	B, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 19:38

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-10 A 01

Preparation Batch: BIE0518 — Sample Size: 1.005 g (wet) — Dry Weight:0.92 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 91.15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.55	267	mg/kg	
Chromium	7440-47-3	20	0.14	0.55	48.6	mg/kg	
Silver	7440-22-4	20	0.02	0.22	1.27	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-F_2.5-3.5

20E0270-10 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/19/2020 14:30

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 19:38

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-10 A 01

Preparation Batch: BIE0518 — Sample Size: 1.005 g (wet) — Dry Weight:0.92 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 91.15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	9.89	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	8.69	mg/kg	
Selenium	7782-49-2	20	0.48	0.55	3.48	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-F_2.5-3.5

20E0270-10 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/19/2020 14:30

Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 15:05

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-10 A

Preparation Batch: BIE0517 — Sample Size: 0.277 g (wet) — Dry Weight:0.25 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 91.15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	2	0.00832	0.0396	1.09	mg/kg	D

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-F_2.5-3.5

20E0270-10 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/19/2020 14:30

Instrument: ICP2 Analyst: TCH — Analyzed: 06/25/2020 21:14

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-10 A 04

Preparation Batch: BIF0504 — Sample Size: 25 mL (wet)

Prepared: 06/17/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	5	0.0006	0.0100	0.223	mg/L	
Lead	7439-92-1	5	0.0065	0.100	85.8	mg/L	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-G_0-2.5

20E0270-11 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/19/2020 14:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 15:01

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-11 A 01
Preparation Batch: BIE0518 — Sample Size: 1.048 g (wet) — Dry Weight:0.83 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 78.84

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	500	3.93	15.1	382	mg/kg	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/04/2020 14:18

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-11 A 01
Preparation Batch: BIE0518 — Sample Size: 1.048 g (wet) — Dry Weight:0.83 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 78.84

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	500	1.69	15.1	494	mg/kg	D
Lead	7439-92-1	500	2.06	3.03	3800	mg/kg	B, D
Silver	7440-22-4	20	0.02	0.24	37.3	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-G_0-2.5

20E0270-11 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/19/2020 14:00
Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 19:43

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-11 A 01
Preparation Batch: BIE0518 — Sample Size: 1.048 g (wet) — Dry Weight:0.83 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 78.84

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.24	6.53	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	69.2	mg/kg	
Selenium	7782-49-2	20	0.53	0.61	5.60	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-G_0-2.5

20E0270-11 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/19/2020 14:00
Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 15:07

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-11 A
Preparation Batch: BIE0517 — Sample Size: 0.259 g (wet) — Dry Weight:0.20 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 78.84

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	10	0.0514	0.245	5.02	mg/kg	D

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-G_0-2.5

20E0270-11 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/19/2020 14:00
Instrument: ICP2 Analyst: TCH — Analyzed: 06/25/2020 21:18

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-11 A 04
Preparation Batch: BIF0504 — Sample Size: 25 mL (wet)
Prepared: 06/17/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	5	0.0006	0.0100	0.571	mg/L	
Lead	7439-92-1	5	0.0065	0.100	57.2	mg/L	

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-H_0.5-2

20E0270-13 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/19/2020 17:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 14:02

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-13 A 01
Preparation Batch: BIE0518 — Sample Size: 1.028 g (wet) — Dry Weight:0.83 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 81.03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	500	3.90	15.0	1460	mg/kg	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/04/2020 14:20

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-13 A 01
Preparation Batch: BIE0518 — Sample Size: 1.028 g (wet) — Dry Weight:0.83 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 81.03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	500	1.68	15.0	334	mg/kg	D
Lead	7439-92-1	500	2.04	3.00	6640	mg/kg	B, D
Silver	7440-22-4	20	0.02	0.24	32.3	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-H_0.5-2

20E0270-13 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/19/2020 17:00
Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 19:48

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-13 A 01
Preparation Batch: BIE0518 — Sample Size: 1.028 g (wet) — Dry Weight:0.83 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 81.03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.24	7.49	mg/kg	
Cadmium	7440-43-9	20	0.05	0.12	28.4	mg/kg	
Selenium	7782-49-2	20	0.53	0.60	2.81	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-H_0.5-2

20E0270-13 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/19/2020 17:00

Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 15:10

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-13 A

Preparation Batch: BIE0517 — Sample Size: 0.241 g (wet) — Dry Weight:0.20 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 81.03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	10	0.0538	0.256	7.85	mg/kg	D

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-H_0.5-2

20E0270-13 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/19/2020 17:00

Instrument: ICP2 Analyst: TCH — Analyzed: 06/26/2020 15:21

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-13 A 04

Preparation Batch: BIF0504 — Sample Size: 25 mL (wet)

Prepared: 06/17/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	5	0.0140	0.250	0.0204	mg/L	J
Barium	7440-39-3	5	0.0075	0.0150	5.50	mg/L	B
Cadmium	7440-43-9	5	0.0006	0.0100	0.185	mg/L	
Chromium	7440-47-3	5	0.0024	0.0250	0.0154	mg/L	J
Lead	7439-92-1	5	0.0065	0.100	70.4	mg/L	
Selenium	7782-49-2	5	0.0408	0.250	ND	mg/L	U
Silver	7440-22-4	5	0.0022	0.0150	0.0046	mg/L	J

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-H_0.5-2

20E0270-13 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 05/19/2020 17:00

Instrument: HYDRA Analyst: BLC — Analyzed: 06/19/2020 13:06

Sample Preparation: Preparation Method: LEM 7470A Digestion of EPA 1311 Elutriate for Hg — Extract ID: 20E0270-13 A 03

Preparation Batch: BIF0505 — Sample Size: 20 mL

Prepared: 06/17/2020 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000007	0.000100	0.000111	mg/L	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-I_1-2

20E0270-15 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/20/2020 08:30

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 16:13

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-15 A 01

Preparation Batch: BIE0518 — Sample Size: 1.075 g (wet) — Dry Weight:0.96 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 89.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	200	0.55	5.19	666	mg/kg	D
Lead	7439-92-1	200	0.71	1.04	1780	mg/kg	B, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 20:29

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-15 A 01

Preparation Batch: BIE0518 — Sample Size: 1.075 g (wet) — Dry Weight:0.96 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 89.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.13	0.52	64.5	mg/kg	
Silver	7440-22-4	20	0.02	0.21	1.41	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-I_1-2

20E0270-15 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/20/2020 08:30
Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 20:29

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-15 A 01
Preparation Batch: BIE0518 — Sample Size: 1.075 g (wet) — Dry Weight:0.96 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 89.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	14.7	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	17.6	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-I_1-2

20E0270-15 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/20/2020 08:30

Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 15:12

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-15 A

Preparation Batch: BIE0517 — Sample Size: 0.281 g (wet) — Dry Weight:0.25 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 89.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	2	0.00834	0.0397	1.31	mg/kg	D

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-I_1-2

20E0270-15 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/20/2020 08:30

Instrument: ICP2 Analyst: TCH — Analyzed: 06/25/2020 23:37

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-15 A 03

Preparation Batch: BIF0652 — Sample Size: 25 mL (wet)

Prepared: 06/23/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	5	0.0006	0.0100	0.318	mg/L	
Lead	7439-92-1	5	0.0065	0.100	5.43	mg/L	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-I_1-2

20E0270-15RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/20/2020 08:30

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 17:34

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-15RE1 A 01

Preparation Batch: BIE0518 — Sample Size: 1.075 g (wet) — Dry Weight:0.96 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 89.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Selenium	7782-49-2	50	1.14	1.30	2.90	mg/kg	D

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-I_2-3

20E0270-16 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/20/2020 09:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/03/2020 17:47

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-16 A 01

Preparation Batch: BIE0519 — Sample Size: 1.032 g (wet) — Dry Weight:0.89 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 86.18

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	20	0.08	0.11	148	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-I_2-3

20E0270-16 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/20/2020 09:40

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 20:34

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-16 A 01

Preparation Batch: BIE0519 — Sample Size: 1.032 g (wet) — Dry Weight:0.89 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 86.18

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	20	0.03	0.11	3.31	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-J_0.5-1.5

20E0270-17 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/20/2020 09:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 13:16

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-17 A 01
Preparation Batch: BIE0518 — Sample Size: 1.081 g (wet) — Dry Weight:0.90 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 83.00

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	500	1.56	13.9	1470	mg/kg	D
Lead	7439-92-1	500	1.89	2.79	3900	mg/kg	B, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 20:42

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-17 A 01
Preparation Batch: BIE0518 — Sample Size: 1.081 g (wet) — Dry Weight:0.90 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 83.00

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.14	0.56	124	mg/kg	
Silver	7440-22-4	20	0.02	0.22	2.84	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-J_0.5-1.5

20E0270-17 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/20/2020 09:30

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 20:42

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-17 A 01

Preparation Batch: BIE0518 — Sample Size: 1.081 g (wet) — Dry Weight:0.90 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 83.00

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	32.7	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	49.3	mg/kg	
Selenium	7782-49-2	20	0.49	0.56	3.64	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-J_0.5-1.5

20E0270-17 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/20/2020 09:30

Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 15:14

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-17 A

Preparation Batch: BIE0517 — Sample Size: 0.244 g (wet) — Dry Weight:0.20 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 83.00

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	5	0.0259	0.123	3.04	mg/kg	D

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-J_0.5-1.5

20E0270-17 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/20/2020 09:30

Instrument: ICP2 Analyst: TCH — Analyzed: 06/25/2020 22:51

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-17 A 03

Preparation Batch: BIF0742 — Sample Size: 25 mL (wet)

Prepared: 06/25/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	5	0.0006	0.0100	0.971	mg/L	
Lead	7439-92-1	5	0.0065	0.100	49.8	mg/L	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-J_2-3

20E0270-18 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/20/2020 09:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 16:18

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-18 A 01

Preparation Batch: BIE0518 — Sample Size: 1.041 g (wet) — Dry Weight:0.95 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 91.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	200	0.72	1.05	1070	mg/kg	B, D

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-J_2-3

20E0270-18 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/20/2020 09:40

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 20:47

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-18 A 01

Preparation Batch: BIE0518 — Sample Size: 1.041 g (wet) — Dry Weight:0.95 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 91.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	20	0.04	0.11	12.3	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-J_2-3

20E0270-18 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/20/2020 09:40

Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 14:38

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-18 A

Preparation Batch: BIE0517 — Sample Size: 0.267 g (wet) — Dry Weight:0.24 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 91.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00431	0.0205	0.513	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-J_2-3

20E0270-18 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/20/2020 09:40

Instrument: ICP2 Analyst: TCH — Analyzed: 06/25/2020 22:28

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-18 A 03

Preparation Batch: BIF0742 — Sample Size: 25 mL (wet)

Prepared: 06/25/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	5	0.0006	0.0100	0.141	mg/L	
Lead	7439-92-1	5	0.0065	0.100	9.85	mg/L	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-K_1.5-3.5

20E0270-19 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/20/2020 10:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 13:43

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-19 A 01

Preparation Batch: BIE0518 — Sample Size: 1.052 g (wet) — Dry Weight:0.88 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 83.34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	500	1.51	14.3	1360	mg/kg	D
Lead	7439-92-1	500	1.94	2.85	2950	mg/kg	B, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 20:52

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-19 A 01

Preparation Batch: BIE0518 — Sample Size: 1.052 g (wet) — Dry Weight:0.88 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 83.34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.15	0.57	69.3	mg/kg	
Silver	7440-22-4	20	0.02	0.23	1.08	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-K_1.5-3.5

20E0270-19 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/20/2020 10:15

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 20:52

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-19 A 01

Preparation Batch: BIE0518 — Sample Size: 1.052 g (wet) — Dry Weight:0.88 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 83.34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.23	38.4	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	23.5	mg/kg	
Selenium	7782-49-2	20	0.50	0.57	1.76	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-K_1.5-3.5

20E0270-19 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/20/2020 10:15

Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 15:17

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-19 A

Preparation Batch: BIE0517 — Sample Size: 0.236 g (wet) — Dry Weight:0.20 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 83.34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	2	0.0107	0.0508	1.35	mg/kg	D

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-K_1.5-3.5

20E0270-19 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/20/2020 10:15

Instrument: ICP2 Analyst: TCH — Analyzed: 06/25/2020 22:33

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-19 A 03

Preparation Batch: BIF0742 — Sample Size: 25 mL (wet)

Prepared: 06/25/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	5	0.0006	0.0100	0.499	mg/L	
Lead	7439-92-1	5	0.0065	0.100	10.6	mg/L	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-L_0.4-1.4

20E0270-20 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/20/2020 11:30

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 13:48

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-20 A 01

Preparation Batch: BIE0518 — Sample Size: 1.023 g (wet) — Dry Weight:0.88 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.69

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	500	1.60	14.3	1540	mg/kg	D
Lead	7439-92-1	500	1.94	2.85	4530	mg/kg	B, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 20:57

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-20 A 01

Preparation Batch: BIE0518 — Sample Size: 1.023 g (wet) — Dry Weight:0.88 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.69

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.15	0.57	217	mg/kg	
Silver	7440-22-4	20	0.02	0.23	3.79	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-L_0.4-1.4

20E0270-20 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/20/2020 11:30

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 20:57

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-20 A 01

Preparation Batch: BIE0518 — Sample Size: 1.023 g (wet) — Dry Weight:0.88 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.69

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.23	37.1	mg/kg	
Cadmium	7440-43-9	20	0.05	0.11	38.0	mg/kg	
Selenium	7782-49-2	20	0.50	0.57	1.76	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-L_0.4-1.4

20E0270-20 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/20/2020 11:30

Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 15:19

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-20 A

Preparation Batch: BIE0517 — Sample Size: 0.24 g (wet) — Dry Weight:0.21 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.69

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	20	0.102	0.486	9.52	mg/kg	D

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-L_0.4-1.4

20E0270-20 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/20/2020 11:30

Instrument: ICP2 Analyst: TCH — Analyzed: 06/26/2020 15:25

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-20 A 04

Preparation Batch: BIF0504 — Sample Size: 25 mL (wet)

Prepared: 06/17/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	5	0.0140	0.250	0.0634	mg/L	J
Barium	7440-39-3	5	0.0075	0.0150	1.98	mg/L	B
Cadmium	7440-43-9	5	0.0006	0.0100	0.591	mg/L	
Chromium	7440-47-3	5	0.0024	0.0250	0.0196	mg/L	J
Lead	7439-92-1	5	0.0065	0.100	60.3	mg/L	
Selenium	7782-49-2	5	0.0408	0.250	ND	mg/L	U
Silver	7440-22-4	5	0.0022	0.0150	ND	mg/L	U

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-L_0.4-1.4

20E0270-20 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 05/20/2020 11:30

Instrument: HYDRA Analyst: BLC — Analyzed: 06/19/2020 13:09

Sample Preparation: Preparation Method: LEM 7470A Digestion of EPA 1311 Elutriate for Hg — Extract ID: 20E0270-20 A 03

Preparation Batch: BIF0505 — Sample Size: 20 mL

Prepared: 06/17/2020 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000007	0.000100	0.000019	mg/L	J

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-M_0-1.2

20E0270-21 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/20/2020 12:00

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 13:52

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-21 A 01

Preparation Batch: BIE0518 — Sample Size: 1.02 g (wet) — Dry Weight:0.87 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	500	1.61	14.4	1270	mg/kg	D
Lead	7439-92-1	500	1.96	2.88	2790	mg/kg	B, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 21:38

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-21 A 01

Preparation Batch: BIE0518 — Sample Size: 1.02 g (wet) — Dry Weight:0.87 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.15	0.58	140	mg/kg	
Silver	7440-22-4	20	0.02	0.23	1.43	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-M_0-1.2

20E0270-21 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/20/2020 12:00

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 21:38

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-21 A 01

Preparation Batch: BIE0518 — Sample Size: 1.02 g (wet) — Dry Weight:0.87 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.23	33.7	mg/kg	
Cadmium	7440-43-9	20	0.03	0.12	52.7	mg/kg	
Selenium	7782-49-2	20	0.51	0.58	2.52	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-M_0-1.2

20E0270-21 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/20/2020 12:00

Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 15:21

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-21 A

Preparation Batch: BIE0517 — Sample Size: 0.242 g (wet) — Dry Weight:0.21 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	5	0.0255	0.121	3.04	mg/kg	D

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-M_0-1.2

20E0270-21 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/20/2020 12:00

Instrument: ICP2 Analyst: TCH — Analyzed: 06/25/2020 22:38

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-21 A 03

Preparation Batch: BIF0742 — Sample Size: 25 mL (wet)

Prepared: 06/25/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	5	0.0006	0.0100	0.441	mg/L	
Lead	7439-92-1	5	0.0065	0.100	11.3	mg/L	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-N_0.3-1.3

20E0270-22 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/20/2020 13:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 17:29

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-22 A 01
Preparation Batch: BIE0518 — Sample Size: 1.041 g (wet) — Dry Weight:0.98 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 93.73

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	50	0.17	0.26	264	mg/kg	B, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 21:43

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-22 A 01
Preparation Batch: BIE0518 — Sample Size: 1.041 g (wet) — Dry Weight:0.98 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 93.73

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.51	121	mg/kg	
Chromium	7440-47-3	20	0.13	0.51	41.7	mg/kg	
Silver	7440-22-4	20	0.02	0.20	0.26	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-N_0.3-1.3

20E0270-22 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/20/2020 13:00

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 21:43

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-22 A 01

Preparation Batch: BIE0518 — Sample Size: 1.041 g (wet) — Dry Weight:0.98 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 93.73

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.20	6.58	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	3.39	mg/kg	
Selenium	7782-49-2	20	0.45	0.51	1.21	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-N_0.3-1.3

20E0270-22 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/20/2020 13:00

Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 15:29

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-22 A

Preparation Batch: BIE0517 — Sample Size: 0.217 g (wet) — Dry Weight:0.20 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 93.73

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	10	0.0516	0.246	6.13	mg/kg	D

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-N_0.3-1.3

20E0270-22 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/20/2020 13:00

Instrument: ICP2 Analyst: TCH — Analyzed: 06/25/2020 22:42

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-22 A 03

Preparation Batch: BIF0742 — Sample Size: 25 mL (wet)

Prepared: 06/25/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	5	0.0006	0.0100	0.0785	mg/L	
Lead	7439-92-1	5	0.0065	0.100	0.968	mg/L	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-O_1-3

20E0270-23 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/20/2020 13:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 13:57

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-23 A 01
Preparation Batch: BIE0518 — Sample Size: 1.073 g (wet) — Dry Weight:0.92 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.72

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	500	1.52	13.6	1090	mg/kg	D
Lead	7439-92-1	500	1.85	2.72	6100	mg/kg	B, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 21:49

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-23 A 01
Preparation Batch: BIE0518 — Sample Size: 1.073 g (wet) — Dry Weight:0.92 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.72

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.14	0.54	141	mg/kg	
Silver	7440-22-4	20	0.02	0.22	2.19	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-O_1-3

20E0270-23 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/20/2020 13:40
Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 21:49

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-23 A 01
Preparation Batch: BIE0518 — Sample Size: 1.073 g (wet) — Dry Weight:0.92 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.72

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	49.3	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	26.7	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-O_1-3

20E0270-23 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/20/2020 13:40
Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 15:41

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-23 A
Preparation Batch: BIE0517 — Sample Size: 0.257 g (wet) — Dry Weight:0.22 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.72

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	50	0.238	1.13	47.1	mg/kg	D

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-O_1-3

20E0270-23 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/20/2020 13:40

Instrument: ICP2 Analyst: TCH — Analyzed: 06/26/2020 15:30

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-23 A 04

Preparation Batch: BIF0504 — Sample Size: 25 mL (wet)

Prepared: 06/17/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	5	0.0140	0.250	0.0363	mg/L	J
Barium	7440-39-3	5	0.0075	0.0150	2.78	mg/L	B
Cadmium	7440-43-9	5	0.0006	0.0100	0.391	mg/L	
Chromium	7440-47-3	5	0.0024	0.0250	0.0225	mg/L	J
Lead	7439-92-1	5	0.0065	0.100	4.78	mg/L	
Selenium	7782-49-2	5	0.0408	0.250	ND	mg/L	U
Silver	7440-22-4	5	0.0022	0.0150	ND	mg/L	U

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-O_1-3

20E0270-23 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 05/20/2020 13:40
Instrument: HYDRA Analyst: BLC — Analyzed: 06/19/2020 13:11

Sample Preparation: Preparation Method: LEM 7470A Digestion of EPA 1311 Elutriate for Hg — Extract ID: 20E0270-23 A 03
Preparation Batch: BIF0505 — Sample Size: 20 mL
Prepared: 06/17/2020 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000007	0.000100	0.000146	mg/L	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-O_1-3

20E0270-23RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/20/2020 13:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 17:45

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-23RE1 A 01
Preparation Batch: BIE0518 — Sample Size: 1.073 g (wet) — Dry Weight:0.92 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.72

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Selenium	7782-49-2	50	1.20	1.36	2.78	mg/kg	D

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-P_0.5-3

20E0270-25 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/19/2020 14:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 15:05

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-25 A 01
Preparation Batch: BIE0518 — Sample Size: 1.08 g (wet) — Dry Weight:0.97 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 89.96

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	500	1.44	12.9	671	mg/kg	D
Lead	7439-92-1	500	1.75	2.57	4200	mg/kg	B, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 21:54

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-25 A 01
Preparation Batch: BIE0518 — Sample Size: 1.08 g (wet) — Dry Weight:0.97 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 89.96

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.13	0.51	170	mg/kg	
Silver	7440-22-4	20	0.02	0.21	1.71	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-P_0.5-3

20E0270-25 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/19/2020 14:30
Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 21:54

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-25 A 01
Preparation Batch: BIE0518 — Sample Size: 1.08 g (wet) — Dry Weight:0.97 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 89.96

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	52.1	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	21.1	mg/kg	
Selenium	7782-49-2	20	0.45	0.51	10.7	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-P_0.5-3

20E0270-25 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/19/2020 14:30

Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 15:43

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-25 A

Preparation Batch: BIE0517 — Sample Size: 0.29 g (wet) — Dry Weight:0.26 g

Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 89.96

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	50	0.201	0.958	9.01	mg/kg	D

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-P_0.5-3

20E0270-25 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/19/2020 14:30

Instrument: ICP2 Analyst: TCH — Analyzed: 06/26/2020 15:34

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-25 A 04

Preparation Batch: BIF0504 — Sample Size: 25 mL (wet)

Prepared: 06/17/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	5	0.0140	0.250	0.0584	mg/L	J
Barium	7440-39-3	5	0.0075	0.0150	2.28	mg/L	B
Cadmium	7440-43-9	5	0.0006	0.0100	0.472	mg/L	
Chromium	7440-47-3	5	0.0024	0.0250	0.0194	mg/L	J
Lead	7439-92-1	5	0.0065	0.100	61.2	mg/L	
Selenium	7782-49-2	5	0.0408	0.250	ND	mg/L	U
Silver	7440-22-4	5	0.0022	0.0150	ND	mg/L	U

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-P_0.5-3

20E0270-25 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 05/19/2020 14:30

Instrument: HYDRA Analyst: BLC — Analyzed: 06/19/2020 13:13

Sample Preparation: Preparation Method: LEM 7470A Digestion of EPA 1311 Elutriate for Hg — Extract ID: 20E0270-25 A 03

Preparation Batch: BIF0505 — Sample Size: 20 mL

Prepared: 06/17/2020 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000007	0.000100	0.000043	mg/L	J

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-Q_1.5-3

20E0270-27 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/20/2020 15:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 15:10

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-27 A 01
Preparation Batch: BIE0518 — Sample Size: 1.027 g (wet) — Dry Weight:0.85 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 82.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	500	1.65	14.8	875	mg/kg	D
Lead	7439-92-1	500	2.01	2.95	3340	mg/kg	B, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 21:59

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-27 A 01
Preparation Batch: BIE0518 — Sample Size: 1.027 g (wet) — Dry Weight:0.85 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 82.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.15	0.59	203	mg/kg	
Silver	7440-22-4	20	0.02	0.24	2.84	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-Q_1.5-3

20E0270-27 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/20/2020 15:30
Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 21:59

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-27 A 01
Preparation Batch: BIE0518 — Sample Size: 1.027 g (wet) — Dry Weight:0.85 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 82.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.24	69.8	mg/kg	
Cadmium	7440-43-9	20	0.05	0.12	45.4	mg/kg	
Selenium	7782-49-2	20	0.52	0.59	2.05	mg/kg	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-Q_1.5-3

20E0270-27 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/20/2020 15:30
Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 15:45

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-27 A
Preparation Batch: BIE0517 — Sample Size: 0.263 g (wet) — Dry Weight:0.22 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 82.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	50	0.242	1.15	16.1	mg/kg	D

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TP-Q_1.5-3

20E0270-27 (Solid)

TCLP Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 05/20/2020 15:30
Instrument: ICP2 Analyst: TCH — Analyzed: 06/25/2020 23:41

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 20E0270-27 A 03
Preparation Batch: BIF0742 — Sample Size: 25 mL (wet)
Prepared: 06/25/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	5	0.0006	0.0100	0.677	mg/L	
Lead	7439-92-1	5	0.0065	0.100	26.4	mg/L	

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

DUPL-1

20E0270-29 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 05/20/2020 13:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/05/2020 14:07

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-29 A 01
Preparation Batch: BIE0518 — Sample Size: 1.069 g (wet) — Dry Weight:0.91 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	500	1.87	2.75	7130	mg/kg	B, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/04/2020 14:21

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-29 A 01
Preparation Batch: BIE0518 — Sample Size: 1.069 g (wet) — Dry Weight:0.91 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	500	1.54	13.8	723	mg/kg	D
Chromium	7440-47-3	20	0.14	0.55	148	mg/kg	
Silver	7440-22-4	20	0.02	0.22	1.99	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

DUPL-1

20E0270-29 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 05/20/2020 13:45
Instrument: ICPMS2 Analyst: MCB — Analyzed: 06/02/2020 19:53

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20E0270-29 A 01
Preparation Batch: BIE0518 — Sample Size: 1.069 g (wet) — Dry Weight:0.91 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	24.4	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	25.8	mg/kg	
Selenium	7782-49-2	20	0.48	0.55	1.47	mg/kg	

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

DUPL-1

20E0270-29 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 05/20/2020 13:45
Instrument: HYDRA Analyst: BLC — Analyzed: 06/04/2020 13:59

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20E0270-29 A
Preparation Batch: BIE0517 — Sample Size: 0.264 g (wet) — Dry Weight:0.22 g
Prepared: 05/28/2020 — Final Volume: 50 mL — % Solids: 85.03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	50	0.234	1.11	39.6	mg/kg	D

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

Metals and Metallic Compounds - Quality Control

Batch BIE0517 - SMM EPA 7471B

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIE0517-BLK1)				Prepared: 28-May-2020 Analyzed: 04-Jun-2020 13:13							
Mercury	0.00548	0.00525	0.0250	mg/kg							J
LCS (BIE0517-BS1)				Prepared: 28-May-2020 Analyzed: 04-Jun-2020 13:15							
Mercury	0.455	0.00525	0.0250	mg/kg	0.500		91.0	80-120			
Duplicate (BIE0517-DUP1)		**Source: 20E0270-01**		Prepared: 28-May-2020 Analyzed: 04-Jun-2020 13:30							
Mercury	0.956	0.0107	0.0511	mg/kg		1.39			36.80	20	*, D
Duplicate (BIE0517-DUP2)		**Source: 20E0270-29**		Prepared: 28-May-2020 Analyzed: 04-Jun-2020 14:01							
Mercury	33.2	0.236	1.12	mg/kg		39.6			17.70	20	D
Matrix Spike (BIE0517-MS1)		**Source: 20E0270-01**		Prepared: 28-May-2020 Analyzed: 04-Jun-2020 13:32							
Mercury	1.47	0.0108	0.0513	mg/kg	0.257	1.39	31.7	75-125			HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike (BIE0517-MS2)		**Source: 20E0270-29**		Prepared: 28-May-2020 Analyzed: 04-Jun-2020 14:03							
Mercury	30.5	0.234	1.11	mg/kg	0.223	39.6	-4080	75-125			HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BIE0517-MSD1)		**Source: 20E0270-01**		Prepared: 28-May-2020 Analyzed: 04-Jun-2020 13:39							
Mercury	1.53	0.0107	0.0511	mg/kg	0.255	1.39	57.7	75-125	4.41	20	HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BIE0517-MSD2)		**Source: 20E0270-29**		Prepared: 28-May-2020 Analyzed: 04-Jun-2020 14:06							
Mercury	39.0	0.235	1.12	mg/kg	0.224	39.6	-281	75-125	24.30	20	HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

Metals and Metallic Compounds - Quality Control

Batch BIE0518 - SWN EPA 3050B

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Duplicate (BIE0518-DUP3)			**Source: 20E0270-01**		Prepared: 28-May-2020 Analyzed: 05-Jun-2020 15:20							
Barium	135	377	0.60	5.36	mg/kg		297			23.50	20	*, D
Lead	208	1040	0.73	1.07	mg/kg		1130			8.32	20	B, D
Duplicate (BIE0518-DUP6)			**Source: 20E0270-01**		Prepared: 28-May-2020 Analyzed: 05-Jun-2020 14:11							
Lead	208	2730	1.82	2.68	mg/kg		1130			83.10	20	*, B, D
Matrix Spike (BIE0518-MS3)			**Source: 20E0270-01**		Prepared: 28-May-2020 Analyzed: 05-Jun-2020 15:25							
Barium	135	358	0.60	5.33	mg/kg	26.7	297	229	75-125			HC, D
Lead	208	1040	0.73	1.07	mg/kg	26.7	1130	-308	75-125			B, HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BIE0518-MS6)			**Source: 20E0270-01**		Prepared: 28-May-2020 Analyzed: 05-Jun-2020 14:17							
Lead	208	2500	1.81	2.67	mg/kg	26.7	1130	5150	75-125			B, HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIE0518-MSD3)			**Source: 20E0270-01**		Prepared: 28-May-2020 Analyzed: 05-Jun-2020 15:33							
Barium	135	381	0.60	5.36	mg/kg	26.8	297	312	75-125	6.13	20	HC, D
Lead	208	875	0.73	1.07	mg/kg	26.8	1130	-939	75-125	17.60	20	B, HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIE0518-MSD6)			**Source: 20E0270-01**		Prepared: 28-May-2020 Analyzed: 05-Jun-2020 14:24							
Lead	208	2420	1.82	2.68	mg/kg	26.8	1130	4820	75-125	3.32	20	B, HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIE0518-BLK1)					Prepared: 28-May-2020 Analyzed: 02-Jun-2020 18:14							
Barium	135	ND	0.06	0.50	mg/kg							U
Barium	137	ND	0.05	0.50	mg/kg							U
Chromium	52	ND	0.13	0.50	mg/kg							U
Chromium	53	0.20	0.07	0.50	mg/kg							J
Lead	208	0.24	0.07	0.10	mg/kg							
Silver	107	ND	0.02	0.20	mg/kg							U
Arsenic	75a	ND	0.02	0.20	mg/kg							U

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

Metals and Metallic Compounds - Quality Control

Batch BIE0518 - SWN EPA 3050B

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIE0518-BLK1)					Prepared: 28-May-2020 Analyzed: 02-Jun-2020 18:14							
Cadmium	111	ND	0.03	0.10	mg/kg							U
Cadmium	114	ND	0.04	0.10	mg/kg							U
Selenium	78	ND	0.44	0.50	mg/kg							U
LCS (BIE0518-BS1)					Prepared: 28-May-2020 Analyzed: 02-Jun-2020 18:19							
Barium	135	25.3	0.06	0.50	mg/kg	25.0		101	80-120			
Barium	137	25.9	0.05	0.50	mg/kg	25.0		103	80-120			
Chromium	52	26.9	0.13	0.50	mg/kg	25.0		108	80-120			
Chromium	53	27.2	0.07	0.50	mg/kg	25.0		109	80-120			
Lead	208	28.6	0.07	0.10	mg/kg	25.0		115	80-120			B
Silver	107	28.1	0.02	0.20	mg/kg	25.0		113	80-120			
Arsenic	75a	26.0	0.02	0.20	mg/kg	25.0		104	80-120			
Cadmium	111	26.0	0.03	0.10	mg/kg	25.0		104	80-120			
Cadmium	114	25.9	0.04	0.10	mg/kg	25.0		104	80-120			
Selenium	78	83.8	0.44	0.50	mg/kg	80.0		105	80-120			
Duplicate (BIE0518-DUP1)			**Source: 20E0270-01**		Prepared: 28-May-2020 Analyzed: 02-Jun-2020 18:51							
Chromium	52	65.7	0.14	0.54	mg/kg		59.0			10.70	20	
Silver	107	9.77	0.02	0.21	mg/kg		4.29			77.90	20	*
Arsenic	75a	24.3	0.02	0.21	mg/kg		28.5			15.70	20	
Cadmium	114	15.8	0.04	0.11	mg/kg		12.7			21.80	20	*
Selenium	78	2.00	0.47	0.54	mg/kg		2.02			0.92	20	
Duplicate (BIE0518-DUP2)			**Source: 20E0270-29**		Prepared: 28-May-2020 Analyzed: 02-Jun-2020 19:58							
Chromium	52	235	0.14	0.55	mg/kg		148			45.50	20	*
Silver	107	4.53	0.02	0.22	mg/kg		1.99			78.10	20	*
Arsenic	75a	55.8	0.02	0.22	mg/kg		24.4			78.30	20	*
Cadmium	111	25.8	0.03	0.11	mg/kg		25.8			0.00		
Selenium	78	2.46	0.49	0.55	mg/kg		1.47			50.10	20	*
Duplicate (BIE0518-DUP4)			**Source: 20E0270-29**		Prepared: 28-May-2020 Analyzed: 04-Jun-2020 14:23							
Barium	135	781	1.57	14.0	mg/kg		723			7.78	20	D
Chromium	52	ND	3.64	14.0	mg/kg		148					U
Chromium	53	ND	1.96	14.0	mg/kg		146					U
Matrix Spike (BIE0518-MS1)			**Source: 20E0270-01**		Prepared: 28-May-2020 Analyzed: 02-Jun-2020 18:56							

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1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

Metals and Metallic Compounds - Quality Control

Batch BIE0518 - SWN EPA 3050B

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BIE0518-MS1)			**Source: 20E0270-01**			Prepared: 28-May-2020		Analyzed: 02-Jun-2020 18:56				
Chromium	52	99.6	0.14	0.53	mg/kg	26.7	59.0	152	75-125			*
Silver	107	30.6	0.02	0.21	mg/kg	26.7	4.29	98.8	75-125			
Arsenic	75a	49.0	0.02	0.21	mg/kg	26.7	28.5	77.0	75-125			
Cadmium	114	37.9	0.04	0.11	mg/kg	26.7	12.7	94.4	75-125			
Selenium	78	79.6	0.47	0.53	mg/kg	85.3	2.02	90.9	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BIE0518-MS2)			**Source: 20E0270-29**			Prepared: 28-May-2020		Analyzed: 02-Jun-2020 20:03				
Chromium	52	181	0.14	0.55	mg/kg	27.5	148	117	75-125			HC
Silver	107	29.1	0.02	0.22	mg/kg	27.5	1.99	98.3	75-125			
Arsenic	75a	79.3	0.02	0.22	mg/kg	27.5	24.4	200	75-125			*
Cadmium	111	50.6	0.03	0.11	mg/kg	27.5	25.8	90.4	75-125			
Selenium	78	83.2	0.48	0.55	mg/kg	88.1	1.47	92.8	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BIE0518-MS4)			**Source: 20E0270-29**			Prepared: 28-May-2020		Analyzed: 04-Jun-2020 14:25				
Barium	135	814	1.56	13.9	mg/kg	27.9	723	328	75-125			HC, D
Chromium	52	ND	3.63	13.9	mg/kg	27.9	148	-531	75-125			U
Chromium	53	ND	1.95	13.9	mg/kg	27.9	146	-524	75-125			U
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIE0518-MSD1)			**Source: 20E0270-01**			Prepared: 28-May-2020		Analyzed: 02-Jun-2020 19:03				
Chromium	52	76.1	0.14	0.54	mg/kg	26.8	59.0	63.8	75-125	26.70	20	*
Silver	107	28.0	0.02	0.21	mg/kg	26.8	4.29	88.7	75-125	8.85	20	
Arsenic	75a	42.2	0.02	0.21	mg/kg	26.8	28.5	51.2	75-125	14.90	20	*
Cadmium	114	34.2	0.04	0.11	mg/kg	26.8	12.7	80.2	75-125	10.30	20	
Selenium	78	75.6	0.47	0.54	mg/kg	85.7	2.02	85.8	75-125	5.14	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIE0518-MSD2)			**Source: 20E0270-29**			Prepared: 28-May-2020		Analyzed: 02-Jun-2020 20:09				
Chromium	52	167	0.14	0.55	mg/kg	27.5	148	67.8	75-125	7.88	20	HC
Silver	107	27.0	0.02	0.22	mg/kg	27.5	1.99	91.1	75-125	7.16	20	
Arsenic	75a	77.8	0.02	0.22	mg/kg	27.5	24.4	194	75-125	1.94	20	*
Cadmium	111	57.5	0.03	0.11	mg/kg	27.5	25.8	116	75-125	12.80	20	
Selenium	78	79.2	0.48	0.55	mg/kg	88.0	1.47	88.3	75-125	5.00	20	

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

Metals and Metallic Compounds - Quality Control

Batch BIE0518 - SWN EPA 3050B

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIE0518-MSD4)		**Source: 20E0270-29**				Prepared: 28-May-2020		Analyzed: 04-Jun-2020 14:28				
Barium	135	979	1.57	14.0	mg/kg	28.0	723	915	75-125	18.40	20	HC, D
Chromium	52	ND	3.64	14.0	mg/kg	28.0	148	-529	75-125			U
Chromium	53	ND	1.96	14.0	mg/kg	28.0	146	-521	75-125			U
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

Metals and Metallic Compounds - Quality Control

Batch BIE0519 - SWN EPA 3050B

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Duplicate (BIE0519-DUP2)			**Source: 20E0270-04**		Prepared: 28-May-2020		Analyzed: 05-Jun-2020 16:28					
Lead	208	58.5	0.07	0.11	mg/kg		71.1			19.50	20	
Matrix Spike (BIE0519-MS2)			**Source: 20E0270-04**		Prepared: 28-May-2020		Analyzed: 05-Jun-2020 16:34					
Lead	208	96.6	0.07	0.11	mg/kg	26.5	71.1	96.0	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIE0519-MSD2)			**Source: 20E0270-04**		Prepared: 28-May-2020		Analyzed: 05-Jun-2020 16:41					
Lead	208	83.3	0.07	0.11	mg/kg	26.6	71.1	45.8	75-125	14.80	20	*
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIE0519-BLK1)					Prepared: 28-May-2020		Analyzed: 02-Jun-2020 18:28					
Lead	208	ND	0.07	0.10	mg/kg							U
Cadmium	111	ND	0.03	0.10	mg/kg							U
Cadmium	114	ND	0.04	0.10	mg/kg							U
LCS (BIE0519-BS1)					Prepared: 28-May-2020		Analyzed: 02-Jun-2020 18:33					
Lead	208	26.8	0.07	0.10	mg/kg	25.0		107	80-120			
Cadmium	111	23.7	0.03	0.10	mg/kg	25.0		94.9	80-120			
Cadmium	114	23.8	0.04	0.10	mg/kg	25.0		95.2	80-120			
Duplicate (BIE0519-DUP1)			**Source: 20E0270-04**		Prepared: 28-May-2020		Analyzed: 02-Jun-2020 21:07					
Cadmium	111	0.14	0.03	0.11	mg/kg		0.18			18.90	20	
Matrix Spike (BIE0519-MS1)			**Source: 20E0270-04**		Prepared: 28-May-2020		Analyzed: 02-Jun-2020 21:12					
Cadmium	111	25.7	0.03	0.11	mg/kg	26.5	0.18	96.3	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIE0519-MSD1)			**Source: 20E0270-04**		Prepared: 28-May-2020		Analyzed: 02-Jun-2020 21:19					
Cadmium	111	26.4	0.03	0.11	mg/kg	26.6	0.18	98.9	75-125	2.66	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TCLP Metals and Metallic Compounds - Quality Control

Batch BIF0504 - LEN Digestion of EPA 1311 Elutriate

Instrument: ICP2 Analyst: TCH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIF0504-BLK1)				Prepared: 17-Jun-2020 Analyzed: 25-Jun-2020 21:09							
Arsenic	ND	0.0140	0.250	mg/L							U
Cadmium	0.0034	0.0006	0.0100	mg/L							J
Chromium	ND	0.0024	0.0250	mg/L							U
Lead	ND	0.0065	0.100	mg/L							U
Selenium	ND	0.0408	0.250	mg/L							U
Silver	ND	0.0022	0.0150	mg/L							U
Blank (BIF0504-BLK2)				Prepared: 17-Jun-2020 Analyzed: 26-Jun-2020 15:03							
Barium	0.0501	0.0075	0.0150	mg/L							
Chromium	0.0034	0.0024	0.0250	mg/L							J
Duplicate (BIF0504-DUP1)		Source: 20E0270-07		Prepared: 17-Jun-2020 Analyzed: 25-Jun-2020 21:23							
Arsenic	0.0523	0.0140	0.250	mg/L		0.0468			11.00	20	J
Cadmium	0.499	0.0006	0.0100	mg/L		0.491			1.61	20	
Lead	20.1	0.0065	0.100	mg/L		19.7			1.89	20	
Selenium	ND	0.0408	0.250	mg/L		ND					U
Silver	ND	0.0022	0.0150	mg/L		ND					U
Duplicate (BIF0504-DUP2)		Source: 20E0270-07		Prepared: 17-Jun-2020 Analyzed: 26-Jun-2020 16:20							
Barium	2.24	0.0075	0.0150	mg/L		2.19			2.29	20	B
Chromium	0.0131	0.0024	0.0250	mg/L		0.0069			61.80	20	L, J
Matrix Spike (BIF0504-MS1)		Source: 20E0270-07		Prepared: 17-Jun-2020 Analyzed: 25-Jun-2020 21:32							
Arsenic	4.21	0.0140	0.250	mg/L	4.00	0.0468	104	75-125			
Cadmium	1.57	0.0006	0.0100	mg/L	1.00	0.491	108	75-125			
Lead	24.0	0.0065	0.100	mg/L	4.00	19.7	108	75-125			
Selenium	4.23	0.0408	0.250	mg/L	4.00	ND	106	75-125			
Silver	1.07	0.0022	0.0150	mg/L	1.00	ND	107	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike (BIF0504-MS2)		Source: 20E0270-07		Prepared: 17-Jun-2020 Analyzed: 26-Jun-2020 16:30							
Barium	6.28	0.0075	0.0150	mg/L	4.00	2.19	102	75-125			B
Chromium	0.991	0.0024	0.0250	mg/L	1.00	0.0069	98.4	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BIF0504-MSD1)		Source: 20E0270-07		Prepared: 17-Jun-2020 Analyzed: 25-Jun-2020 21:36							

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TCLP Metals and Metallic Compounds - Quality Control

Batch BIF0504 - LEN Digestion of EPA 1311 Elutriate

Instrument: ICP2 Analyst: TCH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BIF0504-MSD1)	**Source: 20E0270-07**				Prepared: 17-Jun-2020	Analyzed: 25-Jun-2020 21:36					
Arsenic	4.20	0.0140	0.250	mg/L	4.00	0.0468	104	75-125	0.11	20	
Cadmium	1.56	0.0006	0.0100	mg/L	1.00	0.491	107	75-125	0.41	20	
Lead	24.2	0.0065	0.100	mg/L	4.00	19.7	112	75-125	0.76	20	
Selenium	4.27	0.0408	0.250	mg/L	4.00	ND	107	75-125	0.89	20	
Silver	1.08	0.0022	0.0150	mg/L	1.00	ND	108	75-125	0.61	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BIF0504-MSD2)	**Source: 20E0270-07**				Prepared: 17-Jun-2020	Analyzed: 26-Jun-2020 16:34					
Barium	6.32	0.0075	0.0150	mg/L	4.00	2.19	103	75-125	0.57	20	B
Chromium	1.00	0.0024	0.0250	mg/L	1.00	0.0069	99.7	75-125	1.33	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TCLP Metals and Metallic Compounds - Quality Control

Batch BIF0505 - LEM 7470A Digestion of EPA 1311 Elutriate for Hg

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIF0505-BLK1)				Prepared: 17-Jun-2020 Analyzed: 19-Jun-2020 12:55							
Mercury	ND	0.000007	0.000100	mg/L							U
Duplicate (BIF0505-DUP1)		**Source: 20E0270-09**		Prepared: 17-Jun-2020 Analyzed: 19-Jun-2020 12:59							
Mercury	ND	0.000007	0.000100	mg/L		ND					U
Matrix Spike (BIF0505-MS1)		**Source: 20E0270-09**		Prepared: 17-Jun-2020 Analyzed: 19-Jun-2020 13:02							
Mercury	0.000948	0.000007	0.000100	mg/L	0.00100	ND	94.8	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BIF0505-MSD1)		**Source: 20E0270-09**		Prepared: 17-Jun-2020 Analyzed: 19-Jun-2020 13:04							
Mercury	0.000874	0.000007	0.000100	mg/L	0.00100	ND	87.4	75-125	8.11	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TCLP Metals and Metallic Compounds - Quality Control

Batch BIF0652 - LEN Digestion of EPA 1311 Elutriate

Instrument: ICP2 Analyst: TCH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIF0652-BLK1)				Prepared: 23-Jun-2020 Analyzed: 25-Jun-2020 23:27							
Cadmium	0.0026	0.0006	0.0100	mg/L							J
Lead	0.0104	0.0065	0.100	mg/L							J
Duplicate (BIF0652-DUP1)		**Source: 20E0270-01**		Prepared: 23-Jun-2020 Analyzed: 25-Jun-2020 23:55							
Cadmium	0.0833	0.0006	0.0100	mg/L		0.0838			0.66	20	
Lead	1.28	0.0065	0.100	mg/L		1.31			2.07	20	
Matrix Spike (BIF0652-MS1)		**Source: 20E0270-01**		Prepared: 23-Jun-2020 Analyzed: 26-Jun-2020 00:04							
Cadmium	1.12	0.0006	0.0100	mg/L	1.00	0.0838	103	75-125			
Lead	5.29	0.0065	0.100	mg/L	4.00	1.31	99.6	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BIF0652-MSD1)		**Source: 20E0270-01**		Prepared: 23-Jun-2020 Analyzed: 26-Jun-2020 00:08							
Cadmium	1.10	0.0006	0.0100	mg/L	1.00	0.0838	101	75-125	1.96	20	
Lead	5.28	0.0065	0.100	mg/L	4.00	1.31	99.4	75-125	0.15	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

TCLP Metals and Metallic Compounds - Quality Control

Batch BIF0742 - LEN Digestion of EPA 1311 Elutriate

Instrument: ICP2 Analyst: TCH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIF0742-BLK1)				Prepared: 25-Jun-2020 Analyzed: 25-Jun-2020 22:19							
Cadmium	0.0018	0.0006	0.0100	mg/L							J
Lead	ND	0.0065	0.100	mg/L							U
Duplicate (BIF0742-DUP1)		**Source: 20E0270-17**		Prepared: 25-Jun-2020 Analyzed: 25-Jun-2020 22:47							
Arsenic	0.0435	0.0140	0.250	mg/L		0.0470			7.72	20	J
Cadmium	0.965	0.0006	0.0100	mg/L		0.971			0.59	20	
Chromium	0.0128	0.0024	0.0250	mg/L		0.0030			124.00	20	L, J
Lead	49.4	0.0065	0.100	mg/L		49.8			0.72	20	
Matrix Spike (BIF0742-MS1)		**Source: 20E0270-17**		Prepared: 25-Jun-2020 Analyzed: 25-Jun-2020 22:56							
Cadmium	1.93	0.0006	0.0100	mg/L	1.00	0.971	96.1	75-125			
Lead	52.8	0.0065	0.100	mg/L	4.00	49.8	75.9	75-125			HC

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BIF0742-MSD1)		**Source: 20E0270-17**		Prepared: 25-Jun-2020 Analyzed: 25-Jun-2020 23:00							
Cadmium	1.99	0.0006	0.0100	mg/L	1.00	0.971	102	75-125	2.88	20	
Lead	52.5	0.0065	0.100	mg/L	4.00	49.8	68.6	75-125	0.55	20	HC

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

Certified Analyses included in this Report

Analyte	Certifications
EPA 6010C in Solid	
Silver	WADOE,DoD-ELAP
Silver	NELAP,WADOE,DoD-ELAP
Arsenic	CALAP,WADOE
Arsenic	NELAP,WADOE
Barium	NELAP,WADOE
Barium	CALAP,WADOE
Cadmium	WADOE,DoD-ELAP
Cadmium	NELAP,WADOE,DoD-ELAP
Chromium	WADOE,DoD-ELAP
Chromium	NELAP,WADOE,DoD-ELAP
Lead	WADOE,DoD-ELAP
Lead	NELAP,WADOE,DoD-ELAP
Selenium	WADOE,DoD-ELAP
Selenium	NELAP,WADOE,DoD-ELAP
EPA 6020A in Solid	
Silver-107	NELAP,DoD-ELAP,WADOE
Silver-107	DoD-ELAP,WADOE
Barium-135	NELAP,DoD-ELAP,WADOE,ADEC
Barium-135	DoD-ELAP,WADOE,ADEC
Barium-137	DoD-ELAP,WADOE,ADEC
Barium-137	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-52	DoD-ELAP,WADOE,ADEC
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	DoD-ELAP,WADOE,ADEC
EPA 6020A UCT-KED in Solid	
Arsenic-75a	NELAP,DoD-ELAP,WADOE,ADEC
Arsenic-75a	DoD-ELAP,WADOE,ADEC
Cadmium-111	DoD-ELAP,WADOE,ADEC
Cadmium-111	NELAP,DoD-ELAP,WADOE,ADEC
Cadmium-114	DoD-ELAP,WADOE,ADEC
Cadmium-114	NELAP,DoD-ELAP,WADOE,ADEC

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

Selenium-78	DoD-ELAP,WADOE
Selenium-78	NELAP,DoD-ELAP,WADOE

EPA 7470A in Water

Mercury	WADOE,DoD-ELAP
Mercury	WADOE,NELAP,DoD-ELAP

EPA 7471B in Solid

Mercury	WADOE,NELAP,DoD-ELAP
Mercury	WADOE,DoD-ELAP,CALAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
WADOE	WA Dept of Ecology	C558	06/30/2020
WA-DW	Ecology - Drinking Water	C558	06/30/2020

Dalton, Olmsted & Fuglevand, Inc	Project: Former Tacoma Metals	
1420 - 156th Ave., NE STE C1	Project Number: [none]	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	29-Jun-2020 13:44

Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
D	The reported value is from a dilution
H	Hold time violation - Hold time was exceeded.
HC	The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
J	Estimated concentration value detected below the reporting limit.
L	Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

ATTACHMENT C
BENCH-SCALE TREATABILITY TEST RESULTS

Tacoma Metals Site
Tacoma, Washington

Dalton, Olmsted & Fuglevand, Inc.

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Mr. Dave Cooper, LG, LH
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Mr. Cooper,

Thank you for sending samples from the Tacoma Metal Site to our firm for a treatability study. Table 1 in the attached spreadsheet contains the results of our testing, in addition to results from those same sample areas tested prior that DOF provided.

The "B" samples we tested had similar total metals to those samples tested previous by DOF. This provides assurance that the samples are representative of that area. However, you should note that the leachable metals (TCLP data) were significantly less than what we saw in your data. So, while the total metals data align well with prior data, the TCLP suggests that you have some leachable variability for "B" samples. Blastox 215 was very effective at stabilizing this soil with a 4% add rate.

The "P" samples were not completely in line with the sample data obtained by DOF. Specifically, the untreated sample produced a TCLP value that was almost 3 times higher (160 mg/L vs. 61.2 mg/L) and the treated sample from this same area produced total metals that were about 5 times (4200 mg/kg vs 19000 mg/kg) higher than previous data. Blastox 215 was very effective at stabilizing this soil with a 3% add rate.

In spite of the high variability of TCLP and total metals, Blastox 215 was able to stabilize the lead to well below the regulatory limit of 5.0 mg/L. We obtained a Non-Detectable (ND) reading and a reading slightly above the detection limit at .06 mg/L. Both of tests give strong indication of the treatability of this waste.

Historically, we've had a very high rate of success in using the bench-scale developed add rate in the field. In other words, the add rate developed in the lab has worked very well in the field. You indicated that you are leaning towards using a pug mill for mixing. A pug mill should be

able to replicate the mixing we do in the lab, which should provide more assurance of a successful project.

3% Blastox 215 worked on the highest leachable lead soil we tested. Because of that, there is a pretty good level of assurance that this add rate would work for all of the soil. However, because we have seen some high variability of leachable lead, I would recommend 4% be used for budgetary purposes budget for this project.

Once the contractor has been selected, a small pilot study can be done using 3% in the “worst case scenario” waste to determine if we can further optimize the dose rate from the 4% level.

Please let me know if you have any questions.

Respectfully Submitted,

James A. Lively
TDJ Group, Inc.

TABLE 1		DOF TACOMA METALS TREATABILITY: BLASTOX STUDY			
SAMPLE ID	Chemistry	Chemistry Dose %	TOTAL Pb (mg/kg)	TCLP Pb (mg/L)	Comments
TP-B	None	0%	1870	111	From DOF Spreadsheet; Sample B
DOF.B.UT	None	0%	1900	5.5	untreated waste that tested haz; Sample B
DOF.B.4.215	Blastox 215	4%	1600	0.066	treated waste that tested non-haz; Sample B
TP-P	None	0%	4200	61.2	From DOF Spreadsheet; Sample P
DOF.P.UT	none	0%	5800	160	untreated waste that tested haz; highest level observed; Sample P
DOF.P.3.215	Blastox 215	3%	19000	*ND	treated waste that is "worst-case"; tested non-haz; Sample P

*Reporting Limit is .05 mg/L

TECHNICAL DATA

BLASTOX® 215

PRODUCT NAME **Blastox® 215**

PRODUCT DESCRIPTION:

Blastox® 215 is a patented, fine granular, complex calcium silicate-based additive for stabilizing heavy metals including lead and cadmium. Other heavy metals can be stabilized with other TDJ product lines.

USE: Dose rates vary based on untreated leachability rates. Exact dose rates can be verified by performing a treatability study. When resultant waste tests non-hazardous via the EPA TCLP test, it qualifies for disposal in a local subtitle D landfill.

CHEMICAL REACTIONS: Blastox® 215 produces insoluble heavy metal compounds through chemical conversion, pH adjustment and physical encapsulation.

RESTRICTIONS: Material must be kept dry until preparations are made for field application.

TYPICAL PROPERTIES*

SPECIFIC GRAVITY:	3.15 – 3.22
BULK DENSITY:	95 – 100 #/FT^3
pH:	11.0-12.0
SOLUBILITY:	(Slight) .1% - 1.0%
SCREEN ANALYSIS :(~85%)	(-) 52 – (+) 400 mesh per ASTM E-11 specification

*These data are results of historical production performance.

AVAILABILITY

Blastox 215 is manufactured at TDJ's facilities in the Chicagoland area and sold through distributors. Product is available in bulk, super sacks and 70 lb multi-walled paper bags. Contact TDJ's corporate office for pricing and your local distributor.

TECHNICAL SERVICE

Complete technical bulletins and information are available from TDJ's corporate office or on the TDJ website at www.blastox.com. Technical assistance for specific applications is available by contacting the corporate office.

BLASTOX® 215 WARRANTY

All recommendations, statements and technical data contained herein are believed to be reliable and accurate, but are not to be construed as a warranty, expressed or implied. We accept no responsibility for results obtained by the application of this information. Unless otherwise specifically stated in a written supply contract, user assumes all responsibility and liability for loss or damage arising from the handling and use of this product.

The TDJ Group, Inc. **www.blastox.com** **1-800-252-7869**

BANTOX® & BLASTOX®

Technical Bulletin/Soil ***BLASTOX / TB-002S***

TREATABILITY TESTING OF SOILS

Blastox® 215 is used to stabilize heavy metals in soil so that it can pass a TCLP test, or other EPA test protocol like the SPLP or the MEP. The EPA requires a Toxicity Characteristic Leaching Procedure (TCLP) test (Method 1311) to determine if contaminated soils need to be managed as hazardous or non-hazardous waste. Soils exhibiting hazardous characteristics need to be disposed of at a facility permitted for that material, or be treated in the field prior to off-site disposal. In nearly every case, stabilizing the soil in the field prior to disposal can save the generator a great deal of money over transporting and disposing of the soil as a hazardous waste.

Regardless of the test protocol required, it is important to conduct a treatability study to more precisely identify the dose of stabilization reagent necessary to meet the testing criteria. In order for TDJ to conduct this study, please follow these recommendations when collecting and submitting samples:

1. Provide any leaching & physical performance criteria for this particular waste. Does the soil need to meet the TCLP criteria or other performance standard for leaching? Does the soil need to meet a physical test criteria such as compressive strength or permeability requirement?

2. Provide a sample of suitable quantity for all requisite testing. Labs require approximately 120 grams for each sample tested. 2 quart jars (plastic preferred over glass) of each waste that needs to be tested should be sufficient. Ensure lids are secured with tape and expedite shipping to the address at the bottom of this Bulletin. Ship to Attention: Technical Services.

3. If available, a split of a sample that has been previously tested is preferrable. If not available, a new sample from a known area of contamination will suffice. Please also provide copies of all previous analytical data of the contaminated soil.

4. Determine if more than one sample needs to be sent to TDJ. Depending on the variability of the contamination, it may be necessary to test more than one sample. This is especially true for projects where some of the wastes have very high concentrations of metals (TCLP > 100 mg/l). If this is the case, contact a TDJ representative for consultation.

5. Allow two weeks for test results to be obtained.

If there is no time to perform a treatability study, existing soil test data can be useful to estimate the amount of treatment reagent. The minumum data required are: (1) total metals, (2) TCLP metals, and (3) the 3 pH values collected during the TCLP (Initial pH; pH after hydrochloric acid addition; final pH of extract).

9/12Rev: SOIL/TB002S SoilTreatabilityTesting

The TDJ Group, Inc. **760-A Industrial Dr., Cary IL 60013** **PH: (847)639-1113** **www.blastox.com** **tdj@blastox.com**

ATTACHMENT D
2001 TCLP Test Results

Tacoma Metals Site
Tacoma, Washington

Dalton, Olmsted & Fuglevand, Inc.

TABLE 4-8A

REMEDIAL INVESTIGATION
SPLP AND TCLP ANALYTICAL RESULTS - METALS[a]
Former Tacoma Metals Facility

Analyte	Analysis	Sample Designation/Depth														Criteria
		TP-1-0-1	TP-14-6-10	TP-16-2-3	TP-21-2-3	TP-22-2-3	TP-33-2-3	TP-38-0-1	TP-39-0-1	TP-40-2-3	TP-43-2-3	TP-45-0-1	TP-55-0-1	TP-60-0-1	TP-61-0-1	
Arsenic	Total (mg/kg)	40	<6[b]	---[c]	<300	<60	---	60	10	<30	80	100	<30	50	<30	219[d]
	TCLP (mg/l)	---	---	---	---	---	---	---	---	---	---	<0.05	---	---	---	5.0[e]
	SPLP (mg/l)	---	---	---	---	---	---	---	---	---	---	<0.05	---	---	---	NA[f]
Barium	Total (mg/kg)	290	84.9	---	4,190	464	---	2,710	110	851	1,280	774	1,080	1,050	377	245,000[d]
	TCLP (mg/l)	---	---	---	6.99	---	---	---	---	---	---	---	---	---	---	100.0[e]
	SPLP (mg/l)	---	---	---	0.672	---	---	---	---	---	---	---	---	---	---	NA
Cadmium	Total (mg/kg)	8.5	2.3	68	130	52	---	125	13.2	40	46	30	29	30	10	3,500[d]
	TCLP (mg/l)	---	---	---	0.94	---	---	---	---	---	---	---	---	---	---	1.0[e]
	SPLP (mg/l)	---	---	---	<0.002	---	---	---	---	---	---	---	---	---	---	NA
Chromium	Total (mg/kg)	76	35.3	---	***1,080***	913	---	263	30	212	259	368	117	225	53	500[g]
	TCLP (mg/l)	---	---	---	<0.05	---	---	---	---	---	---	---	---	---	---	1.0[e]
	SPLP (mg/l)	---	---	---	<0.005	---	---	---	---	---	---	---	---	---	---	NA
Copper	Total (mg/kg)	873	78.6	---	13,200	20,200	---	3,320	1,100	1,240	2,520	3,560	465	2,330	356	130,000[d]
	TCLP (mg/l)	---	---	---	---	66.2	---	---	---	---	---	---	---	---	---	NA
	SPLP (mg/l)	---	---	---	---	0.005	---	---	---	---	---	---	---	---	---	NA
Lead	Total (mg/kg)	***2,230***	152	***8,240***	***7,570***	***3,690***	***4,560***	***9,380***	***1,040***	***2,050***	***12,300***	***4,060***	***1,750***	***10,800***	***4,180***	1,000[g]
	TCLP (mg/l)	***11.7***	<0.1	3.3	***74.7***	---	***22.4***	***20.6***	0.13	***6.9***	***63.6***	---	***26.5***	---	***12.2***	5.0[e]
	SPLP (mg/l)			<0.02	---	---	---	---	0.03	<0.02	0.03	---	---	---	0.07	NA
Mercury	Total (mg/kg)	1.53	0.07	---	10.2	5.1	1.69	14.3	0.21	3.19	21	47	0.83	77	0.76	1,050[d]
	TCLP (mg/l)	---	---	---	---	---	---	---	---	---	---	---	---	0.0005	---	0.2[e]
	SPLP (mg/l)	---	---	---	---	---	---	---	---	---	---	---	---	0.0021	---	NA
Selenium	Total (mg/kg)	<10	<6	---	<300	<60	---	30	<10	<30	<30	30	<30	40	<30	17,500[d]
	TCLP (mg/l)	---	---	---	---	---	---	---	---	---	---	---	---	<0.2	---	1.0[e]
	SPLP (mg/l)	---	---	---	---	---	---	---	---	---	---	---	---	<0.05	---	NA
Silver	Total (mg/kg)	1.4	<0.4	---	90	198	---	6	<0.8	3	5	7	<2	2	<2	17,500[d]
	TCLP (mg/l)	---	---	---	---	<0.02	---	---	---	---	---	---	---	---	---	5.0[e]
	SPLP (mg/l)	---	---	---	---	<0.003	---	---	---	---	---	---	---	---	---	NA

Analytes detected in samples at concentrations exceeding criteria are shown in bold and italics.

Notes:

(a) Samples were analyzed for TCLP and SPLP Metals by EPA Methods 1311/1312/6010.
(b) "<" denotes analyte was not detected at the indicated reporting limit.
(c) "---" Sample not tested for selected analyte.
(d) MTCA Method C industrial soil cleanup levels are based on CLARC II, dated February 1996.
(e) Toxicity characteristics based on Dangerous Waste Criteria (WAC 173-303-100).
(f) "NA" = No criteria available.
(g) Method A industrial soil cleanup levels (WAC 173-340-745) used where Method C industrial soil cleanup levels are not available.

mg/kg - milligrams per kilogram
mg/l - milligrams per liter