Periodic Review

Everett Shipyard Inc
1016 14th St
Everett, Washington 98206

Facility Site ID#: 2794
Cleanup Site ID#: 3655

Prepared by:
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LIST OF ABBREVIATIONS AND ACRONYMS

µg/kg ..... micrograms per kilogram
µg/L ..... micrograms per liter
AO ..... agreed order
BEHP ..... bis(2-ethylhexyl)phthalate
bgs ..... below ground surface
CAP ..... cleanup action plan
CD ..... Consent Decree No. 12 2 03430 1
City ..... City of Everett
CMP ..... compliance monitoring plan
CSO ..... combined sewer overflow
cPAHs ..... carcinogenic polycyclic aromatic hydrocarbons
CUL ..... cleanup level
DRO ..... diesel-range organics
Ecology ..... Washington State Department of Ecology
ESY ..... Everett Shipyard Inc.
FS ..... feasibility study
ft ..... feet, foot
IHS ..... indicator hazardous substances
Landau ..... Landau Associates, Inc.
mg/kg ..... milligrams per kilogram
MLLW ..... mean lower low water
MTCA ..... Model Toxics Control Act
OC ..... carbon-normalized
ORO ..... oil-range organics
PCB ..... polychlorinated biphenyl
PFAS ..... perfluoroalkyl substances
pg/g ..... picograms per gram
Port ..... Port of Everett
RI ..... remedial investigation
SAP ..... sampling and analysis plan
Site ..... Everett Shipyard Inc. site
SVOC ..... semivolatile organic compound
TBT ..... tributyltin
TEQ ..... toxicity equivalency quotient
TPH ..... total petroleum hydrocarbons
TPH-D ..... diesel-range total petroleum hydrocarbons
TPH-O ..... oil-range total petroleum hydrocarbons
UECA ..... Uniform Environmental Covenants Act
WAC ..... Washington Administrative Code

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1.0 INTRODUCTION

On behalf of the Port of Everett (Port), this document is a review by the Washington State Department of Ecology (Ecology) of post-cleanup site conditions and monitoring data to assure human health and the environment are being protected at the Everett Shipyard Inc. (ESY) site (Site) located along Everett's waterfront adjacent to Port Gardner Bay, Snohomish County, Washington (Figure 1). The Site is listed on Ecology's Hazardous Sites List as "Everett Shipyard Inc" with Facility Site ID No. 2794.

The Port conducted a cleanup action under Consent Decree No. 12 2 03430 1 (CD; including the amendment filed on February 2, 2017) to remove contaminated soil and marine sediment from the Site. The final cleanup action was completed in 2015 and a Restrictive Covenant (No. 201804160540; Appendix A) was executed between the Port and Ecology because some residual contamination was left in-place following both upland and sediment cleanup activities. The purpose of the covenant is to limit the uses and activities at the Site that would lead to potential negative impacts to human health and the environment.

This periodic review is intended to evaluate effectiveness of the Site cleanup actions and to present results of assessment activities associated with requirements of the Restrictive Covenant and will be conducted in accordance with Washington Administrative Code (WAC) 173-340-420.

WAC 173-340-420(2) requires Ecology to conduct a periodic review of a Site at least every 5 years under the following conditions:

1) Whenever the department conducts a cleanup action,
2) Whenever the department approves a cleanup action under an order, agreed order or consent decree,
3) Or, as resources permit, whenever the department issues a no further action opinion,
4) And one of the following conditions exists at the site:
    a. Institutional controls or financial assurance are required as part of the cleanup;
    b. Where the cleanup level is based on a practical quantitation limit; or
    c. Where, in the department's judgment, modifications to the default equations or assumptions using Site-specific information would significantly increase the concentration of hazardous substances remaining at the Site after cleanup or the uncertainty in the ecological evaluation or the reliability of the cleanup action is such that additional review is necessary to assure long-term protection of human health and the environment.

When evaluating whether human health and the environment are being protected, the factors Ecology shall consider include (WAC 173-340-420[4]):

1) The effectiveness of ongoing or completed cleanup actions, including the effectiveness of engineered controls and institutional controls in limiting exposure to hazardous substances remaining at the site;
2) New scientific information for individual hazardous substances of mixtures present at the site;
3) New applicable state and federal laws for hazardous substances present at the site;
4) Current and projected site use;
5) Availability and practicability of higher preference technologies; and.
6) The availability of improved analytical techniques to evaluate compliance with cleanup levels.

Ecology shall publish a notice of all periodic reviews in the Site Register and provide an opportunity for public comment.

2.0 SUMMARY OF SITE CONDITIONS

Site history, environmental conditions, and cleanup activities completed prior to the periodic review are presented in the following section.

2.1 Site History

The ESY Site is located at 1016 14th Street, west of West Marine View Drive in Everett, Washington (Figure 1). The Site is owned by the Port and includes approximately 5 acres of upland located west of West Marine View Drive and adjacent in-water areas where ESY and the Port historically performed operations. From 1959 to 2008, ESY leased most of the upland portion of the Site from the Port and operated a boat building, maintenance, and repair facility.

The in-water portion of the Site includes the intertidal areas (exposed to air at low tide) and sub-tidal areas (always covered by water) associated with the Port's Central Marina. The upland portion of the Site is relatively flat and is approximately 16 to 17 feet (ft) above mean lower low water (MLLW). Areas to the north and south of the Site were historically used for industrial or commercial purposes. The surrounding area is used primarily for marine-based businesses but also includes restaurants and other retail businesses.

2.2 Investigation Background

Investigations conducted between 1980 and 2007 identified contamination in upland shallow soil and marine sediment. The Port and ESY entered into an Agreed Order (AO; No. DE 5271) with Ecology to complete a remedial investigation (RI) and feasibility study (FS) that would be consistent with the Model Toxics Control Act (MTCA) process for cleanup of contaminated sites in Washington State. An RI/FS was completed by the Port and ESY in 2011 (URS 2011). The investigation confirmed that contaminants were present in soil and marine sediment and identified groundwater contaminant concentrations above MTCA cleanup levels (CULs; URS 2011).

2.3 Cleanup Levels and Points of Compliance

The Site CULs for soil, groundwater, and marine sediment at the Site were determined by Ecology and presented in the Cleanup Action Plan (CAP; Ecology 2012). Constituents that exceeded the CULs are identified as indicator hazardous substances (IHS). The sections below summarize the IHS in upland soil, groundwater, and marine sediment; CULs are presented in the data tables along with analytical results, which are summarized in Section 3.0.

2.3.1 Soil

Various industrial activities resulted in contamination of shallow soil across much of the Site, as presented in the RI/FS (URS 2011). The following IHS were present at the Site in shallow soil at concentrations exceeding the Site CULs prior to the implementation of the cleanup action:

- Metals (arsenic, lead, antimony, and copper)
- Carcinogenic polycyclic aromatic hydrocarbons (cPAHs)
- Polychlorinated biphenyls (PCBs)
- Total petroleum hydrocarbons (TPH; diesel- and oil-range TPH [TPH-D and TPH-O, respectively]).

A standard point of compliance is applied throughout the Site from the ground surface to 15 ft below ground surface (bgs) per WAC 173-340-740 and is based on protection of human health via direct contact with the soil. At locations where the standard point of compliance is not met (under the sidewalk along a portion of West Marine View Drive where contaminated soil was left in-place), residual contamination is covered by the paved surface and pavement is considered an institutional control under the requirements of the CAP (Ecology 2012).

2.3.2 Groundwater

Groundwater compliance monitoring was conducted in accordance with the Upland Compliance Monitoring Plan (CMP; Landau Associates, Inc. [Landau] 2013). The CMP and associated CD and CAP required confirmational groundwater monitoring to demonstrate that Site groundwater achieves the groundwater cleanup standards established for the Site. Site groundwater is not used for drinking water, and groundwater is not considered potable due to the proximity to marine surface water.

The following IHS for Site groundwater include the following:

- Metals (arsenic, nickel, and zinc)
- Semivolatile organic compound (SVOCs; bis[2-ethylehxyl]phthalate)
- TPH-D.

Groundwater depth at the Site ranges between 3 and 6 ft bgs and generally flows to the west toward Port Gardner Bay (URS 2011). Site groundwater CULs are based on protection of marine surface water and not potential use as drinking water. The groundwater point of compliance is a conditional point of compliance at the groundwater/surface water interface. Refer to WAC 173-340-720(8)(c). Groundwater compliance monitoring at the conditional point of compliance was accomplished by sampling groundwater along the shoreline (Ecology 2012).

2.3.3 Marine Sediment

Various industrial activities resulted in contamination of shallow marine sediment in the vicinity of the Site shoreline, as presented in the RI/FS (URS 2011). The following IHS were present at the Site in marine sediment at concentrations exceeding the Site sediment CULs prior to implementation of the cleanup action:

- Metals (arsenic, copper, lead, mercury, silver and zinc)

- Tributyltin (TBT)
- SVOCs
- PCBs.

The marine sediment point of compliance is protective of human health and the environment and is applicable to the uppermost 10 centimeters of sediment, which is considered the bioactive zone for aquatic organisms. Compliance with sediment CULs has been accomplished through dredging and removal of contaminated sediment, except where contamination was left in-place. Confirmational monitoring has been conducted in areas where a marine backfill residual layer was placed on top of contamination, and or where the potential for marine sediment to become re-contaminated exists at the Site. Confirmational monitoring has primarily consisted of sediment sampling and analysis of Site IHS and sediment cap thickness verification.

2.4 Remedial Actions

A CAP was developed for the Site and selected a final remedial action that provided for either containment of contaminated soil with existing buildings or excavation and offsite disposal, removal of all contaminated sediment, and long-term compliance monitoring for groundwater (Ecology 2012). The Port elected to demolish all existing Site structures and remove all soil contamination.

Implementation of the CAP was completed at the Site in accordance with the CD between the Port and Ecology and the amended CD dated February 2, 2017. Cleanup included demolition/removal of the ESY facility buildings; excavation and offsite disposal of approximately 20,000 cubic yards of contaminated soil; dredging and offsite disposal of approximately 15,000 cubic yards of contaminated sediment; demolition/removal of the marine railway, docks, and other structures that obstructed the dredging areas; and removal and replacement of 360 linear ft of bulkhead located in the northeast corner of the marina. Upland cleanup at the Site was completed in 2014 as described in the Upland Site Cleanup Construction Completion Report (Landau 2014b), and the marine sediment cleanup was completed in 2015 as described in the Sediment Cleanup Construction Completion Report (Landau 2017b).

As described in the Upland and Sediment Cleanup Construction Completion Reports, the cleanup action achieved the Site sediment CULs except in limited areas. In the uplands, contaminated soil contained beneath the recently constructed sidewalk along West Marine View Drive was left in-place. In sediments, areas along the bulkhead where CULs could not be achieved due to obstructions or concern that dredging to the full depth of contamination would cause bulkhead instability were left in-place. A sand and gravel or sand sediment cap was placed over areas of residual contamination along the bulkhead and within the dredged marine area where post-dredging results indicated the presence of residual contamination. The sediment cap along the bulkhead is a minimum of 2 ft thick but is generally 3 to 4 ft thick and must be maintained to comply with the cleanup action requirements. Residual contamination left in-place is managed using institutional controls under a

restrictive covenant, which is discussed in Section 2.6. Figure 2 shows the residual contamination capped containment areas along the bulkhead.

The cleanup action removed almost all contaminated soil from the Site, which is likely the source of Site groundwater contamination. Long-term groundwater compliance monitoring was conducted at the Site following implementation of the upland and sediment cleanups.

Following completion of the cleanup and compliance monitoring, Ecology notified the Port that no further remedial action was necessary at the Site under MTCA, but that MTCA required additional remedial action to control and monitor the remaining contamination (Ecology 2019). The additional requirements for the Site were presented in the upland Compliance Monitoring Plan (Upland CMP; Landau 2013) and the Sediment CMP (Landau 2014a).

2.5 Groundwater Compliance Monitoring

Compliance monitoring at the Site has consisted of groundwater sampling along the shoreline. Groundwater compliance monitoring following implementation of the upland cleanup action was conducted at four groundwater monitoring wells (MW-11, MW-12, MW-13, and MW-14) on a semi-quarterly basis from June 2016 through March 2018. Locations of groundwater monitoring wells are shown on Figure 2.

2.6 Environmental Covenant

A restrictive covenant that governs future intrusive activities in the sidewalk containment and sediment backfill areas has been recorded with the Snohomish County Assessor's office for the affected property. The covenant imposed the following limitations summarized below (the full Environmental Covenant (filed in April 16, 2018) is attached as Appendix A):

- Section 1: Any activity that will interfere with the remedial action plan implemented is prohibited. Any activity that may threaten human health or the environment requires prior approval from Ecology. Continued compliance with the covenant is required and any property leases shall adhere to the covenant requirements. Any reference monuments and boundary markers shall be preserved.
- Section 2: Any activity that will contaminate soil, groundwater, and sediments is prohibited. Drilling of a well for any water supply purpose is strictly prohibited.
- Section 3: Access shall be granted to remedial action components and Ecology and its authorized representatives.
- Section 4: Violations, emergencies, and conveyance of any interest must be reported to Ecology within specified period.
- Section 5: Grantors (Port of Everett and City of Everett) must provide written notice and obtain approval from Ecology at least 60 days in advance of any proposed activity or use of the property that is inconsistent with the covenant. If Site conditions change and a covenant is

no longer required, Grantors may submit a request to Ecology to amend or terminate the covenant.

- Section 6: This Covenant is being freely and voluntarily granted by the Grantors. The Grantors will adhere to this covenant and be responsible for all costs. Ecology is entitled to enforce the covenant. This Covenant shall be liberally construed to meet the intent of MTCA and UECA. The provisions of this covenant shall be severable.

2.7 Post-Construction Sediment Monitoring

Since the dredging was completed and the marine backfill cap was placed in 2014, and prior to this periodic review, sediment samples were collected in the vicinity of the City of Everett's (City) CSO-2 outfall, which discharges directly into the Site's sediment cleanup area. The City's CSO-2 line is the only untreated outfall discharge point within the cleanup area. Two sediment sampling events were conducted near the CSO-2: one baseline event was conducted in October 2015 to establish baseline conditions of the CSO-2 and to evaluate the effectiveness of the marine dredge area residuals layer, and a second sampling event was conducted near the CSO-2 area in December 2019 to monitor potential recontamination of sediment due to the discharge from the CSO-2 outfall. Marine sediment sampling locations are shown on Figure 3. The results of the 2015 CSO-2 and residuals layer monitoring and the 2019 CSO-2 monitoring events were presented in the Sampling and Analysis Results, CSO-2 Sediment Sampling technical memorandum published in October 2020 (Landau 2020).

3.0 PERIODIC REVIEW

This periodic review includes an evaluation of the effectiveness of the cleanup action and additional standard periodic review items. Evaluating effectiveness of the cleanup action includes a review of post-construction groundwater, sediment cap, and sediment sampling data.

3.1 Effectiveness of Completed Cleanup Actions

This is the first periodic review since cleanup activities were complete for both the upland and marine areas of the Site. Post-construction monitoring activities included semi-quarterly groundwater monitoring, one post-dredge residuals layer sampling event in the dredged marine area, one post-cleanup baseline sampling event near the CSO-2, and one subsequent sediment sampling event.

To support evaluating the effectiveness of completed cleanup actions, additional sediment cap assessment and sediment monitoring was conducted as a part of this periodic review. Additional periodic review monitoring was conducted in accordance with the Periodic Review Sampling and Analysis Plan (Periodic Review SAP; Landau 2021).

3.1.1 Groundwater Sampling and Analysis

Compliance groundwater sampling was conducted at all four Site monitoring wells (MW-11, MW-12, MW-13, and MW-14) between 2016 and 2018. Parameters analyzed included total arsenic, dissolved arsenic, copper, nickel, and zinc, bis(2-ethlyhexyl) phthalate, diesel-range organics (DRO), and oil-range organics (ORO). Groundwater monitoring was conducted from 2016 through 2018 and was documented in the 2016–2017 Annual Report (Landau 2017a) and the 2017–2018 Annual Report (Landau 2019a).

Additional groundwater sampling along the bulkhead was not included for the 5-year review. Cumulative confirmational groundwater monitoring results and corresponding CULs are presented in Table 1 and summarized below.

3.1.1.1 Metals

Metals concentrations are below the Site groundwater CULs for arsenic, copper, nickel, and zinc, except dissolved nickel concentrations at MW-14 during the September 2017 monitoring event and the follow-up November 2017 monitoring event. Besides the dissolved nickel at MW-14, all dissolved metals results at all wells have been below the Site groundwater CULs for a minimum of five consecutive sampling events. At MW-14, dissolved nickel concentrations were below the CUL (10 micrograms per liter [µg/L]) during the four most recent quarterly monitoring events (December 2017 and March, June, and September 2018), which had dissolved nickel concentrations ranging from not detected above the laboratory reporting limit of 0.2 µg/L (September 2018) to 7.8 µg/L (December 2017).

3.1.1.2 Bis(2-Ethylhexyl)Phthalate

The CAP identified bis(2-ethylhexyl)phthalate (BEHP) as a Site IHS with a CUL of 2.2 µg/L. BEHP was not detected above the laboratory reporting limit of 2.0 µg/L in any of the analyzed samples through 2018.

3.1.1.3 Total Petroleum Hydrocarbons

TPH have been detected above the Site groundwater CULs at MW-13 and MW-14. TPH-O is not considered a Site IHS but has been analyzed and evaluated along with TPH-D, which is listed in the CAP as a Site IHS. The Site CUL for TPH-D is 500 µg/L and the MTCA Method A CUL for TPH-O is 500 µg/L (Table 1).

TPH-O was detected above the MTCA Method A CUL twice at well MW-13 at 3,000 µg/L and 570 µg/L. The 3,000 µg/L detection in March 2017 was followed by three sampling events where TPH-O was not detected above the laboratory reporting limit of 250 µg/L. The 570 µg/L detection occurred in September 2018 and additional TPH-O analysis using a laboratory silica gel cleanup method resulted in a concentration of 270 µg/L, which is below the CUL, indicating a potential interference from other chemicals present in the sample.

TPH-D was above the Site CUL at monitoring wells MW-13 and MW-14 in March 2017 and December 2016, respectively. However, the four subsequent event results were either below the Site CUL or not detected at the reporting limit.

3.1.2 2015 Residuals Layer Confirmational Monitoring

Per the Sediment CMP, confirmational monitoring was conducted in 2015 where contamination was left in-place and covered by a residuals layer following cleanup. Metals, PAHs, SVOCs, bulk butyltins, and PCB Aroclors were detected in the residuals layer samples collected from the uppermost 10 centimeters of marine sediment. SVOCs and bulk butyltins were detected at concentrations that exceeded Site CULs, as described below.

- Relatively few SVOCs were detected at concentrations above the laboratory reporting limits. Only benzyl alcohol was detected at concentrations above its respective CUL; these exceedances ranged from 0.160 milligrams per kilogram (mg/kg) to 0.190 mg/kg, respectively, as compared to a CUL of 0.057 mg/kg.
- Bulk butyltins were detected above the laboratory reporting limits and greater than the CUL in one of the samples. TBT was detected at 120 micrograms per kilogram (µg/kg), which is greater than the CUL of 73 µg/kg.

Confirmational monitoring results were presented in detail in the October 2020 Combined Sewer Overflow-2 Sediment Sampling and Analysis Results (Landau 2020).

3.1.3 2021 Bulkhead Residuals Cap Assessment

During sediment cleanup activities, areas adjacent to the bulkhead were inaccessible due to the presence of timber piles, concrete rubble, and quarry spalls. Per Ecology approval, the obstructed areas were covered with marine backfill. The cap integrity was assessed in 2021 by collecting mudline elevation data along the bulkhead where the marine backfill layer was installed and comparing the current elevations with as-built cap elevations. Elevations were collected at an approximately 25-ft interval along the bulkhead where the cap is present unless access was restricted by infrastructure (i.e., pier platforms); a total of six measurements were collected. Elevations of the six measuring point locations were established using a level-loop survey starting at nearby monitoring well P-27C (ABW/Bayside Marine VCP Site) with a known elevation of 18.61 ft MLLW. Measurements were collected in accordance with Section 3.2 of the Sediment Quality Monitoring of the Sediment CMP (Landau 2014a).

Mudline elevations were measured from the upland pier at six locations (1PW, 2PW, 1PS, 2PS, 3PS, and 4PS) along the bulkhead. Sediment cap assessment elevations and results at each of the six locations are summarized on Table 2. As presented in the table, mudline elevations measured in 2021 ranged from minus (-) 0.45 ft to plus (+) 0.66 ft MLLW. These elevations are within the range of 2015 post-dredge/sediment cap installation mudline elevations collected from near the bulkhead, which ranged from minus (-) 1.00 ft MLLW to plus (+) 1.00 ft MLLW (Landau 2017b). Additionally, five of the six individual elevations measured in 2021 were within the 2015 range for each individual location. One individual 2021 survey elevation (-0.06 MLLW at 1PW) was slightly outside the individual 2015 elevation range of 0.0 MLLW to 1.0 MLLW; this difference is considered negligible. Based on these comparisons, the 2021 mudline elevations are within the range of 2015 elevations, and the cap is verified to be intact.

3.1.4 CSO-2 Sediment Sampling

Sediment monitoring near the City's PSO2 was conducted in 2015, 2019, and 2021. For consistency with previous project documentation, the PSO2 is described as "CSO-2" samples in this report. The 2015 CSO-2 baseline sampling was conducted in accordance with the Sediment CMP (Landau 2014a) and the 2019 CSO-2 sampling was completed in in accordance with a SAP (Landau 2019b). The 2021 sampling was conducted in accordance with the Periodic Review SAP (Landau 2021).

3.1.4.1 2015 Baseline Results

The 2015 CSO-2 analytical results, which include carbon-normalized (OC) results for PAHs, select SVOCs, and PCBs, are provided in Table 3 and Table 4. The table below presents the only sampling results for IHS that were detected at concentrations above the Site CULs during the 2015 baseline event.

2015 Baseline Sediment Results Greater Than Site CULs				
IHS	**Sampling Location**	**Site CUL**	**Unit**	**Concentration(s) Exceeding CUL**
SVOCs/PAHs				
Fluoranthene	BLN-1	160	mg/kg OC	255
BEHP	BLN-1	47	mg/kg OC	55.7
Dibenzofuran	BLN-1	15	mg/kg OC	15.1
Benzyl Alcohol	BLN-1, BLN-2, and BLN-6	0.057	mg/kg dry weight	0.089, 0.110, and 0.063

All other analytical results indicated concentrations were not detected above laboratory reporting limits or if they were detected, then the results were either below the Site CUL or there is no established Site CUL. Site CULs are not established for dioxins/furans, PCB congeners, and dioxin-like PCB congeners; however, these results are summarized for informational purposes as follows:

- Dioxins and/or furans were detected at all sample locations above the laboratory reporting limits. Calculated dioxin/furan toxicity equivalency quotient (TEQ) concentrations (using non-detected values as zero) ranged between 0.86 picograms per gram (pg/g; BLN-4) and 11.38 pg/g (BLN-1).
- PCB congeners and dioxin-like PCB congeners were only analyzed at BLN-1; the total PCB concentration using congener data was 80,000 pg/g, and the dioxin-like PCB congener TEQ was 1.94 pg/g (Table 4).

These baseline results represent sediment quality conditions immediately following cleanup activities that were completed in the same calendar year.

3.1.4.2 2019 Results

The 2019 CSO-2 analytical results, which include carbon-normalized results for PAHs, select SVOCs, and PCBs, are provided in Table 3 and Table 4. The results of the 2019 sediment sampling are summarized in the bullets below:

- All metals were detected above the laboratory reporting limits at all sample locations, but concentrations were below the respective CULs.
- SVOCs were detected at all locations above the laboratory reporting limits, but were below CULs at CSO2-1, CSO2-2, CSO2-3, and CSO2-4. BEHP was detected at CSO2-5 at a concentration of 49.8 mg/kg OC, which is just above the CUL (47 mg/kg OC). This concentration was approximately three times the BEHP result at the same location in 2015.
- Dioxins and/or furans were detected at all sample locations above the laboratory reporting limits. Calculated dioxin/furan TEQ concentrations (using non-detected values as zero) ranged between 6.14 pg/g (CSO2-3) and 26.27 pg/g (CSO2-5). Dioxin/furan TEQ concentrations were greater in 2019 samples as compared to 2015 samples collected from the same locations except for at BLN-1/CSO2-1, where concentrations were relatively the same.

- PCB Aroclors were detected above the laboratory reporting limits at all locations except BLN-4. Detected PCB Aroclor totals ranged between 0.034 mg/kg to 1.24 mg/kg. All concentrations were below the CUL (12 mg/kg OC).
- PCB congeners and dioxin-like PCB congeners were detected above the laboratory limits in both analyzed samples (CSO2-1 and CSO2-2). Total PCB congeners were detected at concentrations of 5,050 pg/g and 7,250 pg/g, respectively, and dioxin-like PCB congener were detected with a TEQ of 0.013 pg/g and 0.287 pg/g, respectively.

3.1.4.3 2021 Results

In addition to analyses conducted in 2015 and 2019, analysis conducted in 2021 included perfluoroalkyl substances (PFAS) at two of the sample locations (CSO-1 and CSO-2). PFAS analysis was included in 2021 at the request of Ecology to follow up on the apartment building fire that took place in July 2020. Analytical results from 2021, which include carbon-normalized results for PAHs, select SVOCs, and PCBs, are provided in Tables 3, 4, and 5. Select analytical results are also shown on Figure 4. The results of the 2021 sediment sampling are summarized in the bullets below:

- All metals were detected above the laboratory reporting limits at all sample locations, but concentrations were below the respective CULs.
- SVOCs were detected at all locations above the laboratory reporting limits, but were below CULs at CSO2-1, CSO2-3, CSO2-4, and CSO2-5. 4-Methylphenol was detected at CSO2-2 at a concentration of 0.9380 mg/kg dry weight, which is just above the CUL (0.670 mg/kg dry weight). Previous years' detections of 4-methylphenol were below the CUL.
- Dioxins and/or furans were detected at all sample locations above the laboratory reporting limits. Calculated dioxin/furan TEQ concentrations (using non-detected values as zero) ranged between 2.51 pg/g (CSO2-3) and 12.7 pg/g (CSO2-5). The 2021 dioxin/furan TEQ concentrations were lower than the 2019 samples but slightly higher than the 2015 samples collected from the same locations.
- PCB Aroclors were detected above the laboratory reporting limits at all locations but below the CUL (12 mg/kg OC). Detected PCB Aroclor totals ranged between 0.54 mg/kg OC to 0.77 mg/kg OC. Total PCB Aroclor concentrations were generally lower in 2021 than in 2019 and 2015.
- PCB congeners and dioxin-like PCB congeners were detected above the laboratory limits in both analyzed samples (CSO2-1 and CSO2-2). Total PCB congeners were detected at concentrations of 14,500 pg/g and 10,900 pg/g, respectively, and dioxin-like PCB congener were detected with a TEQ of 0.0392 pg/g and 0.0294 pg/g, respectively.
- PFAS were not detected above the laboratory reporting limits in the two samples that were analyzed (Table 5). There are no established Site CULs for PFAS; PFAS was analyzed at Ecology's request due to the 2020 apartment building fire.

The laboratory reports from the 2021 sampling event are included in Appendix B.

3.1.4.4 CSO-2 Contaminant Concentration Trends

Time-concentration plots for select analytes are provided in Figures 5 through 8. Analytes presented in these plots consist of several analytes that could demonstrate potential sediment recontamination resulting from combined-sewer overflow events at CSO-2 (aka PSO2). All other stormwater outfalls in this area, which is an area operated by the Port, have flow through stormwater treatment systems known as Modular Wetland Systems. These systems were funded in part by Ecology as part of the Everett Shipyard Cleanup. The City-owned/operated CSO-2 currently discharges untreated stormwater and occasional CSO overflows in this area. The Port understands that the City intends to install a Modular Wetland System in West Marine View Drive that will provide treatment to the stormwater that discharges at CSO-2. These time-concentration plots provide a limited data set, and additional sampling events in the future would be necessary to evaluate long-term trends in concentrations.

Metals concentrations have been below the Site CULs during the sediment confirmational monitoring events, but detected mercury concentrations ranged from 0.04 mg/kg to 0.14 mg/kg during the baseline event, and the CUL for mercury is relatively low (0.41 mg/kg). In 2021, mercury concentrations ranged from 0.053 mg/kg to 0.0906 mg/kg. To evaluate potential long-term trends in mercury data within the vicinity of the CSO-2, a time versus concentration plot has been included in this review as Figure 5.

Time-concentration plots have been included in this review to evaluate log-term trends related to potential recontamination near the CSO-2 and initial evaluations of these plots are summarized as follows:

- Dioxin-furans TEQ (Figure 6)—Dioxin-furan analysis was conducted at all six sampling locations for all events except CSO2-6 in December 2019 because there were recovery issues at that location. TEQ concentrations for dioxin-furans ranged from 0.86 pg/g (CSO2-4) in 2015 to 26.27 pg/g (CSO2-5) in 2019; concentrations appear to generally increase from 2015 to 2019, but generally decrease from 2019 to 2021.
- PCB congeners (Figure 7)—Total PCB congener analysis was conducted at two locations only: CSO2-1 during all three events and at CSO2-2 during the 2019 and 2021 events. Total PCB congener concentrations during all events ranged between and 5,100 pg/g and 15,000 pg/g, plus one apparently anomalously elevated concentration of 80,000 pg/g at CSO2-1 in 2015. The elevated concentration detected in 2015 appears relatively elevated and was significantly lower at both sampling locations in 2019 and 2021.
- Dioxin-like PCB congeners (Figure 8)—Dioxin-like PCB congener analysis was conducted at two locations only: CSO2-1 during all three events and at CSO2-2 during the 2019 and 2021 events. TEQ concentrations for dioxin-like PCB congeners ranged from 0.013 pg/g (CSO2-1) in 2019 and 1.94 pg/g (CSO2-1) in 2015. Similar to the PCB congeners, the concentration detected in 2015 appears relatively elevated, and was significantly lower at both sampling locations in 2019 and 2021.

3.1.5 Effectiveness of Engineered and Institutional Controls

As described in Section 2.6 and Section 3.1.3, cleanup at the Site included implementation of engineered and institutional controls. The engineered controls consist of the installation of a residuals layer cap and a cap adjacent to the bulkhead where the full extent of contamination could not be removed due to obstructions, which was verified to be intact during this periodic review. The environmental covenant was filed in 2018. Based on Site visits conducted during the periodic review and communication with the Port, the Site use has remained consistent and any intrusive activities have been coordinated directly with Ecology to limit exposure and dispersion of any residual contamination; this continues to protect human health and the environment as intended.

3.2 Additional Periodic Review Items

Additional evaluations of the Site for the periodic review are presented in the following sections.

3.2.1 New Scientific Information and New Applicable State and Federal Laws

Screening of PFAS was conducted on marine sediments during this periodic review as requested by Ecology to support evaluations of potential recontamination of the Site resulting from the use of fire suppressants at the Site in July 2020. PFAS are considered emerging contaminants; however, PFAS were not detected at concentrations greater than the laboratory reporting limits. Evaluation of PFAS may be warranted in future reviews in coordination with Ecology based on the recently published Per- and Polyfluoroalkyl Substances Chemical Action Plan (Ecology 2022), or future publications. Other than PFAS, no new applicable scientific information or state or federal law impact evaluation of the protectiveness of the cleanup action.

3.2.2 Current and Projected Site and Resource Uses

There are no new projected uses planned for the Site upland or marine areas. Redevelopment is nearly complete, including the rebuilding of the apartment building that burned down in July 2020 midway through its construction. As a result, PFAS were added to the sediment laboratory analyses at the direction of Ecology. Port tenant boat storage and light maintenance activities will remain the primary marine area use. Photographs presenting current site uses are included in Appendix C.

3.2.3 Availability and Practicability of Higher Preference Technologies

The cleanup activities conducted at the Site included removal of IHS to the extent practicable, except where access was limited. The areas with residual contamination are restricted by the environmental covenant. Both the cleanup actions and the covenant are protective of human health and the environment and additional higher preference technologies are not cost-effective given the relatively small footprint of the areas governed by the environmental covenant.

3.2.4 Availability of Improved Analytical Techniques to Evaluate Compliance with Cleanup Levels

Site compliance monitoring has included the most improved analytical techniques and the laboratory reporting limits have been below the Site CULs. There are no additional analytical techniques available that would impact this 5-year review period.

4.0 CONCLUSIONS

Implementation of the CAP (Ecology 2012) was completed at the Site in 2015 in accordance with the CD between the Port and Ecology and the amended CD dated February 2, 2017. Following completion of the cleanup and compliance monitoring, Ecology notified the Port that no further remedial action was necessary at the Site under MTCA but that MTCA required additional remedial action to control and monitor the remaining contamination. Specifically:

- Groundwater compliance monitoring conducted in 2016–2018 continues to demonstrate compliance with groundwater cleanup standards.
- A sediment cap assessment indicates that capped areas near the bulkhead remains intact and continues to protect human health and the environment.
- A residuals layer (thin sand cap placed to address dredging residuals left in-place) was sampled in 2015 and results indicated only benzyl alcohol and one TBT result exceed the Site CUL. These exceedances were limited and significantly lower than performance monitoring samples collected before placement of the residuals layer, indicating the residuals layer is effective in capping contamination left in-place.
- Institutional controls, in the form of a covenant, are in place at the subject Site and will be effective in protecting public health and the environment from the exposure to hazardous substances and protecting the integrity of the cleanup action implemented. Ecology has determined that the requirements of the covenant are being followed.
- Sediment monitoring near the CSO-2 outfall indicates some slight isolated exceedances of CULs for SVOCs, and no detected concentrations exceeded Site metals or PCB CULs. Contaminant trend analysis indicate that there have been no additional releases to the marine sediment that would contribute to a decrease in sediment quality or pose an elevated risk to human health and the environment. Overall, the sediment cleanup and capping continue to demonstrate compliance with sediment cleanup standards, and continued monitoring is recommended to evaluate potential recontamination of the Site from PSO2 or other sources.

Post-construction confirmational monitoring conducted by the Port, including additional monitoring conducted during this 5-year Periodic Review, demonstrates that the upland and marine cleanup actions continue to be protective of human health and the environment, and no additional cleanup is warranted.

4.1 Next Review

The next review for the Site will be scheduled 5 years from the date of this periodic review in 2028. In the event that additional cleanup actions or institutional controls are required, the next periodic review will be scheduled 5 years from the completion of those activities.

5.0 USE OF THIS REPORT

This report has been prepared for the exclusive use of the Port and Ecology for specific application to the Everett Shipyard site. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of Landau. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau, shall be at the user's sole risk. Landau warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied.

6.0 REFERENCES

Ecology. 2012. Exhibit B: Cleanup Action Plan, Everett Shipyard Site, Everett, Washington. Washington State Department of Ecology, Toxics Cleanup Program, Land and Aquatic Lands Cleanup Sections. February 27.

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URS. 2011. Remedial Investigation Feasibility Study, Everett Shipyard, 1016 14th Street, Everett, Washington. May 9.

N

0 0.5 1

Miles

Data Source: ESRI 2008

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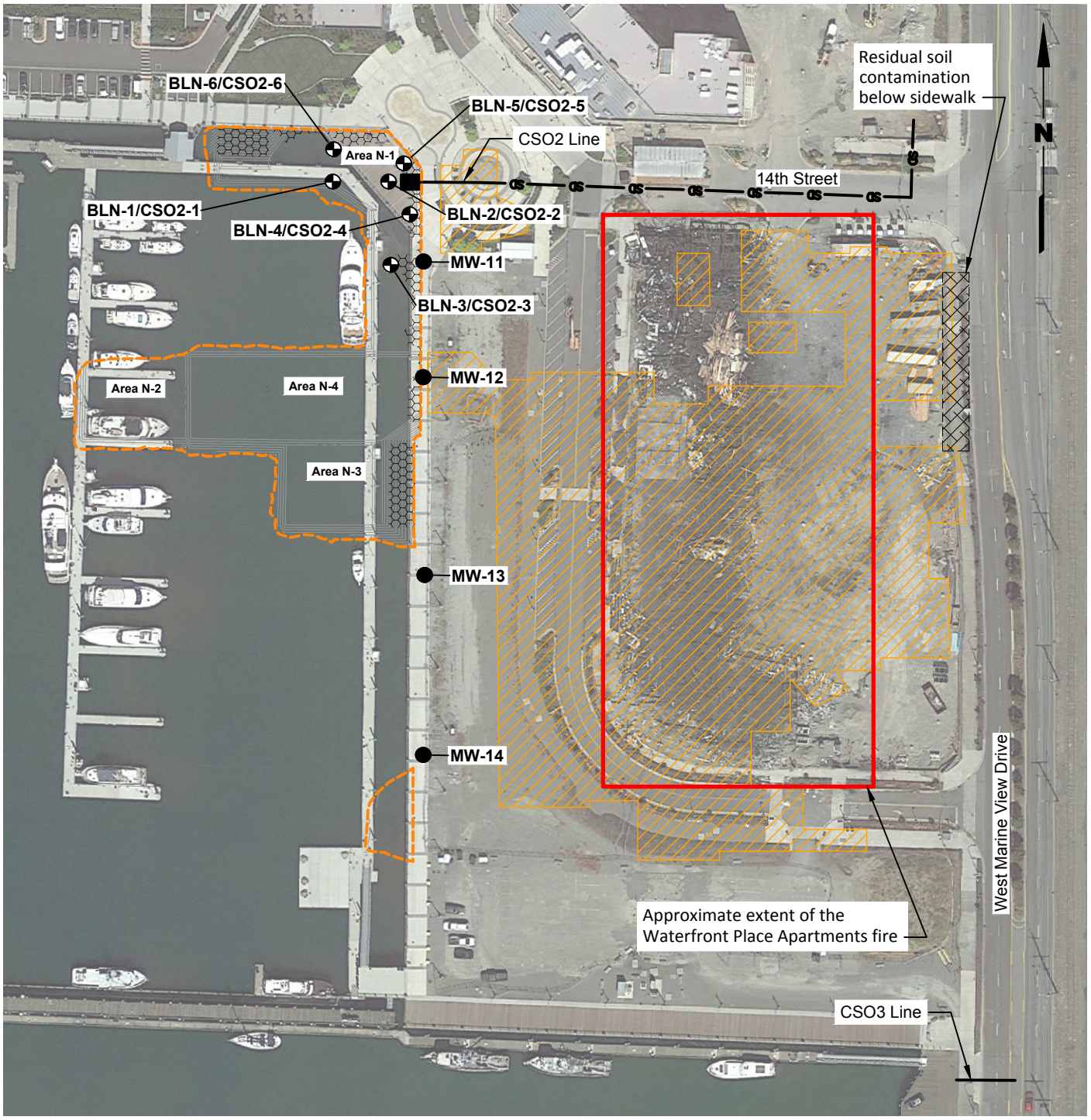
Everett Shipyard Site Everett, Washington	**Vicinity Map**	Figure 1



Legend

- Approximate extent of capped contaminated sediment
- Extent of actual sediment removed (including sidewall cut slopes)
- Upland Excavation Area
- CSO2 Sampling Location
- Compliance Monitoring Location

0 120 240

Scale in Feet

Source: ©Google Earth Pro, 2021

Everett Shipyard Site Everett, Washington	**Site Plan and Significant Features**	Figure 2

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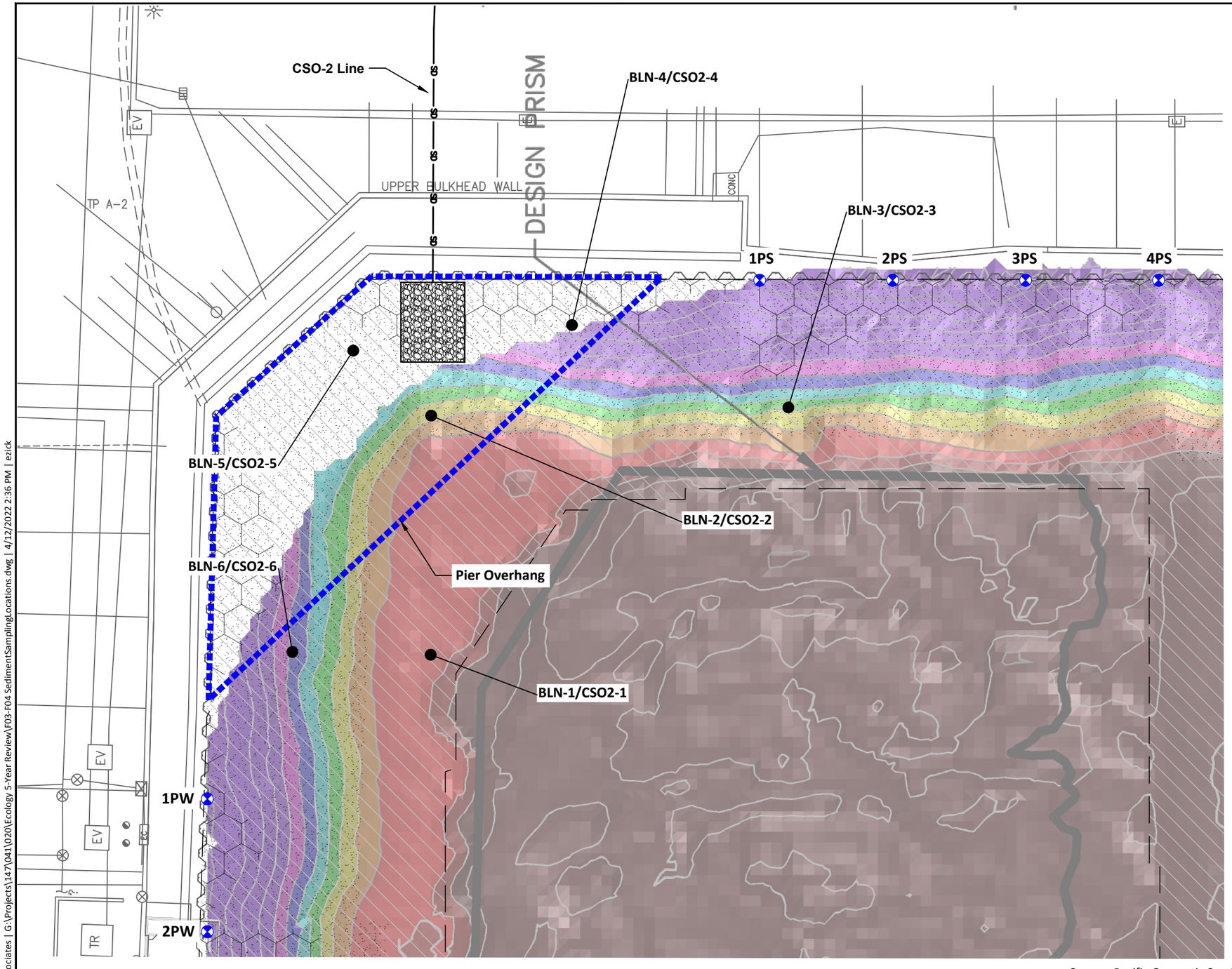

Legend

- CSO-2 Sampling Location
- Cap Assessment Location
- Marine Fill Area
- Approximate Extent of Capped Contaminated Sediment
- Dredge Prism Area

Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1		< −12.0	
2	−12.0	−11.0	
3	−11.0	−10.0	
4	−10.0	−9.0	
5	−9.0	−8.0	
6	−8.0	−7.0	
7	−7.0	−6.0	
8	−6.0	−5.0	
9	−5.0	−4.0	
10		> −3.0	

Notes

1. Dredge survey data based on Pacific Geomatic Services, Inc. survey, collected on 1/02/2019.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Source: Pacific Geomatic Services, Inc, 2019

N

0 20 40
Scale in Feet

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Everett Shipyard Site
Everett, Washington

Assessment and CSO-2 Sampling Locations

Figure 3

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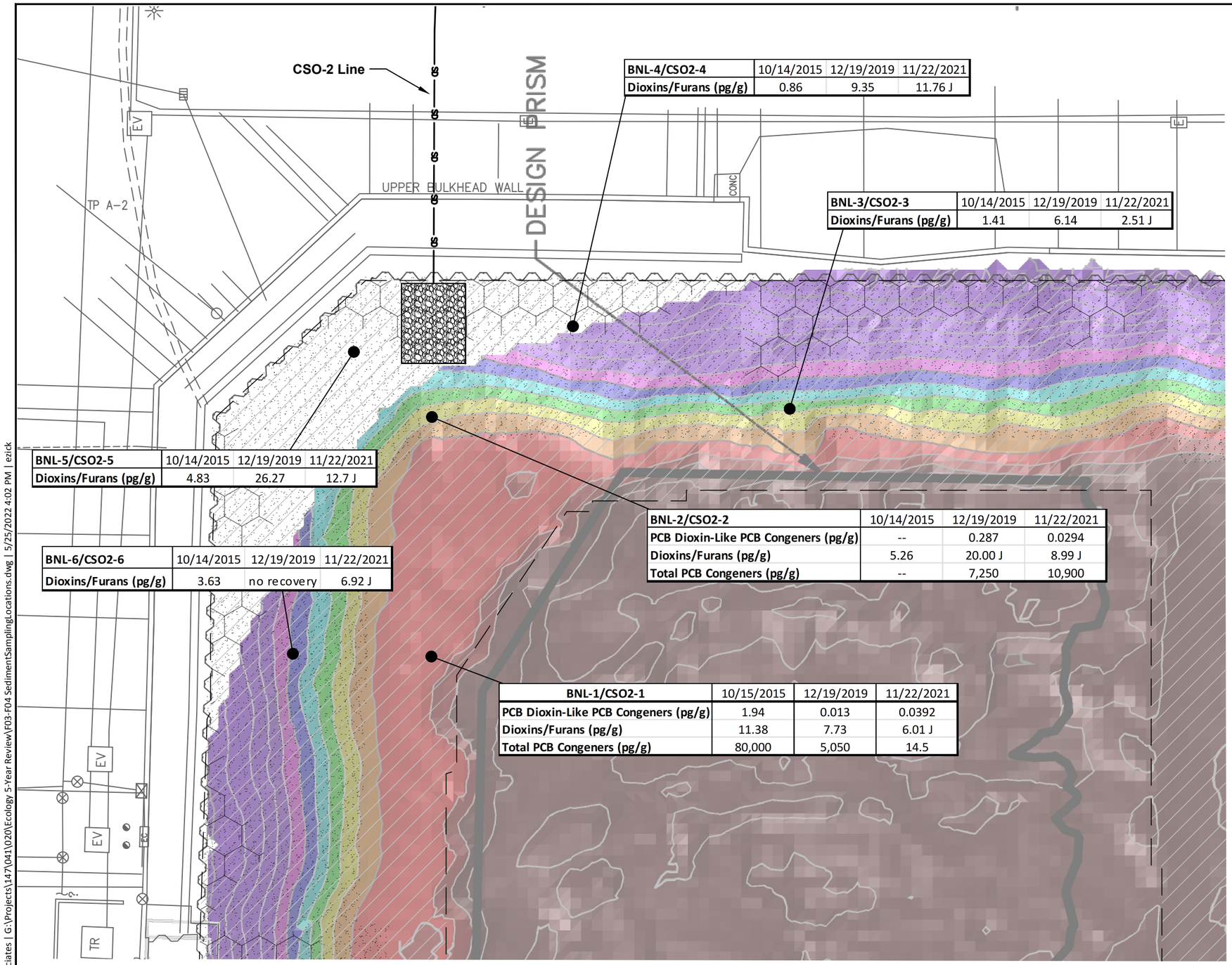

BNL-4/CSO2-4	10/14/2015	12/19/2019	11/22/2021
Dioxins/Furans (pg/g)	0.86	9.35	11.76 J

BNL-3/CSO2-3	10/14/2015	12/19/2019	11/22/2021
Dioxins/Furans (pg/g)	1.41	6.14	2.51 J

BNL-5/CSO2-5	10/14/2015	12/19/2019	11/22/2021
Dioxins/Furans (pg/g)	4.83	26.27	12.7 J

BNL-6/CSO2-6	10/14/2015	12/19/2019	11/22/2021
Dioxins/Furans (pg/g)	3.63	no recovery	6.92 J

BNL-2/CSO2-2	10/14/2015	12/19/2019	11/22/2021
PCB Dioxin-Like PCB Congeners (pg/g)	--	0.287	0.0294
Dioxins/Furans (pg/g)	5.26	20.00 J	8.99 J
Total PCB Congeners (pg/g)	--	7,250	10,900

BNL-1/CSO2-1	10/15/2015	12/19/2019	11/22/2021
PCB Dioxin-Like PCB Congeners (pg/g)	1.94	0.013	0.0392
Dioxins/Furans (pg/g)	11.38	7.73	6.01 J
Total PCB Congeners (pg/g)	80,000	5,050	14.5

Legend

- CSO-2 Sampling Location
- Marine Fill Area
- Approximate Extent of Capped Contaminated Sediment
- Dredge Prism Area

Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1		< −12.0	
2	−12.0	−11.0	
3	−11.0	−10.0	
4	−10.0	−9.0	
5	−9.0	−8.0	
6	−8.0	−7.0	
7	−7.0	−6.0	
8	−6.0	−5.0	
9	−5.0	−4.0	
10		> −3.0	

Notes

1. Ecology has not yet developed MTCA sediment CULs for contaminants such as dioxin-furans, PCB congeners, and dioxin-like PCBs.
2. Dredge survey data based on Pacific Geomatic Services, Inc. survey, collected on 1/02/2019.
3. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

CULs = cleanup levels
PCB = polychlorinated biphenyl
TEQ = toxicity equivalency quotient
pg/g = picrogram per gram
mg/g = miligrams per gram
MTCA = Model Toxics Control Act
-- = not analyzed

Source: Pacific Geomatic Services, Inc, 2019

N

0 20 40
Scale in Feet

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Everett Shipyard Site
Everett, Washington

PCB and Dioxin/Furan Results in CSO-2 Sediment

Figure 4

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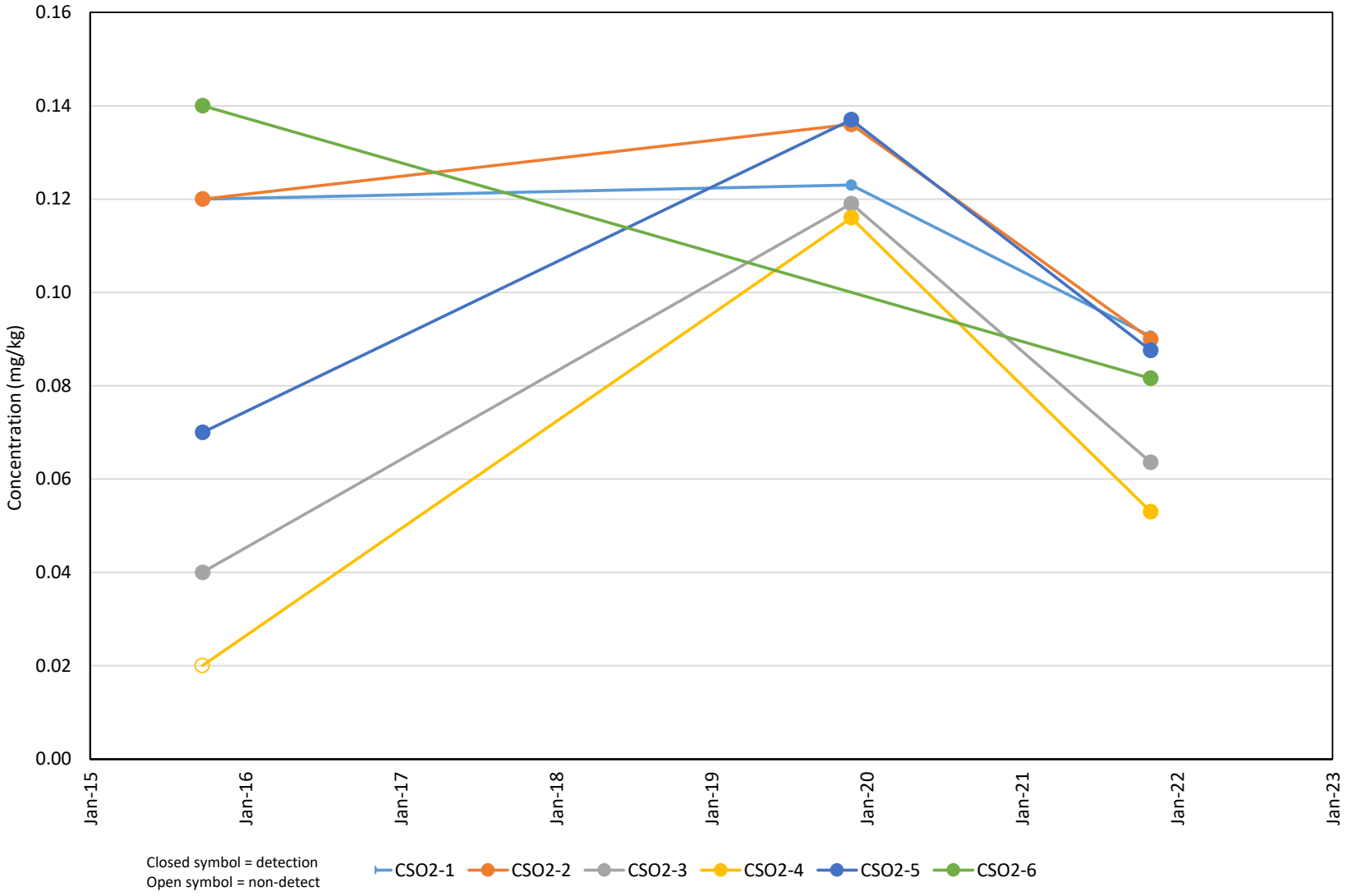

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Everett Shipyard Site
Everett, Washington

Mercury
CSO-2

Figure
5

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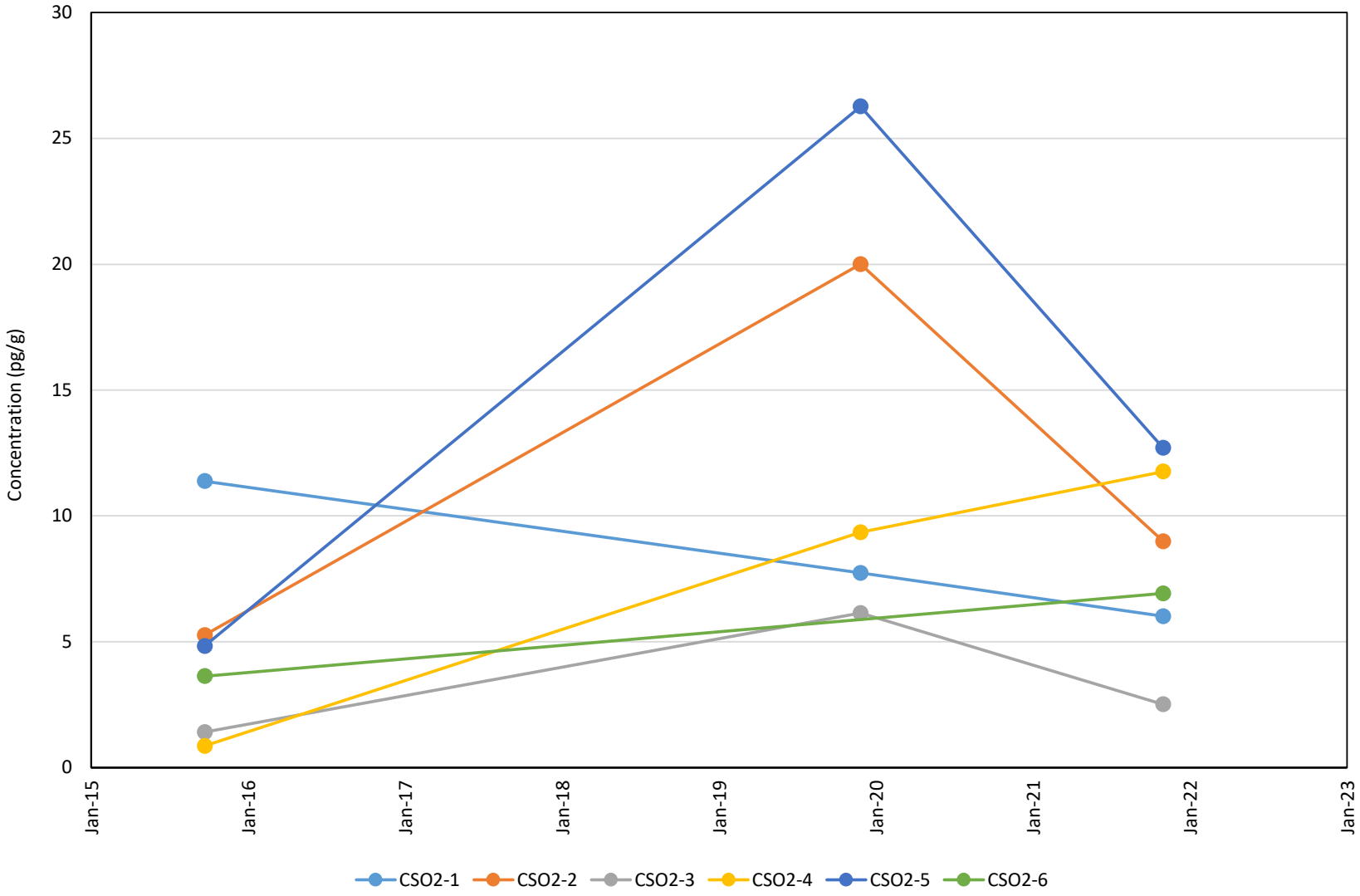

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Everett Shipyard Site
Everett, Washington

Dioxin/Furan TEQ
CSO-2

Figure
6

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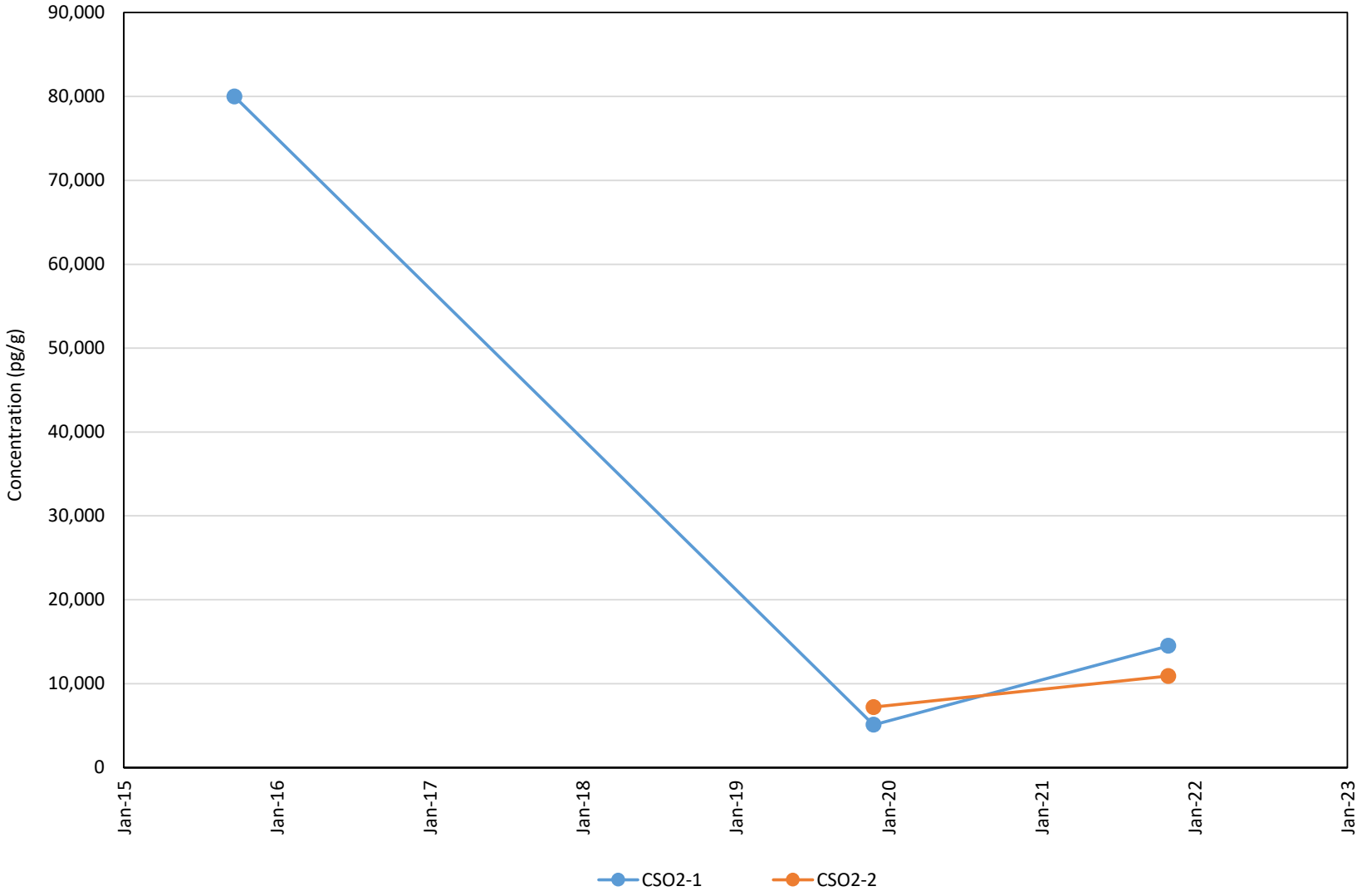

LANDAU ASSOCIATES

Everett Shipyard Site
Everett, Washington

Total PCB Congeners
CSO-2

Figure
7

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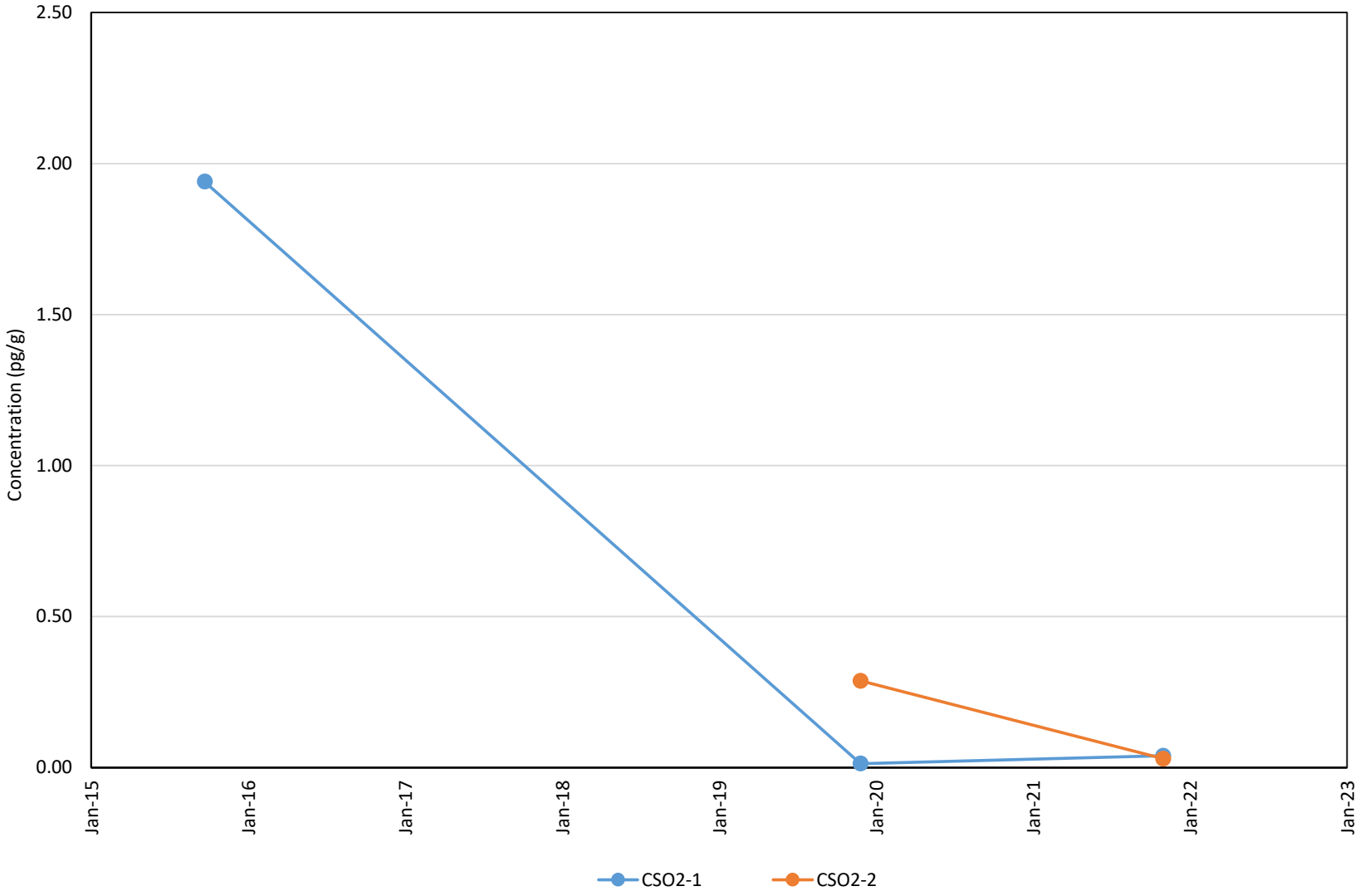

LANDAU ASSOCIATES

Everett Shipyard Site
Everett, Washington

Dioxin-Like PCB Congener TEQ
CSO-2

Figure
8

Table 1
Quarterly Groundwater Monitoring Results
Everett Shipyard Site
Everett, Washington

Sample Location	Laboratory Sample ID	Sample Date	Sample Type	Total Metals		Dissolved Metals								SVOCs	Petroleum Hydrocarbons			
				EPA 200.8	SW-846 6020M	EPA 200.8				SW-846 6020M				SW-846 8270D	NWTPH-dx		NWTPH-dx SGC	
				Arsenic	Arsenic	Arsenic	Copper	Nickel	Zinc	Arsenic	Copper	Nickel	Zinc	bis(2-Ethylhexyl) Phthalate	DRO	ORO	DRO	ORO
			Units:	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			Cleanup Level:	5	5	5	3	10	81	5	3	10	81	2.2	500	500 (b)	500	500 (b)
MW-11	EV16060218-05	6/30/2016	N	**3.2**	--	**2.9**	2 U	**9.7**	**5.9**	--	--	--	--	2.0 U	--	--	130 U	250 U
	EV16090223-02	9/29/2016	N	**2.8**	--	**3.1**	2 U	**11**	**15**	--	--	--	--	2.0 U	**140**	250 U	130 U	250 U
	EV16120171-01	12/27/2016	N	**15**	0.6 U	**4.8**	8 U	15 U	22 U	**0.8**	**1.6**	**3**	**9.3**	2.0 U	130 U	250 U	130 U	250 U
	EV17030233-01	3/28/2017	N	--	**0.68**	--	--	--	--	0.6 U	**1.7**	**1.3**	**3.3**	2.0 U	130 U	250 U	--	--
	EV17060208-05	6/29/2017	N	--	--	--	--	--	--	**2.6**	**0.15**	**0.85**	0.50 U	2.0 U	**240**	250 U	--	--
	EV17090155-04	9/22/2017	N	--	--	--	--	--	--	**1.4**	--	**1.4**	--	--	130 U	250 U	--	--
	EV18030132-02	3/20/2018	N	--	--	--	--	--	--	**0.86**	--	**1.3**	--	--	130 U	250 U	--	--
	EV18030132-01	3/20/2018	FD	--	--	--	--	--	--	**0.89**	--	**1.2**	--	--	130 U	250 U	--	--
MW-12	EV16060218-02	6/30/2016	N	**3.7**	--	1 U	2 U	**17**	**20**	--	--	--	--	2.0 U	--	--	130 U	250 U
	EV16090223-03	9/29/2016	N	**8.1**	--	**2.4**	2 U	**54**	**21**	--	--	--	--	2.0 U	**160**	250 U	130 U	250 U
	EV16120171-02	12/27/2016	N	**10**	**1.1**	**22**	8 U	15 U	22 U	0.6 U	**1.4**	**3**	**11**	2.0 U	130 U	250 U	130 U	250 U
	EV16120171-05	12/27/2016	FD	**5.8**	**1.2**	**21**	8 U	15 U	22 U	0.6 U	**1.2**	**3**	**9.7**	2.0 U	130 U	250 U	130 U	250 U
	EV17030233-05	3/28/2017	N	--	**3.3**	--	--	--	--	0.6 U	**0.51**	**1.3**	**5.4**	2.0 U	130 U	250 U	--	--
	EV17060208-04	6/29/2017	N	--	--	--	--	--	--	0.50 U	**1.9**	**2.2**	**7.3**	2.0 U	130 U	**250**	--	--
	EV17090155-03	9/22/2017	N	--	--	--	--	--	--	0.60 U	--	**4.3 J**	--	--	130 U	**350**	--	--
	EV17090155-05	9/22/2017	FD	--	--	--	--	--	--	**1.2**	--	**7.7 J**	--	--	130 U	**290**	--	--
	EV18030132-03	3/20/2018	N	--	--	--	--	--	--	0.60 U	--	**1.4**	--	--	130 U	250 U	--	--
MW-13	EV16060218-03	6/30/2016	N	1.0 U	--	1 U	2 U	**3.6**	2.5 U	--	--	--	--	2.0 U	--	--	130 U	250 U
	EV16060218-01	6/30/2016	FD	**1.1**	--	1 U	2 U	**4.2**	2.5 U	--	--	--	--	2.0 U	--	--	130 U	250 U
	EV16090223-04	9/29/2016	N	**2.9**	--	**2.1**	2 U	**69J**	**2.8**	--	--	--	--	2.0 U	**210**	250 U	130 U	250 U
	EV16090223-01	9/29/2016	FD	**2.5**	--	**2**	2 U	**52J**	2.5 U	--	--	--	--	2.0 U	**310**	250 U	**240**	250 U
	EV16120171-03	12/27/2016	N	**3.6**	0.6 U	**5.4**	4 U	**8**	11 U	0.5 U	0.1 U	**4.4**	0.5 U	2.0 U	**180**	250 U	130 U	250 U
	EV17030233-04	3/28/2017	N	--	**0.7**	--	--	--	--	0.6 U	0.12 U	**1.8**	0.6 U	2.0 U	**1,800**	**3,000**	**720**	**2,300**
	EV17050089-01	5/15/2017	N	--	--	--	--	--	--	--	--	--	--	--	130 U	250 U	130 U	250 U
	EV17060208-02	6/29/2017	N	--	--	--	--	--	--	0.50 U	**0.16**	**1.1**	0.50 U	2.0 U	130 U	250 U	--	--
	EV17090155-02	9/22/2017	N	--	--	--	--	--	--	0.60 U	--	**1.0**	--	--	130 U	250 U	--	--
	EV18030132-04	3/20/2018	N	--	--	--	--	--	--	0.60 U	--	**0.56**	--	--	**420**	**570**	130 U	**290**

Table 1
Quarterly Groundwater Monitoring Results
Everett Shipyard Site
Everett, Washington

Sample Location	Laboratory Sample ID	Sample Date	Sample Type	Total Metals		Dissolved Metals								SVOCs	Petroleum Hydrocarbons			
				EPA 200.8	SW-846 6020M	EPA 200.8				SW-846 6020M				SW-846 8270D	NWTPH-dx		NWTPH-dx SGC	
				Arsenic	Arsenic	Arsenic	Copper	Nickel	Zinc	Arsenic	Copper	Nickel	Zinc	bis(2-Ethylhexyl) Phthalate	DRO	ORO	DRO	ORO
MW-14	EV16060218-04	6/30/2016	N	**2.7**	--	1 U	2 U	**16**	**6.8**	--	--	--	--	2.0 U	**--**	--	**410**	250 U
	EV16090223-05	9/29/2016	N	**2.3**	--	**2.4**	2 U	**22**	**7.4**	--	--	--	--	2.0 U	**420**	250 U	**190**	250 U
	EV16120171-04	12/27/2016	N	**9.8**	**2.8**	**11**	4 U	7.6 U	11 U	0.6 U	**0.4**	**3.9**	**1**	2.0 U	**640**	250 U	**470**	250 U
	EV17030233-02	3/28/2017	N	--	0.6 U	--	--	--	--	0.6 U	**0.74 J**	**6.4**	**5.1**	2.0 U	130 U	250 U	**--**	--
	EV17030233-03	3/28/2017	FD	--	0.6 U	--	--	--	--	0.6 U	**0.60 J**	**5.6**	**5**	2.0 U	130 U	250 U	--	--
	EV17060208-01	6/29/2017	N	--	--	--	--	--	--	0.50 U	**1.2 J**	**7.3**	**6.1 J**	2.0 U	**180**	250 U	--	--
	EV17060208-03	6/29/2017	FD	--	--	--	--	--	--	0.50 U	**0.95 J**	**6.8**	**4.2 J**	2.0 U	**180**	250 U	--	--
	EV17090155-01	9/22/2017	N	--	--	--	--	--	--	0.60 U	**--**	**43**	**--**	--	**290**	250 U	--	--
	EV17110013-01	11/2/2017	N	--	--	--	--	--	--	--	--	**20**	--	--	--	--	--	--
	EV17120096-01	12/14/2017	N	--	--	--	--	--	--	--	--	**7.8**	--	--	--	--	--	--
	EV17120096-02	12/14/2017	FD	--	--	--	--	--	--	--	--	**7.9**	--	--	--	--	--	--
	EV18030132-05	3/20/2018	N	--	--	--	--	--	--	0.60 U	--	**2.2**	--	--	130 U	250 U	--	--
	EV18060132-01	6/21/2018	N	--	--	--	--	--	--	--	--	**1.9**	--	--	--	--	--	--
	EV18060132-02	6/21/2018	FD	--	--	--	--	--	--	--	--	**1.9**	--	--	--	--	--	--
	EV18090070-01	9/13/2018	N	--	--	--	--	--	--	--	--	0.20 U	--	--	--	--	--	--
	EV18090070-02	9/13/2018	FD	--	--	--	--	--	--	--	--	0.20 U	--	--	--	--	--	--

Acronyms/Abbreviations:

-- = not analyzed
µg/L = micrograms per liter
DRO = diesel-range organic
EPA = US Environmental Protection Agency
FD = field duplicate
ID = identification
IHS = Indicator Hazardous Substance
mg/L = milligrams per liter
MTCA = Model Toxics Control Act
N = primary sample
NA = not applicable
NWTPH = Northwest Total Petroleum Hydrocarbon
ORO = oil-range organic
SGC = silica gel cleanup
SVOC = semivolatile organic compound

Notes:

U = The compound was not detected at the reported concentration.
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
Bold = detected compound
Green Shading = detected concentration is greater than the cleanup level.

(a) EPA 1640 Reductive Precipitation was used as the preparation method for these samples, which were then analyzed by EPA Method 6020M. Reductive precipitation was employed as the preparation technique in order to reduce potential saltwater interference.
(b) Not a site-specific IHS; MTCA Method A cleanup level included due to detected concentrations

Table 2
Sediment Cap Assessment Results
Everett Shipyard, CSO-2
Everett, Washington

Measurement Location	2021 Assessment Elevations (ft MLLW)			2015 Mudline Elevations*	Within Range?
	Measuring Point	Depth to Mudline from Measuring Point (ft)	Calculated Mudline		
1PW	17.14	17.20	-0.06	0.0 to 1.0	Yes**
2PW	16.73	16.80	-0.07	-1.0 to 0.0	Yes
1PS	17.61	17.10	0.51	0.0 to 1.0	Yes
2PS	17.61	16.95	0.66	0.0 to 1.0	Yes
3PS	17.60	18.05	-0.45	-1.0 to 0.0	Yes
4PS	17.61	17.00	0.61	0.0 to 1.0	Yes

Notes:

* Post-cleanup, approximate mudline elevations reported in the ESY Cleanup Completion Report (Landau 2015)

** 2021 calculated mudline elevation is 0.06 ft less than lower 2015 mudline elevation value; this difference value is within the overall 2015 range of -1.0 to 1.0 ft MLLW

Abbreviations and Acronyms:

ESY = Everett Ship Yard
ft = feet
MLLW = mean lower low water

Table 3
Sediment Sampling Analytical Results
Everett Shipyard, CSO-2
Everett, Washington

Analyte	Cleanup Level[1]	Sampling Location, Laboratory SDG, Sample Date											
		BLN-1 AOU6/AWL1 10/15/2015	Dup of BLN-1 DUP-2 AOU6/AWL1 10/15/2015	CSO2-1 19L0405 12/19/2019	Dup of CSO2-1 CSO2-DUP 19L0405 12/19/2019	CSO2-1 21K0379 11/22/2021	BLN-2 AOU6/AWL1 10/14/2015	CSO2-2 19L0405 12/19/2019	CSO2-2 21K0379 11/22/2021	Dup of CSO2-2 CSO2-2 21K0379 11/22/2021	BLN-3 AOU6/AWL1 10/14/2015	CSO2-3 19L0405 12/19/2019	CSO2-3 21K0379 11/22/2021
Total Metals (mg/kg; SW6020A/SW7471A)													
Arsenic	57	**6.1 J**	**9.6 J**	**11.4**	**10.2**	**9.86**	**10.6**	**14.0**	**12.0**	**12.0**	**5.6**	**12.5**	**10.2**
Cadmium	NL	**0.4**	**0.6**	**0.53**	**0.45**	**0.64**	**0.7**	**0.48**	**0.52**	**0.59**	**0.3**	**0.36**	**0.38**
Chromium	NL	**32.3**	**38.6**	**53.8**	**56.9**	**57.7**	**44**	**49.8**	**46.0**	**50.1**	**32.2**	**50.0**	**44.7**
Copper	390	**53.5**	**68.8**	**73.9**	**65.7**	**70.6**	**68**	**72.6**	**64.2**	**63.0**	**40**	**65.8**	**52.5**
Lead	450	**11.8**	**14.5**	**18.1**	**14.2**	**14.8**	**16.2**	**22.2**	**13.1**	**13.8**	**6.6**	**13.3**	**10.1**
Silver	6.1	0.3 UJ	0.3 U	**0.24 J**	**0.21 J**	**0.22 J**	0.4 U	**0.23 J**	**0.18 J**	**0.19 J**	0.3 U	**0.20 J**	**0.15 J**
Zinc	410	**88**	**88**	**123**	**107**	**129**	**108**	**149**	**129**	**127**	**56**	**110**	**105**
Mercury	0.41	**0.12**	**0.11**	**0.123**	**0.168 J**	**0.0906**	**0.12**	**0.136**	**0.0900**	**0.133**	**0.04**	**0.119**	**0.0636**
Semivolatiles (SW8270D)													
Polycyclic Aromatic Hydrocarbons (PAHs; mg/kg OC)													
2-Methylnaphthalene	NL	**5**	**6.3**	**1.44**	**1.5**	**0.67 J**	**7.8**	**0.973 J**	**0.33 J**	**0.532 J**	**2.2 J**	**1.30**	**0.743 J**
Acenaphthene	16	**14**	**11**	**1.72**	**1.76**	**1.00 J**	**5.9**	**1.24 J**	**0.31 J**	0.24 UJ	**2.4 J**	**1.18**	**0.779 J**
Acenaphthylene	NL	**3**	**2.5**	**0.876**	**0.918 J**	**0.45 J**	**2.0**	**11.0**	**0.29 J**	**0.41 J**	3.8 U	**0.988 J**	**0.66 J**
Anthracene	NL	**14**	**12**	**3.02**	**3.16**	**1.34 J**	**7.9**	**26.7**	**0.72 J**	**1.08 J**	**5.8**	**2.43**	**2.39 J**
Fluorene	23	**22**	**18**	**2.76**	**2.89**	**0.74 J**	**8.7**	**1.86 J**	0.67 UJ	0.670 UJ	**3.8**	**1.65**	1.07 UJ
Naphthalene	99	**23 J**	**30 J**	**3.9**	**3.87**	**1.71 J**	**14**	**1.36 J**	**0.81 J**	**1.25 J**	**4.6**	**4.11**	**2.10 J**
Phenanthrene	100	**35**	**31**	**10.29**	**8.56**	**3.22 J**	**29**	**4.83**	**1.98 J**	**2.47 J**	**13**	**6.4**	**4.68 J**
LPAH[2]	370	**111**	**104**	**22.6**	**21**	**8.5 J**	**67**	**47.0**	**4.1 J**	**5.21 J**	**29**	**17**	**10.6 J**
Benzo(a)anthracene	110	**48**	**41**	**6.9**	**7.02**	**2.59 J**	**17**	**49.2**	**1.62 J**	**2.22 J**	**7.7**	**4.64**	**2.63 J**
Benzo(a)pyrene	99	**19**	**15**	**3.3**	**3.8**	**1.89 J**	**8.7**	**72.1**	**1.51 J**	**1.80 J**	**4.2**	**2.70**	**2.08 J**
Benzo(g,h,i)perylene	31	**10 J**	**6.7 J**	**0.9**	**1.29**	**1.23 J**	**5.7 J**	**27.2**	**1.27 J**	**1.44 J**	**2.6 J**	**0.848 J**	**1.26 J**
Chrysene	110	**52**	**42**	**13.6**	**9.71**	**4.59 J**	**22**	**109**	**3.08 J**	**4.13 J**	**11**	**8.13**	**4.64 J**
Dibenzo(a,h)anthracene	12	**5**	**3.8**	**0.7**	**0.894 J**	0.811 UJ	**2.0**	**11.7**	0.79 UJ	0.79 UJ	3.8 U	**0.52 J**	1.26 UJ
Fluoranthene	160	**255**	**200**	**21.6**	**21.1**	**16.7 J**	**63 J**	**68.2**	**6.31 J**	**7.06 J**	**26 J**	**12**	**8.97 J**
Indeno(1,2,3-cd)pyrene	34	**9**	**7.2**	**1.5**	**1.99**	**1.08 J**	**3.9**	**29**	**0.90 J**	**0.90 J**	**2.8 J**	**1.19**	1.07 UJ
Pyrene	1,000	**151 J**	**127 J**	**16.6**	**17.6**	**12.6 J**	**43 J**	**239**	**6.50 J**	**7.66 J**	**20 J**	**11.6**	**8.53 J**
Total Benzofluoranthenes	230	**61**	**55**	**12.4**	**13.3**	**5.94 J**	**28**	**144**	**4.04 J**	**5.60 J**	**15**	**10.1**	**6.35 J**
HPAH[3]	960	**610**	**498**	**77**	**77**	**46.7 J**	**192**	**751**	**25.2 J**	**30.8 J**	**89**	**52**	**34.5 J**
Semivolatiles (mg/kg OC)													
1,2,4-Trichlorobenzene	NL	2.2 U	1.8 U	0.829 U	0.947 U	0.17 UJ	1.7 U	2.99 U	0.17 UJ	0.17 UJ	3.8 U	1.16 U	0.26 UJ
1,2-Dichlorobenzene	NL	2.2 U	1.8 U	0.829 U	0.947 U	0.11 UJ	1.7 U	2.99 U	0.111 UJ	0.11 UJ	3.8 U	1.16 U	0.18 UJ
1,3-Dichlorobenzene	NL	2.2 U	1.8 U	0.829 U	0.947 U	0.15 UJ	1.7 U	2.99 U	0.143 UJ	0.14 UJ	3.8 U	1.16 U	0.23 UJ
1,4-Dichlorobenzene	NL	2.2 U	1.8 U	0.829 U	0.947 U	0.15 UJ	1.7 U	2.99 U	0.143 UJ	0.14 UJ	3.8 U	1.16 U	0.23 UJ
bis(2-Ethylhexyl) Phthalate	47	**55.7**	**32.7**	**5.95**	**8.22**	**6.23 J**	**17**	**8.83**	**5.21 J**	**7.94 J**	**9.1 J**	**7.19**	**4.99 J**
Butyl Benzyl Phthalate	4.9	2.2 U	1.8 U	**0.938**	0.947 U	0.44 UJ	1.7 U	2.99 U	0.43 UJ	0.43 UJ	3.8 U	1.16 U	0.69 UJ
Dibenzofuran	15	**15.1**	**13.6**	**2.05**	**2.25**	**1.00 J**	**7.5**	**0.898 J**	0.650 UJ	**0.729 J**	**3.2 J**	**1.64**	1.04 UJ
Diethyl Phthalate	NL	2.2 U	**1.7 J**	0.829 U	0.947 U	0.93 UJ	**1.7**	**3.12**	0.908 UJ	0.904 UJ	3.8 U	1.16 U	**1.50 J**
Dimethyl Phthalate	53	**2.8**	**3.5**	**0.557**	**0.630 J**	**0.34 J**	**1.0 J**	2.99 U	**0.502 J**	**0.36 J**	3.8 U	**0.55 J**	**0.41 J**
Di-N-Butyl Phthalate	NL	2.2 U	1.8 U	0.829 U	**0.486 J**	0.26 UJ	1.7 U	2.99 U	0.26 UJ	0.26 UJ	3.8 U	1.16 U	0.41 UJ
Di-n-octyl Phthalate	NL	**9.6 J**	1.8 UJ	0.829 U	0.947 U	0.21 UJ	1.7 U	2.99 U	0.20 UJ	0.20 UJ	3.8 U	1.16 U	0.32 UJ
Hexachlorobenzene	NL	2.2 U	1.8 U	0.829 U	0.947 U	0.64 UJ	1.7 U	2.99 U	0.622 UJ	0.619 UJ	3.8 U	1.16 U	0.99 UJ
Hexachlorobutadiene	NL	2.2 U	1.8 U	0.829 U	0.947 U	0.23 UJ	1.7 U	2.99 U	0.22 UJ	0.22 UJ	3.8 U	1.16 U	0.35 UJ
N-Nitrosodiphenylamine	11	2.2 U	1.8 U	0.829 U	0.947 U	0.25 UJ	1.7 U	2.99 U	0.24 UJ	0.24 UJ	3.8 U	1.16 U	0.39 UJ

Table 3
Sediment Sampling Analytical Results
Everett Shipyard, CSO-2
Everett, Washington

Analyte	Cleanup Level[1]	Sampling Location, Laboratory SDG, Sample Date											
		BLN-1 AOU6/AWL1 10/15/2015	Dup of BLN-1 DUP-2 AOU6/AWL1 10/15/2015	CSO2-1 19L0405 12/19/2019	Dup of CSO2-1 CSO2-DUP 19L0405 12/19/2019	CSO2-1 21K0379 11/22/2021	BLN-2 AOU6/AWL1 10/14/2015	CSO2-2 19L0405 12/19/2019	CSO2-2 21K0379 11/22/2021	Dup of CSO2-2 CSO2-2 21K0379 11/22/2021	BLN-3 AOU6/AWL1 10/14/2015	CSO2-3 19L0405 12/19/2019	CSO2-3 21K0379 11/22/2021
Semivolatiles (mg/kg dry wt)													
1-Methylnaphthalene	NL	--	--	**0.0144 J**	**0.0169 J**	**0.0087 J**	--	0.100 U	0.0053 UJ	**0.0073 J**	--	**0.0115 J**	**0.0062 J**
2,4,5-Trichlorophenol	NL	--	--	0.0869 U	0.0985 U	0.0257 UJ	--	0.498 U	0.0257 UJ	0.0257 UJ	--	0.0995 U	0.0257 UJ
2,4,6-Trichlorophenol	NL	--	--	0.0869 U	0.0985 U	0.0090 UJ	--	0.498 U	0.0090 UJ	0.0090 UJ	--	0.0995 U	0.0090 UJ
2,4-Dichlorophenol	NL	--	--	0.0869 U	0.0985 U	0.0153 UJ	--	0.498 U	0.0153 UJ	0.0153 UJ	--	0.0995 U	0.0153 UJ
2,4-Dimethylphenol	NL	0.096 U	0.099 U	0.0869 U	0.0985 U	0.0038 UJ	0.099 U	0.498 U	0.0038 UJ	0.0038 UJ	0.097 U	0.0995 U	0.0038 UJ
2,4-Dinitrophenol	NL	--	--	0.174 U	0.1970 U	0.0337 UJ	--	0.995 U	0.0338 UJ	0.0338 UJ	--	0.199 U	0.0338 UJ
2,4-Dinitrotoluene	NL	--	--	0.0869 U	0.0985 U	0.0162 UJ	--	0.498 U	0.0162 UJ	0.0162 UJ	--	0.0995 U	0.0162 UJ
2,6-Dinitrotoluene	NL	--	--	0.0869 U	0.0985 U	0.0204 UJ	--	0.498 U	0.0205 UJ	0.0205 UJ	--	0.0995 U	0.0205 UJ
2-Chloronaphthalene	NL	--	--	0.0174 U	0.0197 U	0.0079 UJ	--	0.100 U	0.0080 UJ	0.0080 UJ	--	0.0199 U	0.0080 UJ
2-Chlorophenol	NL	--	--	0.0174 U	0.0197 U	0.0138 UJ	--	0.100 U	0.0138 UJ	0.0138 UJ	--	0.0199 U	0.0138 UJ
2-Methylphenol	0.063	0.019 U	0.020 U	0.0174 U	0.0197 U	0.0066 UJ	0.020 U	0.100 U	0.0067 UJ	0.0067 UJ	0.019 U	0.0199 U	0.0067 UJ
2-Nitroaniline	--	--	--	0.0869 U	0.0985 U	0.0164 UJ	--	0.498 U	0.0164 UJ	0.0164 UJ	--	0.0995 U	0.0164 UJ
2-Nitrophenol	NL	--	--	0.0174 U	0.0197 U	0.0049 UJ	--	0.100 U	0.0049 UJ	0.0049 UJ	--	0.0199 U	0.0049 UJ
3,3'-Dichlorobenzidine	NL	--	--	0.0869 U	R	0.0071 UJ	--	0.498 U	0.0071 UJ	0.0071 UJ	--	0.0995 U	0.0071 UJ
3-Nitroaniline	NL	--	--	0.0869 U	R	0.0222 UJ	--	0.498 U	0.0222 UJ	0.0223 UJ	--	0.0995 U	0.0222 UJ
4,6-Dinitro-2-methylphenol	NL	--	--	0.174 U	0.1970 U	0.0379 UJ	--	0.995 U	0.0379 UJ	0.0380 UJ	--	0.199 U	0.0380 UJ
4-Bromophenyl phenyl ether	NL	--	--	0.0174 U	0.0197 U	0.0170 UJ	--	0.100 U	0.0170 UJ	0.0170 UJ	--	0.0199 U	0.0170 UJ
4-Chloro-3-methylphenol	NL	--	--	0.0869 U	0.0985 U	0.0124 UJ	--	0.498 U	0.0124 UJ	0.0124 UJ	--	0.0995 U	0.0124 UJ
4-Chloroaniline	NL	--	--	0.0869 U	R	0.0084 UJ	--	0.498 U	0.0084 UJ	0.0084 UJ	--	0.0995 U	0.0084 UJ
4-Chlorophenyl phenyl ether	NL	--	--	0.0174 U	0.0197 U	0.0191 UJ	--	0.100 U	0.0191 UJ	0.0191 UJ	--	0.0199 U	0.0191 UJ
4-Methylphenol	0.670	**0.083**	**0.100**	**0.0398**	**0.0429**	**0.9380 J**	**0.093**	0.100 U	**0.0232 J**	**0.0221 J**	0.019 U	**0.0314**	**0.0311 J**
4-Nitroaniline	NL	--	--	0.0869 U	0.0985 UJ	0.0294 UJ	--	0.498 U	0.0294 UJ	0.0294 UJ	--	0.0995 U	0.0294 UJ
4-Nitrophenol	NL	--	--	0.0869 U	0.0985 U	0.0326 UJ	--	0.498 U	0.0326 UJ	0.0326 UJ	--	0.0995 U	0.0326 UJ
Benzoic Acid	NL	**0.470**	**0.300**	**0.123**	**0.1350 J**	**0.0667 J**	**0.280**	0.995 U	0.0390 UJ	**0.0501 J**	**0.170 J**	**0.103 J**	0.0390 UJ
Benzyl Alcohol	0.057	**0.089**	**0.069**	**0.0293**	**0.0212**	**0.0172 J**	**0.110**	0.100 U	0.0162 UJ	0.0163 UJ	**0.032**	**0.0176 J**	0.0163 UJ
bis(2-Chloro-1-Methylethyl) Ether	NL	--	--	0.0174 U	0.0197 U	0.0034 UJ	--	0.100 U	0.0034 UJ	0.0034 UJ	--	0.0199 U	0.0034 UJ
bis(2-Chloroethoxy) Methane	NL	--	--	0.0174 U	0.0197 U	0.0043 UJ	--	0.100 U	0.0043 UJ	0.0043 UJ	--	0.0199 U	0.0043 UJ
bis(2-Chloroethyl) Ether	NL	--	--	0.0174 U	0.0197 U	0.0193 UJ	--	0.100 U	0.0193 UJ	0.0193 UJ	--	0.0199 U	0.0193 UJ
Carbazole	NL	--	--	**0.0184**	**0.0184 J**	0.0043 UJ	--	**0.303**	**0.0068 J**	**0.0062 J**	--	**0.0122 J**	**0.0109 J**
Hexachlorocyclopentadiene	NL	--	--	0.0869 U	0.0985 U	0.0244 UJ	--	0.498 U	0.0244 UJ	0.0245 UJ	--	0.0995 U	0.0244 UJ
Hexachloroethane	NL	0.019 U	0.020 U	0.0174 U	0.0197 U	0.0034 UJ	0.020 U	0.100 U	0.0034 UJ	0.0034 UJ	0.019 U	0.0199 U	0.0034 UJ
Isophorone	NL	--	--	0.0174 U	0.0197 U	0.0039 UJ	--	0.100 U	0.0039 UJ	0.0039 UJ	--	0.0199 U	0.0039 UJ
Nitrobenzene	NL	--	--	0.0174 U	0.0197 U	0.0072 UJ	--	0.100 U	0.0072 UJ	0.0072 UJ	--	0.0199 U	0.0072 UJ
N-Nitrosodi-n-propylamine	NL	--	--	0.0174 U	0.0197 U	0.0074 UJ	--	0.100 U	0.0074 UJ	0.0074 UJ	--	0.0199 U	0.0074 UJ
Pentachlorophenol	NL	0.096 U	0.099 U	0.0869 U	0.0985 U	0.0312 UJ	0.099 U	0.498 U	0.0312 UJ	0.0312 UJ	0.097 U	0.0995 U	0.0312 UJ
Phenol	NL	**0.045**	**0.038**	0.0174 U	**0.0164 J**	**0.0462 J**	**0.084**	0.100 U	**0.0124 J**	**0.0185 J**	**0.016 J**	0.0199 U	**0.0115 J**
Dioxins/Furans (pg/g; EPA 1613B)													
2,3,7,8-TCDF	NL	**2.23**	**2.18**	**2.10**	**0.930 J**	**2.72**	**1.15**	**1.97**	1.34 U	**1.69**	**0.567 J**	**1.44**	0.999 U
Total TCDF	NL	19.1 U	19.7 U	**9.32 J**	**4.98 J**	**14.7**	13.0 U	**14.6**	**0.765 J**	**11.1 J**	5.57 U	**6.53**	**0.551 J**
2,3,7,8-TCDD	NL	**0.410 J**	0.367 UJ	0.478 UJ	0.360 UJ	0.501 UJ	0.317 UJ	0.506 UJ	0.999 U	**0.439 J**	0.180 UJ	1.00 U	0.999 U
Total TCDD	NL	24.9 U	22.1 U	**20.1 J**	**8.72 J**	**19.4**	13.6 U	**18.3**	**2.33 J**	**15.3 J**	6.56 U	**11.0**	**4.90**
1,2,3,7,8-PeCDF	NL	**0.777 JX**	0.710 UJX	0.804 UJ	1.00 U	0.999 U	**0.520 JX**	0.973 UJ	0.678 UJ	**0.715 J**	**0.198 J**	0.524 UJ	0.999 U
2,3,4,7,8-PeCDF	NL	**0.958 J**	**0.836 J**	0.820 UJ	0.368 UJ	0.881 UJ	**0.548 J**	1.13 U	0.999 U	0.704 UJ	0.228 UJ	**0.457 J**	0.999 U
Total PeCDF	NL	23.8 U	23.2 U	**15.8 J**	**9.05 J**	**13.6**	13.1 U	**31.5**	**10.2 J**	**14.6 J**	4.43 U	**10.6**	**3.62**
1,2,3,7,8-PeCDD	NL	**2.66**	**2.53**	**1.97**	**2.03**	1.99 U	**1.23**	**4.06**	**2.70**	**2.90**	0.488 UJ	**1.51**	1.33 U
Total PeCDD	NL	**28.6**	25.7 U	**11.8**	**6.72 J**	**11.7**	**13.1**	**18.3**	**4.92 J**	**16.2 J**	6.20 U	**8.31**	**1.53**
1,2,3,4,7,8-HxCDF	NL	**2.72**	**2.28**	**1.65**	**1.36**	**1.76**	**1.28**	**4.98**	**1.80**	**2.74**	0.515 UJX	**1.29**	0.999 U

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Analyte	Cleanup Level[1]	Sampling Location, Laboratory SDG, Sample Date											
		BLN-1 AOU6/AWL1 10/15/2015	Dup of BLN-1 DUP-2 AOU6/AWL1 10/15/2015	CSO2-1 19L0405 12/19/2019	Dup of CSO2-1 CSO2-DUP 19L0405 12/19/2019	CSO2-1 21K0379 11/22/2021	BLN-2 AOU6/AWL1 10/14/2015	CSO2-2 19L0405 12/19/2019	CSO2-2 21K0379 11/22/2021	Dup of CSO2-2 CSO2-2 21K0379 11/22/2021	BLN-3 AOU6/AWL1 10/14/2015	CSO2-3 19L0405 12/19/2019	CSO2-3 21K0379 11/22/2021
1,2,3,6,7,8-HxCDF	NL	**1.89**	1.68 U	**1.33**	1.26 U	**1.47**	0.764 UJ	**3.84**	**1.88**	**2.46**	**0.436 J**	**0.993 J**	0.478 UJ
2,3,4,6,7,8-HxCDF	NL	**2.52 X**	**2.38 X**	**1.87**	**1.76**	**2.19**	**1.51**	**6.04**	**3.08**	**4.35**	**0.525 J**	**1.39**	0.999 U
1,2,3,7,8,9-HxCDF	NL	**0.813 J**	0.714 UJ	**0.916 J**	**0.420 J**	0.664 UJ	0.478 UJ	**1.40**	0.750 UJ	**1.11**	0.270 UJ	**0.480 J**	0.999 U
Total HxCDF	NL	61.7 U	58.5 U	**44.6**	**37.3**	**41.9**	32.1 U	**156**	**57.3 J**	**82.8 J**	11.4 U	**33.8**	**20.1**
1,2,3,4,7,8-HxCDD	NL	**4.05**	**3.76**	**2.65**	**2.67**	**3.04**	1.62 U	**8.55**	**3.46 J**	**5.79 J**	**0.618 J**	2.09 U	1.34 U
1,2,3,6,7,8-HxCDD	NL	**13.2**	**12.3**	**9.28**	**8.06**	**9.02**	**5.80**	**21.7**	**9.39**	**13.0**	**2.22**	**7.22**	**3.73**
1,2,3,7,8,9-HxCDD	NL	**9.20**	**8.92**	**6.25**	**6.57**	**6.64**	**3.67**	**17.3**	**7.65 J**	**13.6 J**	**1.61**	**4.66**	**2.86**
Total HxCDD	NL	137 U	132 U	**89.5**	**64.4**	**93.2**	65.0 U	**139**	**72.4**	**103**	27.0 U	**64.3**	**35.0**
1,2,3,4,6,7,8-HpCDF	NL	**37.6**	**42.1**	**30.1**	**36.2**	**30.6**	**27.8**	**167**	**56.3 J**	**92.3 J**	**7.21**	**27.6**	**17.1**
1,2,3,4,7,8,9-HpCDF	NL	**2.35**	**2.06**	**1.47**	**1.99**	**1.93**	1.36 U	**10.8**	**3.48 J**	**5.82 J**	0.535 UJ	**1.54**	0.999 U
Total HpCDF	NL	117 U	138 U	**92.7**	**105**	**89.5**	88.5 U	**538**	**166 J**	**283 J**	22.3 U	**82.5**	**58.5**
1,2,3,4,6,7,8-HpCDD	NL	**321**	**300**	**226**	**213**	**242**	**170**	**605**	**238 J**	**432 J**	**58.1**	**197**	**134**
Total HpCDD	NL	**878**	**828**	**549 J**	**467**	**642**	**523**	**1,080**	**509 J**	**792 J**	**180**	**497**	**386**
OCDF	NL	**106**	**105**	**75.3 J**	**111 J**	**74.2**	**133**	**597**	**171 J**	**383 J**	**19.1**	**76.8**	**57.2**
OCDD	NL	**2,320**	**2,180**	**1,850**	**1,590**	**1,850 J**	**1,640**	**4,520 J-EC**	**1,790 J**	**3,450 J**	**488**	**1,540**	**1,080 J**
TEQ (ND = 0)	NL	**11.38**	**10.09**	**7.73**	**7.23**	**6.01 J**	**5.26**	**20.00 J**	**8.99 J**	**14.29 J**	**1.41**	**6.14**	**2.51 J**
TEQ (ND = 1/2 RL)	NL	**11.38**	**10.40**	**8.10**	**7.54**	**7.43 J**	**5.54**	**20.44 J**	**9.76 J**	**14.39 J**	**1.82**	**6.75**	**4.14 J**
PCB Aroclors (mg/kg OC; SW8082A)													
Aroclor 1016	NL	0.5 U	0.4 U	0.2 U	0.2 U	0.08 U	0.3 U	0.004 U	0.074 U	0.073 U	0.8 U	0.2 U	0.12 U
Aroclor 1242	NL	0.5 U	0.4 U	0.2 U	0.2 U	0.08 U	0.3 U	0.004 U	0.074 U	0.073 U	0.8 U	0.2 U	0.12 U
Aroclor 1248	NL	1.9 U	1.5 U	**0.24**	**0.27**	**0.21**	1.0 U	**0.008**	**0.16 J**	**0.18 J**	0.8 U	**0.19 J**	**0.18 J**
Aroclor 1254	NL	**4.9**	**4.5**	**0.45**	**0.54**	**0.33**	**1.9**	**0.017 J**	**0.24**	**0.27**	**0.6 J**	**0.38**	**0.24 J**
Aroclor 1260	NL	**2.3 P**	**2.4 P**	**0.41**	**0.37**	**0.22**	**1.0**	**0.009**	**0.16 J**	**0.17 J**	**0.3 J**	**0.29**	**0.25 J**
Aroclor 1221	NL	0.5 U	0.4 U	0.2 U	0.2 U	0.08 U	0.3 U	0.004 U	0.074 U	0.073 U	0.8 U	0.2 U	0.12 U
Aroclor 1232	NL	0.5 U	0.4 U	0.2 U	0.2 U	0.08 U	0.3 U	0.004 U	0.074 U	0.073 U	0.8 U	0.2 U	0.12 U
Aroclor 1262	NL	--	--	0.2 U	0.2 U	0.03 U	--	0.004 U	0.03 U	0.03 U	--	0.2 U	0.04 U
Aroclor 1268	NL	--	--	0.2 U	0.2 U	0.03 U	--	0.004 U	0.03 U	0.03 U	--	0.2 U	0.04 U
Total PCBs	12	**7.2 P**	**6.9 P**	**1.1**	**1.2**	**0.76**	**3.0**	**0.034**	**0.56 J**	**0.62 J**	**0.9 J**	**0.86**	**0.67 J**
PCB Dioxin-Like PCB Congeners (pg/g; SW1668A)													
PCB-77	NL	**178 J**	--	**13.9**	--	**38.1**	--	**19.2**	**34.6**	31.9 U	--	--	--
PCB-81	NL	**4.39 J**	--	**1.74 J**	--	2.08 U	--	**3.48**	3.32 U	2.70 U	--	--	--
PCB-105	NL	**1540**	--	**77.6**	--	**246**	--	**127**	**216**	**188**	--	--	--
PCB-114	NL	**85.5**	--	**4.21**	--	13.4 U	--	**6.19**	5.10 U	9.18 U	--	--	--
PCB-118	NL	**4690**	--	**254** [4]	--	**783** [4]	--	**338** [4]	**582** [4]	**531** [4]	--	--	--
PCB-123	NL	**53.8**	--	**3.83**	--	**11.3 J**	--	**5.41**	4.22 U	10.2 U	--	--	--
PCB-126	NL	**17.1 J**	--	1.62 U	--	3.35 U	--	**2.68**	5.04 U	3.60 U	--	--	--
PCB-156	NL	**--**	--	**24.1**	--	**84.5**	--	**35.6**	**67.1**	**52.6**	--	--	--
PCB-156/157	NL	**519**	--	--	--	--	--	--	--	--	--	--	--
PCB-157	NL	**--**	--	5.78 U	--	**19.8 J**	--	**10.7**	19.7 U	16.1 U	--	--	--
PCB-167	NL	**166 J**	--	**9.8**	--	**33.8**	--	**16.4**	22.8 U	21.8 U	--	--	--
PCB-169	NL	2.04 U	--	0.249 U	--	2.92 U	--	0.304 U	3.39 U	2.50 U	--	--	--
PCB-189	NL	**21.1 J**	--	**2.08 J**	--	5.66 U	--	**2.89**	2.59 U	**4.47 J**	--	--	--
TEQ (ND = 0)	NL	**1.94**	--	**0.013**	--	**0.0392**	--	**0.287**	**0.0294**	**0.0233**	--	--	--
TEQ (ND = 1/2 RL)	NL	**1.97**	--	**0.098**	--	**0.251**	--	**0.292**	**0.334**	**0.244**	--	--	--
PCB Congeners (pg/g; SW1668A)													
Total PCBs (ND = 0)	NL	**80,000**	--	**5,100**	--	**14,500**	--	**7,200**	**10,900**	**9,910**	--	--	--
Total PCBs (ND = 1/2 RL)	NL	**80,000**	--	**5,100**	--	**15,000**	--	**7,300**	**11,600**	**10,400**	--	--	--
Conventionals													
Total Solids (%; SM2540G)	NL	**56.42**	**59.73**	**41.81**	**41.83**	**36.08**	**47.20**	**42.54**	**49.23**	**47.41**	**64.79**	**49.91**	**56.47**
Total Organic Carbon (%; Plumb81TC*)	NL	**0.862 J**	**1.10**	**2.10**	**2.08**	**2.12**	**1.15**	**3.33**	**2.17**	**2.18**	**0.504**	**1.71**	**1.36**

Table 3
Sediment Sampling Analytical Results
Everett Shipyard, CSO-2
Everett, Washington

Analyte	Cleanup Level[1]	Sampling Location, Laboratory SDG, Sample Date							
		BLN-4 AOU6/AWL1 10/14/2015	CSO2-4 19L0405 12/19/2019	CSO2-4 21K0379 11/22/2021	BLN-5 AOU6/AWL1 10/14/2015	CSO2-5 19L0405 12/19/2019	CSO2-5 21K0379 11/22/2021	BLN-6 AOU6/AWL1 10/14/2015	CSO2-6 21K0379 11/22/2021
Total Metals (mg/kg; SW6020A/SW7471A)									
Arsenic	57	**1.9**	**8.75**	**10.0**	**6.6**	**12.8**	**11.7**	**7.6**	**9.06**
Cadmium	NL	**0.1**	**0.30**	**0.39**	**0.2**	**0.47**	**0.51**	**0.5**	**0.39**
Chromium	NL	**12.4**	**37.2**	**42.9**	**24.1**	**47.7**	**48.5**	**39.4**	**39.3**
Copper	390	**14.2**	**51.5**	**51.5**	**45**	**97.8**	**64.7**	**54.8**	**48.7**
Lead	450	**2.3**	**10.7**	**10.5**	**11.6**	**22.6**	**15.0**	**9.3**	**10.3**
Silver	6.1	0.2 U	**0.17 J**	**0.15 J**	0.3 U	**0.21 J**	**0.18 J**	0.3 U	**0.13 J**
Zinc	410	**29**	**104**	**116**	**78**	**151**	**143**	**75**	**99.4**
Mercury	0.41	0.02 U	**0.116**	**0.0530**	**0.07**	**0.137**	**0.0876**	**0.14**	**0.0816**
Semivolatiles (SW8270D)									
Polycyclic Aromatic Hydrocarbons (PAHs; mg/kg OC)									
2-Methylnaphthalene	NL	13 U	1.99 U	**0.811 J**	**5.6**	**0.676**	**0.30 J**	**1.9 J**	**0.766 J**
Acenaphthene	16	13 U	**2.12**	**1.27 J**	**5.7**	**0.756**	**0.27 J**	2.0 U	**0.754 J**
Acenaphthylene	NL	13 U	**1.37 J**	**0.53 J**	**1.9 J**	**0.676**	**0.30 J**	2.0 U	**0.53 J**
Anthracene	NL	13 U	**5.04**	**1.49 J**	**6.9**	**1.97**	**0.751 J**	**3.2**	**1.37 J**
Fluorene	23	13 U	**3.64**	**1.24 J**	**5.7**	**1.24**	0.616 UJ	**2.4**	0.874 UJ
Naphthalene	99	13 U	**6.14**	**1.51 J**	**24**	**1.73**	**0.662 J**	**5.0**	**1.50 J**
Phenanthrene	100	**7.1 J**	**11.6**	**5.81 J**	**24**	**6.16**	**2.10 J**	**9.1**	**3.31 J**
LPAH[2]	370	**7.1**	**29.9**	**11.8 J**	**67**	**12.5**	**4.1 J**	**20**	**7.5 J**
Benzo(a)anthracene	110	**6.5 J**	**7.06**	**2.28 J**	**6.2**	**3.94**	**1.68 J**	**5.7**	**2.66 J**
Benzo(a)pyrene	99	13 U	**5.74**	**1.67 J**	**3.5**	**4.89**	**1.55 J**	**3.4**	**2.46 J**
Benzo(g,h,i)perylene	31	13 U	**4.67**	**1.42 J**	**3.2 J**	**2.05**	**1.01 J**	**2.6 J**	**1.64 J**
Chrysene	110	**7.1 J**	**13.4**	**5.17 J**	**9.9**	**7.90**	**3.02 J**	**9.5**	**5.45 J**
Dibenzo(a,h)anthracene	12	13 U	**1.27 J**	1.16 UJ	3.2 U	**0.638**	0.726 UJ	2.0 U	1.03 UJ
Fluoranthene	160	**21 J**	**22.6**	**11.4 J**	**32 J**	**11.2**	**5.86 J**	**21 J**	**7.90 J**
Indeno(1,2,3-cd)pyrene	34	13 U	**3.62**	0.986 UJ	**2.0 J**	**1.79**	**0.819 J**	**1.4 J**	**1.23 J**
Pyrene	1,000	**13 J**	**21.7**	**9.73 J**	**22 J**	**15.2**	**5.32 J**	**17 J**	**7.90 J**
Total Benzofluoranthenes	230	**9.9 J**	**15.9**	**5.56 J**	**11**	**10.9**	**3.76 J**	**11**	**6.65 J**
HPAH[3]	960	**58**	**96.0**	**37.2 J**	**90**	**58.5**	**23.0 J**	**71**	**35.9 J**
Semivolatiles (mg/kg OC)									
1,2,4-Trichlorobenzene	NL	13 U	1.99 U	0.24 UJ	3.2 U	0.625 U	0.15 UJ	2.0 U	0.22 UJ
1,2-Dichlorobenzene	NL	13 U	1.99 U	0.16 UJ	3.2 U	0.625 U	0.10 UJ	2.0 U	0.14 UJ
1,3-Dichlorobenzene	NL	13 U	1.99 U	0.21 UJ	3.2 U	0.625 U	0.13 UJ	2.0 U	0.19 UJ
1,4-Dichlorobenzene	NL	13 U	1.99 U	0.21 UJ	3.2 U	0.625 U	0.13 UJ	2.0 U	0.19 UJ
bis(2-Ethylhexyl) Phthalate	47	**31 J**	**11**	**12.6 J**	**15**	**49.8**	**9.16 J**	**6.8**	**14.4 J**
Butyl Benzyl Phthalate	4.9	13 U	1.99 U	**2.01 J**	3.2 U	0.625 U	0.40 UJ	2.0 U	0.56 UJ
Dibenzofuran	15	13 U	**3.14**	**1.55 J**	**4.9**	**1.10**	0.595 UJ	**2.9**	**0.850 J**
Diethyl Phthalate	NL	13 U	1.99 U	1.33 UJ	3.2 U	0.625 U	0.831 UJ	2.0 U	1.18 UJ
Dimethyl Phthalate	53	13 U	**1.44 J**	**0.709 J**	**1.9 J**	**0.689**	**0.481 J**	**1.0 J**	0.26 UJ
Di-N-Butyl Phthalate	NL	13 U	1.99 U	**1.42 J**	**2.0 J**	**0.17 J**	0.24 UJ	2.0 U	0.34 UJ
Di-n-octyl Phthalate	NL	13 U	1.99 U	0.30 UJ	3.2 U	0.625 U	0.19 UJ	2.0 U	0.26 UJ
Hexachlorobenzene	NL	13 U	**0.59 J**	0.912 UJ	3.2 U	0.625 U	0.570 UJ	2.0 U	0.808 UJ
Hexachlorobutadiene	NL	13 U	1.99 U	0.32 UJ	3.2 U	0.625 U	0.20 UJ	2.0 U	0.29 UJ
N-Nitrosodiphenylamine	11	13 U	1.99 U	0.36 UJ	3.2 U	0.625 U	0.22 UJ	2.0 U	0.32 UJ

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Everett Shipyard, CSO-2
Everett, Washington

Analyte	Cleanup Level[1]	Sampling Location, Laboratory SDG, Sample Date							
		BLN-4 AOU6/AWL1 10/14/2015	CSO2-4 19L0405 12/19/2019	CSO2-4 21K0379 11/22/2021	BLN-5 AOU6/AWL1 10/14/2015	CSO2-5 19L0405 12/19/2019	CSO2-5 21K0379 11/22/2021	BLN-6 AOU6/AWL1 10/14/2015	CSO2-6 21K0379 11/22/2021
Semivolatiles (mg/kg dry wt)									
1-Methylnaphthalene	NL	--	**0.0127 J**	**0.0114 J**	--	**0.0124 J**	**0.0058 J**	--	**0.0070 J**
2,4,5-Trichlorophenol	NL	--	0.0995 U	0.0257 UJ	--	0.0986 U	0.0257 UJ	--	0.0257 UJ
2,4,6-Trichlorophenol	NL	--	0.0995 U	0.0090 UJ	--	0.0986 U	0.0090 UJ	--	0.0090 UJ
2,4-Dichlorophenol	NL	--	0.0995 U	0.0153 UJ	--	0.0986 U	0.0153 UJ	--	0.0153 UJ
2,4-Dimethylphenol	NL	0.092 U	0.0995 U	0.0038 UJ	0.097 U	0.0986 U	0.0038 UJ	0.095 U	0.0038 UJ
2,4-Dinitrophenol	NL	--	0.199 U	0.0338 UJ	--	0.197 U	0.0338 UJ	--	0.0338 UJ
2,4-Dinitrotoluene	NL	--	0.0995 U	0.0162 UJ	--	0.0986 U	0.0162 UJ	--	0.0162 UJ
2,6-Dinitrotoluene	NL	--	0.0995 U	0.0205 UJ	--	0.0986 U	0.0205 UJ	--	0.0205 UJ
2-Chloronaphthalene	NL	--	0.0199 U	0.0080 UJ	--	0.0197 U	0.0080 UJ	--	0.0080 UJ
2-Chlorophenol	NL	--	0.0199 U	0.0138 UJ	--	0.0197 U	0.0138 UJ	--	0.0138 UJ
2-Methylphenol	0.063	0.018 U	0.0199 U	0.0067 UJ	0.019 U	0.0197 U	0.0067 UJ	0.019 U	0.0067 UJ
2-Nitroaniline	--	--	0.0995 U	0.0164 UJ	--	0.0986 U	0.0164 UJ	--	0.0164 UJ
2-Nitrophenol	NL	--	0.0199 U	0.0049 UJ	--	0.0197 U	0.0049 UJ	--	0.0049 UJ
3,3'-Dichlorobenzidine	NL	--	0.0995 U	0.0071 UJ	--	0.0986 U	0.0071 UJ	--	0.0071 UJ
3-Nitroaniline	NL	--	0.0995 U	0.0222 UJ	--	0.0986 U	0.0222 UJ	--	0.0223 UJ
4,6-Dinitro-2-methylphenol	NL	--	0.199 U	0.0380 UJ	--	0.197 U	0.0380 UJ	--	0.0380 UJ
4-Bromophenyl phenyl ether	NL	--	0.0199 U	0.0170 UJ	--	0.0197 U	0.0170 UJ	--	0.0170 UJ
4-Chloro-3-methylphenol	NL	--	0.0995 U	0.0124 UJ	--	0.0986 U	0.0124 UJ	--	0.0124 UJ
4-Chloroaniline	NL	--	0.0995 U	0.0084 UJ	--	0.0986 U	0.0084 UJ	--	0.0084 UJ
4-Chlorophenyl phenyl ether	NL	--	0.0199 U	0.0191 UJ	--	0.0197 U	0.0191 UJ	--	0.0191 UJ
4-Methylphenol	0.670	0.018 U	**0.0251**	**0.0170 J**	**0.033**	**0.060**	**0.0197 J**	**0.027**	**0.0347 J**
4-Nitroaniline	NL	--	0.0995 U	0.0294 UJ	--	0.0986 U	0.0294 UJ	--	0.0294 UJ
4-Nitrophenol	NL	--	0.0995 U	0.0326 UJ	--	0.0986 U	0.0326 UJ	--	0.0326 UJ
Benzoic Acid	NL	**0.120 J**	**0.196 J**	0.0390 UJ	0.190 U	**0.165 J**	0.0390 UJ	**0.290**	0.0390 UJ
Benzyl Alcohol	0.057	0.018 U	0.0199 U	0.0162 UJ	0.019 U	**0.0305**	0.0162 UJ	**0.063**	0.0163 UJ
bis(2-Chloro-1-Methylethyl) Ether	NL	--	0.0199 U	0.0034 UJ	--	0.0197 U	0.0034 UJ	--	0.0034 UJ
bis(2-Chloroethoxy) Methane	NL	--	0.0199 U	0.0043 UJ	--	0.0197 U	0.0043 UJ	--	0.0043 UJ
bis(2-Chloroethyl) Ether	NL	--	0.0199 U	0.0193 UJ	--	0.0197 U	0.0193 UJ	--	0.0193 UJ
Carbazole	NL	--	**0.0216**	**0.0080 J**	--	**0.0277**	**0.0073 J**	--	**0.0070 J**
Hexachlorocyclopentadiene	NL	--	0.0995 U	0.0244 UJ	--	0.0986 U	0.0244 UJ	--	0.0245 UJ
Hexachloroethane	NL	0.018 U	0.0199 U	0.0034 UJ	0.019 U	0.0197 U	0.0034 UJ	0.019 U	0.0034 UJ
Isophorone	NL	--	0.0199 U	0.0039 UJ	--	0.0197 U	0.0039 UJ	--	0.0039 UJ
Nitrobenzene	NL	--	0.0199 U	0.0072 UJ	--	0.0197 U	0.0072 UJ	--	0.0072 UJ
N-Nitrosodi-n-propylamine	NL	--	0.0199 U	0.0074 UJ	--	0.0197 U	0.0074 UJ	--	0.0074 UJ
Pentachlorophenol	NL	0.092 U	0.0995 U	0.0312 UJ	0.097 U	0.0986 U	0.0312 UJ	0.095 U	0.0312 UJ
Phenol	NL	0.018 U	0.0199 U	**0.0097 J**	**0.027**	0.0197 U	**0.0143 J**	**0.033**	**0.0113 J**
Dioxins/Furans (pg/g; EPA 1613B)									
2,3,7,8-TCDF	NL	0.154 UJ	**2.81**	**1.34 J**	**0.855 J**	**2.03**	**1.98 J**	**0.693 J**	**1.30 J**
Total TCDF	NL	1.08 U	**12.4**	**8.85**	20.3 U	**16.2**	**12.3**	7.16 U	**5.62**
2,3,7,8-TCDD	NL	0.0399 U	**0.499 J**	**0.441 J**	0.313 UJ	0.615 UJ	0.589 UJ	0.263 UJ	0.387 UJ
Total TCDD	NL	2.01 U	**22.4**	**7.49**	16.2 U	**19.4**	**10.9**	8.42 U	**9.74**
1,2,3,7,8-PeCDF	NL	0.112 UJ	0.817 UJ	0.757 UJ	**0.562 JX**	**1.23 J**	**0.802 J**	**0.294 JX**	**0.548 J**
2,3,4,7,8-PeCDF	NL	0.0898 UJ	**0.974 J**	**0.675 J**	**0.592 J**	**1.36**	**0.918 J**	**0.298 J**	0.526 UJ
Total PeCDF	NL	1.76 U	**14.6**	**10.1**	19.3 U	**41.3**	**13.5**	8.07 U	**10.0**
1,2,3,7,8-PeCDD	NL	0.238 UJ	**2.03**	**3.01**	**1.12**	**5.34**	**3.47**	**0.744 J**	**2.12**
Total PeCDD	NL	1.84 U	**15.4**	**14.0**	14.2 U	**22.9**	**13.9**	8.03 U	**8.35**
1,2,3,4,7,8-HxCDF	NL	**0.333 J**	**1.93**	**1.81**	**1.33**	**6.17**	**2.74**	0.802 UJ	**1.50**

Table 3
Sediment Sampling Analytical Results
Everett Shipyard, CSO-2
Everett, Washington

Analyte	Cleanup Level[1]	Sampling Location, Laboratory SDG, Sample Date							
		BLN-4 AOU6/AWL1 10/14/2015	CSO2-4 19L0405 12/19/2019	CSO2-4 21K0379 11/22/2021	BLN-5 AOU6/AWL1 10/14/2015	CSO2-5 19L0405 12/19/2019	CSO2-5 21K0379 11/22/2021	BLN-6 AOU6/AWL1 10/14/2015	CSO2-6 21K0379 11/22/2021
1,2,3,6,7,8-HxCDF	NL	0.267 UJ	**1.51**	**1.79**	0.932 UJ	**5.16**	**2.64**	**0.590 J**	**1.31**
2,3,4,6,7,8-HxCDF	NL	0.293 UJ	**1.95**	**2.42**	1.17 UX	**9.02**	**3.74**	0.732 UJ	**2.03**
1,2,3,7,8,9-HxCDF	NL	**0.156 J**	**0.649 J**	0.535 UJ	**0.562 J**	1.50 U	0.940 UJ	**0.413 J**	1.00 U
Total HxCDF	NL	7.11 U	**46.2**	**53.7**	31.1 U	**207**	**74.7**	21.8 U	**37.0**
1,2,3,4,7,8-HxCDD	NL	**0.405 J**	**3.08**	**4.02**	**1.55**	**10.8**	**5.36**	**1.13**	**2.36**
1,2,3,6,7,8-HxCDD	NL	**1.45**	**9.89**	**13.6**	**5.90**	**32.3**	**12.4**	**4.57**	**7.11**
1,2,3,7,8,9-HxCDD	NL	**0.926 J**	**8.31**	**9.82**	**3.30**	**24.3**	**12.1**	**2.81**	**5.58**
Total HxCDD	NL	11.1 U	**104**	**102**	55.1 U	**194**	**62.9**	44.1 U	**59.4**
1,2,3,4,6,7,8-HpCDF	NL	**5.30**	**39.9**	**48.8**	**19.6**	**203**	**75.3**	**14.5**	**34.4**
1,2,3,4,7,8,9-HpCDF	NL	0.353 UJ	**2.10**	2.56 U	**1.38**	**10.5**	**4.12**	1.03 U	1.97 U
Total HpCDF	NL	15.4 U	**111**	**131**	63.3 U	**564**	**204**	45.9 U	**94.6**
1,2,3,4,6,7,8-HpCDD	NL	**38.1**	**249**	**331**	**155**	**768**	**322**	**128**	**184**
Total HpCDD	NL	**95.0**	**608**	**716**	**418**	**1,350**	**652**	**349**	**419**
OCDF	NL	**13.5**	**108**	**145**	**58.5**	**539**	**214**	**41.0**	**98.7**
OCDD	NL	**312**	**1,920**	**2,620 J**	**1280**	**5,110 J-EC**	**2,390 J**	**1090**	**1,500 J**
TEQ (ND = 0)	NL	**0.86**	**9.35**	**11.76 J**	**4.83**	**26.27**	**12.7 J**	**3.63**	**6.92 J**
TEQ (ND = 1/2 RL)	NL	**1.05**	**9.36**	**11.81 J**	**5.09**	**26.66 J**	**13.0 J**	**3.84**	**7.25 J**
PCB Aroclors (mg/kg OC; SW8082A)									
Aroclor 1016	NL	2.8 U	0.4 U	0.11 U	0.7 U	0.1 U	0.068 U	0.4 U	0.10 U
Aroclor 1242	NL	2.8 U	0.4 U	0.11 U	0.7 U	0.1 U	0.068 U	0.4 U	0.10 U
Aroclor 1248	NL	2.8 U	**0.26 J**	**0.17 J**	2.0 U	**0.16**	**0.16 J**	0.4 U	**0.20 J**
Aroclor 1254	NL	2.8 U	**0.57**	**0.27**	**3.0**	**0.514**	**0.22**	**0.8**	**0.37**
Aroclor 1260	NL	2.8 U	**0.41**	**0.19 J**	**1.1**	**0.29**	**0.15 J**	**0.4 J**	**0.21 J**
Aroclor 1221	NL	2.8 U	0.4 U	0.11 U	0.7 U	0.1 U	0.068 U	0.4 U	0.10 U
Aroclor 1232	NL	2.8 U	0.4 U	0.11 U	0.7 U	0.1 U	0.068 U	0.4 U	0.10 U
Aroclor 1262	NL	--	0.4 U	0.04 U	--	0.1 U	0.03 U	--	0.04 U
Aroclor 1268	NL	--	0.4 U	0.04 U	--	0.1 U	0.03 U	--	0.04 U
Total PCBs	12	2.8 U	**1.24**	**0.63 J**	**4.1**	**1.0**	**0.54 J**	**1.2 J**	**0.77 J**
PCB Dioxin-Like PCB Congeners (pg/g; SW1668A)									
PCB-77	NL	--	--	--	--	--	--	--	--
PCB-81	NL	--	--	--	--	--	--	--	--
PCB-105	NL	--	--	--	--	--	--	--	--
PCB-114	NL	--	--	--	--	--	--	--	--
PCB-118	NL	--	--	--	--	--	--	--	--
PCB-123	NL	--	--	--	--	--	--	--	--
PCB-126	NL	--	--	--	--	--	--	--	--
PCB-156	NL	--	--	--	--	--	--	--	--
PCB-156/157	NL	--	--	--	--	--	--	--	--
PCB-157	NL	--	--	--	--	--	--	--	--
PCB-167	NL	--	--	--	--	--	--	--	--
PCB-169	NL	--	--	--	--	--	--	--	--
PCB-189	NL	--	--	--	--	--	--	--	--
TEQ (ND = 0)	NL	--	--	--	--	--	--	--	--
TEQ (ND = 1/2 RL)	NL	--	--	--	--	--	--	--	--
PCB Congeners (pg/g; SW1668A)									
Total PCBs (ND = 0)	NL	--	--	--	--	--	--	--	--
Total PCBs (ND = 1/2 RL)	NL	--	--	--	--	--	--	--	--
Conventionals									
Total Solids (%; SM2540G)	NL	**88.09**	**59.53**	**53.83**	**59.56**	**49.70**	**48.37**	**53.55**	**53.12**
Total Organic Carbon (%; Plumb81TC*)	NL	**0.141**	**1.00**	**1.48**	**0.594**	**3.15**	**2.37**	**0.968**	**1.67**

Table 3
Sediment Sampling Analytical Results
Everett Shipyard, CSO-2
Everett, Washington

Notes:

[1] Site-specific cleanup levels as presented in the site sediment cleanup report (Landau 2017).

[2] The LPAH criterion represents the sum of the following "low molecular weight polynuclear aromatic hydrocarbon" compounds: naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, and anthracene. The LPAH criterion is not the sum of the criteria values for the individual LPAH compounds listed.

[3] The HPAH criterion represents the sum of the following "high molecular weight polynuclear aromatic hydrocarbon" compounds: fluoranthene, pyrene, benzo(a)anthracene, chrysene, total benzofluoranthenes, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene. The HPAH criterion is not the sum of the criteria values for the individual HPAH compounds as listed.

[4] The 2019 and 2021 PCB congener result was reported as PCB-106/118.

* Plumb, Russell H., Jr. 1981. Procedures for Handling and Chemical Analysis of Sediments and Water Samples. Great Lakes Laboratory, State University College at Buffalo, New York. Prepared for the US Environmental Protection Agency/Corps of Engineers Technical Committee on Criteria for Dredged and Fill Material. Published by Environmental Laboratory, US Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. May.

Note: Carbon normalized analytical results calculated per Washington State Department of Ecology Technical Information Memorandum: Organic Carbon Normalization of Sediment Data, Publication No. 05-09-050, December 1992.

U = Compound was not detected at the reported concentration.

J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ = Analyte was not detected in the sample; the reported sample reporting limit is an estimate.

P = Analyte was detected on both chromatographic columns but the quantified values differ by 40% RPD with no obvious chromatographic interference. The higher of the two values is reported by the laboratory.

X = Analyte signal includes interference from polychlorinated diphenyl ethers

R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

Bold = detected compound

Green Shading = exceedance of cleanup level

Abbreviations and Acronyms:

% = percent
dry wt = dry weight
EPA = US Environmental Protection Agency
ID = identification
mg/kg = milligram per kilogram
NL = not listed
-- = not analyzed
OC = organic carbon
PCB = polychlorinated biphenyl
pg/g = picograms per gram
SIM = selected ion monitoring
TEQ = toxicity equivalency quotient

Table 4
Sediment Analytical Results - PCB Congeners
Everett Shipyard, CSO-2
Everett, Washington

Analyte	Sample Location, Lab SDG, Sample Date					
	BLN-1 AWL1A 10/15/2015	CSO2-1 19L0405 12/19/2019	CSO2-2 19L0405 12/19/2019	CSO2-1 21K0379 11/22/2021	CSO2-2 21K0379 11/22/2021	CSO2-2-Dup 21K0379 11/22/2021
PCBs (pg/g; SW1668A)						
PCB-1	**22.6**	**6.85**	**7.67**	**15.4 J**	**16.6 J**	**10.0 J**
PCB-2	**10.6**	**4.01**	**5.46**	**10.8 J**	12.9 U	9.65 U
PCB-3	**26**	**7.74**	**9.20**	**17.6 J**	**20.4 J**	13.2 U
PCB-4	**24.5**	--	--	--	--	--
PCB-4/10	--	4.01 U	**5.43**	24.7 U	35.3 U	25.8 U
PCB-5	1.85 U	--	--	--	--	--
PCB-5/8	--	**23.7**	**25.8**	17.3 U	24.5 U	18.2 U
PCB-6	**27.7**	**6.33**	**6.93**	17.0 U	24.0 U	17.8 U
PCB-7	**6.92**	--	--	--	--	--
PCB-7/9	--	**2.55 J**	1.52 U	18.0 U	25.5 U	18.9 U
PCB-8	**137**	--	--	--	--	--
PCB-9	**8.17**	--	--	--	--	--
PCB-10	**1.32 J**	--	--	--	--	--
PCB-11	41.6 U	**12.3**	**59.7**	13.2 U	72.5 U	12.9 U
PCB-12/13	**17.5**	**3.45 J**	4.79 U	14.4 U	17.6 U	14.1 U
PCB-14	0.409 U	0.389 U	0.326 U	14.3 U	17.5 U	14.0 U
PCB-15	**107**	**21.2**	**30.1**	14.4 U	17.6 U	14.1 U
PCB-16	**127**	--	--	--	--	--
PCB-16/32	--	**26.7**	**30.1**	**83.5**	50.8 U	38.6 U
PCB-17	**207**	**18.7**	**20.2**	**53.7**	37.3 U	29.9 U
PCB-18	--	**34.0**	**39.0**	**98.4**	**63.4**	**49.9**
PCB-18/30	**313**	--	--	--	--	--
PCB-19	**31**	**3.25**	**4.32**	5.15 U	7.01 U	6.18 U
PCB-20/21/33	--	**42.5**	**40.6**	**125**	**91.5**	**74.8**
PCB-20/28	**996**	--	--	--	--	--
PCB-21/33	**405**	--	--	--	--	--
PCB-22	**233**	**22.6**	**24.7**	64.0 U	**53.3**	**44.4**
PCB-23	0.774 U	0.297 U	**0.181 J**	4.49 U	6.88 U	6.41 U
PCB-24	**4.24**	--	--	--	--	--
PCB-24/27	--	**3.67 J**	**6.38**	3.33 U	4.58 U	4.03 U
PCB-25	**87.4**	**12.0**	**11.8**	**40.4**	**29.1**	**23.5 J**
PCB-26	--	**19.7**	**19.9**	**77.3**	**44.7**	**39.0**
PCB-26/29	**125**	--	--	--	--	--
PCB-27	**22.8**	--	--	--	--	--
PCB-28	--	**88.5**	**86.5**	**271**	**182**	**163**
PCB-29	--	0.304 U	**0.513 J**	4.65 U	7.13 U	6.63 U
PCB-30	--	0.219 U	0.158 U	3.25 U	4.42 U	3.90 U
PCB-31	**679**	**59.4**	**65.9**	**183**	**148**	**118**
PCB-32	**175**	--	--	--	--	--
PCB-34	**13.7**	**1.15 J**	**0.946 J**	4.56 U	7.00 U	6.51 U
PCB-35	**14.2**	1.84 U	**4.34**	4.14 U	6.12 U	5.53 U
PCB-36	**72.5**	0.349 U	**1.13 J**	4.06 U	6.00 U	5.42 U
PCB-37	**251**	**25.6**	**31.0**	**77.5**	58.3 U	**58.5**
PCB-38	0.938 U	**1.66 J**	**1.39 J**	4.13 U	6.10 U	5.51 U
PCB-39	**13.8**	0.379 U	0.377 U	4.32 U	6.39 U	5.77 U
PCB-40	--	**5.07**	**6.76**	25.0 U	21.9 U	15.3 U
PCB-40/71	**635**	--	--	--	--	--
PCB-41	**35.5**	--	--	--	--	--
PCB-41/64/71/72	--	**47.5**	**59.6**	**210**	**181**	**169**
PCB-42	**416**	--	--	--	--	--
PCB-42/59	--	0.239 U	**42.5**	**113**	**75.8**	**74.5**
PCB-43	**48.6**	--	--	--	--	--
PCB-43/49	--	**141**	**150**	**415**	**276**	**218**
PCB-44	--	**99.0**	**126**	**273**	**193**	**200**
PCB-44/47/65	**1,870**	--	--	--	--	--
PCB-45	**236**	**9.65**	**14.6**	**27.7**	17.1 U	**15.8 J**
PCB-46	**74**	**6.92**	**9.50**	**17.0 J**	**10.4 J**	3.37 U
PCB-47	--	**67.0**	**72.4**	**180**	**118**	**111**

Table 4
Sediment Analytical Results - PCB Congeners
Everett Shipyard, CSO-2
Everett, Washington

Analyte	Sample Location, Lab SDG, Sample Date					
	BLN-1 AWL1A 10/15/2015	CSO2-1 19L0405 12/19/2019	CSO2-2 19L0405 12/19/2019	CSO2-1 21K0379 11/22/2021	CSO2-2 21K0379 11/22/2021	CSO2-2-Dup 21K0379 11/22/2021
PCB-48	**174**	--	--	--	--	--
PCB-48/75	--	**16.7**	**15.9**	**54.6**	**35.1 J**	**33.2 J**
PCB-49/69	**1,410**	--	--	--	--	--
PCB-50	--	0.239 U	**0.478 J**	2.43 U	3.85 U	2.94 U
PCB-50/53	**259**	--	--	--	--	--
PCB-51	0.369 U	**9.42**	**12.0**	**24.1 J**	**16.6 J**	**9.43 J**
PCB-52	**2,640**	--	--	--	--	--
PCB-52/69	--	**167**	**223**	**469**	**331**	**275**
PCB-53	--	**19.8**	**29.4**	**46.9**	**38.0**	**25.0**
PCB-54	**16.7**	0.756 U	**1.26 J**	2.00 U	3.17 U	2.42 U
PCB-55	**1,760**	**2.10 J**	**2.97**	1.74 U	2.68 U	5.63 U
PCB-56	**627**	--	--	--	--	--
PCB-56/60	--	**67.6**	**81.3**	**192**	**147**	**132**
PCB-57	4.48 U	**0.719 J**	**0.818 J**	1.78 U	2.80 U	2.17 U
PCB-58	**113**	**1.24 J**	**1.04 J**	1.77 U	2.79 U	2.16 U
PCB-59/62/75	**99.1**	--	--	--	--	--
PCB-60	**199**	--	--	--	--	--
PCB-61/70	--	**176**	**213**	**492**	**375**	**334**
PCB-61/70/74/76	**2,650**	--	--	--	--	--
PCB-62	--	0.215 U	0.190 U	1.95 U	2.87 U	2.67 U
PCB-63	**69.4**	5.37 U	**5.83**	16.7 U	9.18 U	**9.09 J**
PCB-64	**438**	--	--	--	--	--
PCB-65	--	0.207 U	0.182 U	1.74 U	2.57 U	2.39 U
PCB-66	4.43 U	--	--	--	--	--
PCB-66/76	--	**148**	**152**	**399**	**292**	**261**
PCB-67	**32.9**	**3.36**	**3.69**	10.7 U	**9.02 J**	**9.09 J**
PCB-68	**51.6**	0.207 U	1.23 U	**7.58 J**	2.50 U	2.33 U
PCB-72	**67.9**	--	--	--	--	--
PCB-73	0.263 U	0.184 U	**0.780 J**	1.61 U	2.52 U	1.99 U
PCB-74	--	**55.2**	**62.6**	**171**	**110**	**113**
PCB-77	**178 J**	**13.9**	**19.2**	**38.1**	**34.6**	31.9 U
PCB-78	4.54 U	**0.830 J**	**1.07 J**	1.94 U	3.10 U	2.53 U
PCB-79	**55**	**4.16**	**4.72**	**14.1 J**	7.45 U	**4.94 J**
PCB-80	**32.4**	0.160 U	0.558 U	1.72 U	2.64 U	2.10 U
PCB-81	**4.39 J**	**1.74 J**	**3.48**	2.08 U	3.32 U	2.70 U
PCB-82	**577**	**25.4**	**47.0**	**70.0**	37.7 U	45.7 U
PCB-83	**4,560**	0.161 U	0.266 U	3.11 U	4.09 U	2.79 U
PCB-84	**1,110**	--	--	--	--	--
PCB-84/92	--	**129**	**185**	**343**	**266**	**257**
PCB-85/116	**7,530**	**36.2**	**60.3**	3.94 U	69.9 U	**77.2**
PCB-86	--	0.250 U	**0.674 J**	4.58 U	6.02 U	4.11 U
PCB-86/87/97/108/119/125	**3,450**	--	--	--	--	--
PCB-87/117/125	--	**75.6**	**133**	**231**	**161**	**153**
PCB-88	5.74 U	--	--	--	--	--
PCB-88/91	--	**43.4**	**67.0**	**117**	**106**	**100**
PCB-89	**38.8**	2.48 U	**3.33**	4.23 U	6.03 U	3.99 U
PCB-90/101	--	**320**	**446**	**925**	**657**	**616**
PCB-90/101/113	**5,470**	--	--	--	--	--
PCB-91	**441**	--	--	--	--	--
PCB-92	**1,040**	--	--	--	--	--
PCB-93	--	0.254 U	0.323 U	**9.39 J**	7.81 U	4.99 U
PCB-93/100	5.01 U	--	--	--	--	--
PCB-94	**29.9**	1.80 U	**2.33 J**	4.79 U	7.16 U	4.57 U
PCB-95	**3,120**	--	--	--	--	--
PCB-95/98/102	--	**199**	**324**	**527**	**425**	**364**
PCB-96	**38.1**	0.472 U	**1.04 J**	3.05 U	3.81 U	2.82 U
PCB-97	--	**83.8**	**124**	**231**	**176**	**162**
PCB-98	**186**	--	--	--	--	--
PCB-99	4.56 U	**149**	**185**	**465**	**369**	**323**

Table 4
Sediment Analytical Results - PCB Congeners
Everett Shipyard, CSO-2
Everett, Washington

Analyte	Sample Location, Lab SDG, Sample Date					
	BLN-1 AWL1A 10/15/2015	CSO2-1 19L0405 12/19/2019	CSO2-2 19L0405 12/19/2019	CSO2-1 21K0379 11/22/2021	CSO2-2 21K0379 11/22/2021	CSO2-2-Dup 21K0379 11/22/2021
PCB-100	--	**3.10**	**3.92**	**7.41 J**	4.65 U	3.44 U
PCB-102	4.16 U	--	--	--	--	--
PCB-103	**59.7**	**5.76**	**6.17**	**14.2 J**	4.87 U	11.4 U
PCB-104	**3.07**	0.193 U	1.05 U	1.55 U	3.82 U	2.82 U
PCB-105	**1,540**	**77.6**	**127**	**246**	**216**	**188**
PCB-106	3.82 U	--	--	--	--	--
PCB-106/118	--	**254**	**338**	**783**	**582**	**531**
PCB-107/109	--	**21.3**	**24.6**	**63.0**	**47.0 J**	**39.1 J**
PCB-107/124	**152**	--	--	--	--	--
PCB-108/112	--	**13.2**	**19.1**	34.1 U	**32.5 J**	30.4 U
PCB-109	**381**	--	--	--	--	--
PCB-110	3.67 U	**307**	**464**	**873**	**664**	**584**
PCB-111	**5.37**	--	--	--	--	--
PCB-111/115	--	**3.41 J**	**4.01 J**	**82.4**	3.94 U	2.69 U
PCB-112	**3.73**	--	--	--	--	--
PCB-113	--	**0.603 J**	**0.952 J**	2.97 U	4.24 U	2.81 U
PCB-114	**85.5**	**4.21**	**6.19**	13.4 U	5.10 U	9.18 U
PCB-115	3.99 U	--	--	--	--	--
PCB-117	**687**	--	--	--	--	--
PCB-118	**4,690**	--	--	--	--	--
PCB-119	--	**12.9**	**13.1**	**38.5**	**27.1**	**26.4**
PCB-120	**31**	**2.29 J**	**2.15 J**	2.71 U	3.55 U	2.43 U
PCB-121	3.61 U	0.154 U	0.196 U	2.72 U	4.06 U	2.59 U
PCB-122	**51.8**	**2.68**	**4.60**	3.75 U	5.94 U	3.86 U
PCB-123	**53.8**	**3.83**	**5.41**	**11.3 J**	4.22 U	10.2 U
PCB-124	--	**7.93**	**12.7**	**20.4 J**	3.91 U	14.7 U
PCB-126	**17.1 J**	1.62 U	**2.68**	3.35 U	5.04 U	3.60 U
PCB-127	**10.3**	0.219 U	0.339 U	3.11 U	4.80 U	3.24 U
PCB-128/162	--	**43.3**	**70.0**	**139**	**109**	**99.4**
PCB-128/166	**719**	--	--	--	--	--
PCB-129	--	**10.3**	**19.5**	**34.5**	17.4 U	**26.1**
PCB-129/138/163	**4,580**	--	--	--	--	--
PCB-130	**326**	**19.2**	**24.4**	**71.0**	**49.2**	**50.9**
PCB-131	**68.5**	--	--	--	--	--
PCB-131/133	--	**8.10**	**12.4**	**26.3 J**	21.8 U	**24.1 J**
PCB-132	**1,660**	--	--	--	--	--
PCB-132/161	--	**69.2**	**118**	**211**	**170**	**140**
PCB-133	**63**	--	--	--	--	--
PCB-134	**309**	--	--	--	--	--
PCB-134/143	--	**14.2**	**23.8**	**44.7 J**	**39.7 J**	31.7 U
PCB-135	--	**31.2**	**50.3**	**109**	**75.1**	**70.0**
PCB-135/151	**1,300**	--	--	--	--	--
PCB-136	**558**	**38.7**	**61.4**	**111**	**92.0**	**70.9**
PCB-137	**212**	**10.7**	**19.4**	**37.1**	**30.2**	**35.9**
PCB-138/163/164	--	**246**	**403**	**807**	**660**	**593**
PCB-139/140	**97.8**	--	--	--	--	--
PCB-139/149	--	**210**	**329**	**631**	**526**	**430**
PCB-140	--	2.77 U	3.39 U	2.73 U	2.72 U	3.01 U
PCB-141	**651**	**38.0**	**66.7**	**119**	**101**	**94.9**
PCB-142	0.297 U	0.318 U	0.292 U	4.06 U	4.57 U	3.46 U
PCB-143	0.283 U	--	--	--	--	--
PCB-144	**159**	9.86 U	**15.8**	21.7 U	**28.1**	18.7 U
PCB-145	**1.78 J**	0.0900 U	**0.177 J**	1.81 U	1.81 U	2.00 U
PCB-146	**669**	--	--	--	--	--
PCB-146/165	--	**42.2**	**60.1**	**165**	**133**	**106**
PCB-147	--	6.64 U	**10.2**	22.4 U	**22.7 J**	14.7 U
PCB-147/149	**3,390**	--	--	--	--	--
PCB-148	**8.63**	0.450 U	0.842 U	2.68 U	2.67 U	2.95 U
PCB-150	**8.95**	0.776 U	**1.29 J**	3.94 U	5.00 U	2.10 U

Table 4
Sediment Analytical Results - PCB Congeners
Everett Shipyard, CSO-2
Everett, Washington

Analyte	Sample Location, Lab SDG, Sample Date					
	BLN-1 AWL1A 10/15/2015	CSO2-1 19L0405 12/19/2019	CSO2-2 19L0405 12/19/2019	CSO2-1 21K0379 11/22/2021	CSO2-2 21K0379 11/22/2021	CSO2-2-Dup 21K0379 11/22/2021
PCB-151	--	**54.8**	**90.6**	**172**	**136**	**112**
PCB-152	**5.29**	**0.364 J**	0.360 U	1.75 U	1.75 U	1.93 U
PCB-153	--	**232**	**348**	**797**	**629**	**580**
PCB-153/168	**3,100**	--	--	--	--	--
PCB-154	**69.8**	**7.71**	**8.65**	**33.3**	**25.2**	**21.2 J**
PCB-155	0.229 U	0.103 U	0.395 U	2.09 U	2.08 U	2.30 U
PCB-156	--	**24.1**	**35.6**	**84.5**	**67.1**	**52.6**
PCB-156/157	**519**	--	--	--	--	--
PCB-157	--	5.78 U	**10.7**	**19.8 J**	19.7 U	16.1 U
PCB-158	**413**	--	--	--	--	--
PCB-158/160	--	**25.8**	**45.8**	**92.5**	**80.3**	59.3 U
PCB-159	**18.5**	2.20 U	**3.93**	2.44 U	2.78 U	2.12 U
PCB-160	0.211 U	--	--	--	--	--
PCB-161	0.198 U	--	--	--	--	--
PCB-162	**14.1**	--	--	--	--	--
PCB-164	**315**	--	--	--	--	--
PCB-165	**4.39**	--	--	--	--	--
PCB-166	--	0.893 U	1.24 U	2.59 U	2.95 U	2.25 U
PCB-167	**166 J**	**9.80**	**16.4**	**33.8**	22.8 U	21.8 U
PCB-168	--	0.901 U	**0.825 J**	2.70 U	3.03 U	2.30 U
PCB-169	2.04 U	0.249 U	0.304 U	2.92 U	3.39 U	2.50 U
PCB-170	**555**	**48.4**	**76.3**	**160**	**167**	**122**
PCB-171	--	**14.8**	**23.5**	46.6 U	**46.9**	29.1 U
PCB-171/173	**197**	--	--	--	--	--
PCB-172	**97.1**	**8.36**	11.0 U	22.7 U	**25.3**	17.4 U
PCB-173	--	1.21 U	1.75 U	2.29 U	4.48 U	2.28 U
PCB-174	**652**	**54.8**	**84.3**	141 U	**155**	**134**
PCB-175	**28.4**	**2.31 J**	**3.77**	**7.85 J**	6.90 U	7.58 U
PCB-176	**70**	**7.75**	**11.3**	22.0 U	**27.6**	14.4 U
PCB-177	**370**	**31.9**	**48.4**	**112**	101 U	**75.8**
PCB-178	**122**	**13.0**	**19.5**	**55.7**	32.9 U	27.1 U
PCB-179	**256**	**26.2**	**39.1**	**91.5**	**75.5**	**71.8**
PCB-180	--	**120**	**183**	**412**	**350**	**318**
PCB-180/193	**1,150**	--	--	--	--	--
PCB-181	**7.41**	0.287 U	0.302 U	1.84 U	3.60 U	1.83 U
PCB-182	**5.3**	--	--	--	--	--
PCB-182/187	--	**73.3**	**111**	**279**	217 U	**203**
PCB-183	**339**	**30.3**	**44.3**	89.9 U	**98.7**	**93.8**
PCB-184	**0.771 J**	0.237 U	0.570 U	1.43 U	2.73 U	1.55 U
PCB-185	**40.7**	**5.20**	**9.46**	**16.6 J**	**13.3 J**	15.1 U
PCB-186	0.2 U	0.227 U	0.174 U	1.33 U	2.53 U	1.43 U
PCB-187	**747**	--	--	--	--	--
PCB-188	**1.99**	0.322 U	0.360 U	1.42 U	2.71 U	1.53 U
PCB-189	**21.1 J**	**2.08 J**	**2.89**	5.66 U	2.59 U	**4.47 J**
PCB-190	**95.5**	**9.73**	**15.5**	29.8 U	28.6 U	20.9 U
PCB-191	**20.3**	**2.02 J**	**3.57**	6.48 U	**8.22 J**	**6.08 J**
PCB-192	0.584 U	0.237 U	0.199 U	1.51 U	2.96 U	1.51 U
PCB-193	--	**6.78**	**10.3**	**26.8**	**21.1 J**	13.0 U
PCB-194	**275**	**28.0**	**43.0**	**101**	**103**	**75.6**
PCB-195	**103**	**9.45**	**16.3**	36.3 U	**34.7**	**26.2**
PCB-196	**119**	--	--	--	--	--
PCB-196/203	--	**33.4**	**47.3**	**119**	107 U	**114**
PCB-197	**8.87**	0.960 U	**2.18 J**	2.20 U	2.02 U	2.42 U
PCB-198	--	**1.45 J**	**2.06 J**	3.04 U	2.80 U	3.36 U
PCB-198/199	**320**	--	--	--	--	--
PCB-199	--	**33.5**	**51.8**	**104**	**112**	**96.8**
PCB-200	**32.1**	**3.84**	**6.69**	11.2 U	**10.5 J**	9.01 U
PCB-201	**40**	**5.37**	**7.39**	**17.9 J**	16.2 U	**15.1 J**
PCB-202	**71.7**	**6.89**	**11.5**	23.7 U	**26.5**	18.9 U

Table 4
Sediment Analytical Results - PCB Congeners
Everett Shipyard, CSO-2
Everett, Washington

Analyte	Sample Location, Lab SDG, Sample Date					
	BLN-1 AWL1A 10/15/2015	CSO2-1 19L0405 12/19/2019	CSO2-2 19L0405 12/19/2019	CSO2-1 21K0379 11/22/2021	CSO2-2 21K0379 11/22/2021	CSO2-2-Dup 21K0379 11/22/2021
PCB-203	**173**	--	--	--	--	--
PCB-204	0.29 U	0.0815 U	0.167 U	2.22 U	2.04 U	2.45 U
PCB-205	**11.6**	1.09 U	**1.96 J**	2.31 U	3.80 U	2.30 U
PCB-206	**145**	**16.6**	**26.7**	58.0 U	58.4 U	54.2 U
PCB-207	**15**	**2.20 J**	**3.38**	8.66 U	8.72 U	7.72 U
PCB-208	**48.3**	5.41 U	**8.47**	20.0 U	21.3 U	18.7 U
PCB-209	**97.7**	**24.4**	**19.2**	50.5 U	48.5 U	**46.8**
Mono-CB	**59.2**	**18.6**	**22.3**	**43.7**	**37.0 J**	**10.0 J**
Di-CB	373 U	**69.6**	**128**	24.7 U	72.5 U	25.8 U
Tri-CB	3,770 U	**359**	**389**	**1010**	**612**	**571**
Tetra-CB	**14,200**	**1,060**	**1,320**	**3150**	**2240**	**1990**
Penta-CB	**35,300**	**1,780**	**2,610**	**5060**	**3730**	**3420**
Hexa-CB	19,400 U	**1,140**	**1,850**	**3740**	**2970**	**2510**
Hepta-CB	**4,780**	**457**	**686**	**1160**	**988**	**1030**
Octa-CB	**1,150**	**122**	**190**	**342**	**286**	**328**
Nona-CB	**208**	**18.8**	**38.6**	86.7 U	88.4 U	80.5 U
Deca-CB	**97.7**	**24.4**	**19.2**	50.5 U	48.5 U	**46.8**
Total PCB Congeners	**80,000**	**5,050**	**7,250**	**14,500**	**10,900**	**9,900**

Notes:

-- = not analyzed

U = Indicates the compound was not detected at the reported concentration.

J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.

Bold = detected compound

Abbreviations and Acronyms:

PCB = polychlorinated biphenyl

pg/g = picrogram per gram

SDG = sample delivery group

Table 5
Sediment Analytical Results - Perfluoroalkyl Substances (PFAS)
Everett Shipyard, CSO-2
Everett, Washington

Analyte	Sample ID, Laboratory SDG, Sample Date		
	CSO2-1 21K0379 11/22/2021	CSO2-2 21K0379 11/22/2021	CSO2-2-Dup 21K0379 11/22/2021
PFAS (pg/g; PFAS Isotope Dilution)			
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	1.48 U	1.49 U	1.49 U
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	0.494 U	0.496 U	0.497 U
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	0.988 U	0.993 U	0.994 U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.988 U	0.993 U	0.994 U
N-Ethyl perfluorooctane sulfonamidoacetic acid	0.988 U	0.993 U	0.994 U
N-Methyl perfluorooctane sulfonamidoacetic acid	0.494 U	0.496 U	0.497 U
Perfluorobutanesulfonic Acid (PFBS)	0.494 U	0.496 U	0.497 U
Perfluorobutanoic acid (PFBA)	0.494 U	0.496 U	0.497 U
Perfluorodecanoic acid (PFDcA)	0.988 U	0.993 U	0.994 U
Perfluorododecanoic acid (PFDoDA)	0.494 U	0.496 U	0.497 U
Perfluoroheptanoic acid (PFHpA)	0.494 U	0.496 U	0.497 U
Perfluorohexane sulfonic acid (PFHxS)	0.494 U	0.496 U	0.497 U
Perfluorohexanoic acid (PFHxA)	0.988 U	0.993 U	0.994 U
Perfluorononanoic acid (PFNA)	0.494 U	0.496 U	0.497 U
Perfluorooctane sulfonic acid (PFOS)	0.988 U	0.993 U	0.994 U
Perfluorooctanoic acid (PFOA)	0.494 U	0.496 U	0.497 U
Perfluoropentanoic acid (PFPeA)	0.494 U	0.496 U	0.497 U
Perfluorotetradecanoic acid (PFTeDA)	0.988 U	0.993 U	0.994 U
Perfluorotridecanoic acid (PFTrDA)	0.988 U	0.993 U	0.994 U
Perfluoroundecanoic acid (PFUnDA)	0.494 U	0.496 U	0.497 U

Notes:
U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit

Abbreviations and Acronyms:
ID = Identification
PFAS = polyfluoroalkyl substances
pg/g = picogram per gram
SDG = sample delivery group

APPENDIX A

Restrictive Covenant

After Recording Return
Original Signed Covenant to:
Hun Seak Park
Toxics Cleanup Program
Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

201804160540 12 PGS
04/16/2018 4:39pm $85.00
SNOHOMISH COUNTY, WASHINGTON

Environmental Covenant

Grantors: Port of Everett, City of Everett
Grantee: State of Washington, Department of Ecology (hereafter "Ecology")
Brief Legal Description: NE1/4 SE1/4, Section 18, Township 29N, Range 05E
Tax Parcel Nos.: 29051800401200, 29051800401300, 29051800401500, 29051800209100, 29051800209103, 29051800209104 (Port of Everett); N/A City right-of-way along West Marine View Drive immediately east of Parcel 29051800401200 (City of Everett)
Cross Reference: March 7, 2012 Consent Decree, Snohomish County Superior Court No. 12-2-03430-1; February 2, 2017 First Amendment to Consent Decree

RECITALS

a. This document is an environmental (restrictive) covenant (hereafter "Covenant") executed pursuant to the Model Toxics Control Act ("MTCA"), chapter 70.105D RCW, and Uniform Environmental Covenants Act ("UECA"), chapter 64.70 RCW.

b. The Property that is the subject of this Covenant is part or all of a site commonly known as Everett Shipyard Inc (FSID #2794). The Property is legally described in Exhibit A and illustrated in Exhibit B, which is attached (hereafter "Property").

c. The Property is the subject of remedial action conducted under MTCA. This Covenant is required because residual contamination remains on the Property after completion of remedial actions. Specifically, the following principal contaminants remain on the Property:

Medium	Principal Contaminants Present
Soil	Antimony, arsenic, lead, carcinogenic polycyclic aromatic hydrocarbons (cPAHs)
Groundwater	Arsenic, copper, nickel, zinc, bis(2-ethylhexyl)phthalate
Sediment	Metals, tributyltin, semi-volatile organic compounds

d. It is the purpose of this Covenant to restrict certain activities and uses of the Property to protect human health and the environment and the integrity of remedial actions conducted at the

site. Records describing the extent of residual contamination and remedial actions conducted are available through Ecology's web page:

https://fortress.wa.gov/ecy/gsp/CleanupSiteDocuments.aspx?csid=3655

These include the following documents:

- 2014 Upland Site Cleanup Construction Completion Report, Everett Shipyard, Everett, Washington, July 22, Landau Associates
- 2017 Sediment Cleanup Construction Completion Report, Everett Shipyard Site, Everett, Washington, February 22, Landau Associates
- 2017 Revised Soil, Groundwater and Sediment Management Plan, Everett Shipyard Site Everett, Washington, February 16, Landau Associates

e. This Covenant grants Ecology certain rights under UECA and as specified in this Covenant. As a Holder of this Covenant under UECA, Ecology has an interest in real property, however, this is not an ownership interest which equates to liability under MTCA or the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 *et seq.* The rights of Ecology as an "agency" under UECA, other than its' right as a holder, are not an interest in real property.

COVENANT

The Port of Everett and City of Everett, as Grantors and fee simple owners of the Property hereby grant to Ecology, and its successors and assignees, the following covenants. Furthermore, it is the intent of the Grantors that such covenants shall supersede any prior interests the GRANTORS have in the Property and run with the land and be binding on all current and future owners of any portion of, or interest in, the Property.

Section 1. General Restrictions and Requirements.

The following paragraphs present general restrictions and requirements shall apply to the Property. More specific requirements and procedures for conducting intrusive activities in areas of the Property containing residual contamination are provided in the Soil, Groundwater and Sediment Management Plan identified in Paragraph d of the Recitals section.

a. Interference with Remedial Action. The Grantors shall not engage in any activity on the Property that may impact or interfere with the remedial action and any operation, maintenance, inspection or monitoring of that remedial action without prior written approval from Ecology.

b. Protection of Human Health and the Environment. The Grantors shall not engage in any activity on the Property that may threaten continued protection of human health or the environment without prior written approval from Ecology. This includes, but is not limited to, any activity that results in the release of residual contamination that was contained as a part of the remedial action or that exacerbates or creates a new exposure to residual contamination remaining on the Property.

c. Continued Compliance Required. Grantors shall not convey any interest in any portion of the Property without providing for the continued adequate and complete operation, maintenance and monitoring of remedial actions and continued compliance with this Covenant.

d. Leases. Grantors shall restrict any lease for any portion of the Property to uses and activities consistent with this Covenant and notify all lessees of the restrictions on the use of the Property.

e. Preservation of Reference Monuments. Grantors shall make a good faith effort to preserve any reference monuments and boundary markers used to define the areal extent of coverage of this Covenant. Should a monument or marker be damaged or destroyed, Grantors shall have it replaced by a licensed professional surveyor within 30 days of discovery of the damage or destruction.

Section 2. Specific Prohibitions and Requirements.

In addition to the general restrictions in Section 1 of this Covenant, the following additional specific restrictions and requirements shall apply to the Property:

a. Containment of Soil Materials. The remedial action for part of the Property is based on containing contaminated soil beneath a concrete sidewalk at and located as illustrated in **Exhibit B.** The primary purpose of this keeping this sidewalk in place is to prevent direct contact with, and water infiltration into, contaminated soil. As such, the following restrictions shall apply within the area illustrated in **Exhibit B**:

Any activity that will compromise the integrity of the cap including: drilling; digging; piercing the cap with sampling device, post, stake or similar device; grading; excavation; installation of underground utilities; removal of the cap; or, application of loads in excess of the cap load bearing capacity, is prohibited without prior written approval by Ecology. The Grantors shall report to Ecology within forty-eight (48) hours of the discovery of any damage to the cap. Unless an alternative plan has been approved by Ecology in writing, the Grantors shall promptly repair the damage and submit a report documenting this work to Ecology within thirty (30) days of completing the repairs.

b. Groundwater Use. The groundwater beneath the Property remains contaminated and shall not be extracted for any purpose other than temporary construction dewatering, investigation, monitoring or remediation. Drilling of a well for any water supply purpose is strictly prohibited. Groundwater extracted from the Property for any purpose shall be considered potentially contaminated and any discharge of this water shall be done in accordance with state and federal law.

c. Sediments. The residual contamination on the Property includes contaminated marine sediments. As such, the following restrictions shall apply to minimize potential disturbance of these sediments within the sediment containment area of the Property illustrated in Exhibit B:

Any activity within this area that will compromise the integrity of the cap including: drilling; digging; piercing the cap with sampling devices, piling, anchors or similar devices; dredging; installation of buried utilities; removal of the cap; or, application of loads in excess of the cap load bearing capacity, is prohibited without prior written approval by Ecology. The Grantors shall report to Ecology within forty-eight (48) hours of the discovery of any damage to the cap. Unless an alternative plan has been approved by Ecology in writing, the Grantors shall promptly repair the damage and submit a report documenting this work to Ecology within thirty (30) days of completing the repairs.

No docks or other structures shall be constructed within the sediment containment area without prior written approval of Ecology.

No dredging shall be allowed within the sediment containment area without prior written approval of Ecology.

No ships or boats shall be allowed to anchor or use side thrusters within the sediment containment area.

d. Monitoring. Several groundwater monitoring wells are located on the Property to monitor the performance of the remedial action. The Grantors shall maintain clear access to these devices and protect them from damage. The Grantors shall report to Ecology within forty-eight (48) hours of the discovery of any damage to any monitoring device. Unless Ecology approves of an alternative plan in writing, the Grantors shall promptly repair the damage and submit a report documenting this work to Ecology within thirty (30) days of completing the repairs.

Section 3. Access.

a. The Grantors shall maintain clear access to all remedial action components necessary to construct, operate, inspect, monitor and maintain the remedial action.

b. The Grantors freely and voluntarily grants Ecology and its authorized representatives, upon reasonable notice, the right to enter the Property at reasonable times to evaluate the effectiveness of this Covenant and associated remedial actions, and enforce compliance with this Covenant and those actions, including the right to take samples, inspect any remedial actions conducted on the Property, and to inspect related records.

c. No right of access or use by a third party to any portion of the Property is conveyed by this instrument.

Section 4. Notice Requirements.

a. Conveyance of Any Interest. The Grantors, when conveying any interest in any part of the Property including but not limited to title, easement, leases, and security or other interests, must:

i. Provide written notice to Ecology of the intended conveyance at least thirty (30) days in advance of the conveyance.

ii. Include in the conveying document a notice in substantially the following form, as well as a complete copy of this Covenant:

NOTICE: THIS PROPERTY IS SUBJECT TO AN ENVIRONMENTAL COVENANT GRANTED TO THE WASHINGTON STATE DEPARTMENT OF ECOLOGY ON 4/10/18 AND RECORDED WITH THE SNOHOMISH COUNTY AUDITOR UNDER RECORDING NUMBER 201804160540. USES AND ACTIVITIES ON THIS PROPERTY MUST COMPLY WITH THAT COVENANT, A COMPLETE COPY OF WHICH IS ATTACHED TO THIS DOCUMENT.

iii. Unless otherwise agreed to in writing by Ecology, provide Ecology with a complete copy of the executed document within thirty (30) days of the date of execution of such document.

b. Reporting Violations. Should the Grantors become aware of any violation of this Covenant, Grantors shall promptly report such violation in writing to Ecology.

c. Emergencies. For any emergency or significant change in site conditions due to Acts of Nature (for example, flood or fire) resulting in a violation of this Covenant, the Grantors is authorized to respond to such an event in accordance with state and federal law. The Grantors

must notify Ecology in writing of the event and response actions planned or taken as soon as practical but no later than within 24 hours of the discovery of the event.

d. Notification procedure. Any required written notice, approval, reporting or other communication shall be personally delivered or sent by first class mail to the following persons. Any change in this contact information shall be submitted in writing to all parties to this Covenant. Upon mutual agreement of the parties to this Covenant, an alternative to personal delivery or first class mail, such as e-mail or other electronic means, may be used for these communications.

Port of Everett: Erik Gerking Director or Environmental Programs Port of Everett 1205 Craftsman Way, Suite 200 Everett, WA 98201 (425)388-0604 erikg@portofeverett.com City of Everett: Mike Palacios Real Property Manager 3200 Cedar Street Everett, WA 98201 (425) 257-8938 mpalacios@ci.everett.wa.us	Environmental Covenants Coordinator Washington State Department of Ecology Toxics Cleanup Program P.O. Box 47600 Olympia, WA 98504 – 7600 (360) 407-6000 ToxicsCleanupProgramHQ@ecy.wa.gov

Section 5. Modification or Termination.

a. Grantors must provide written notice and obtain approval from Ecology at least sixty (60) days in advance of any proposed activity or use of the Property in a manner that is inconsistent with this Covenant. For any proposal that is inconsistent with this Covenant and permanently modifies an activity or use restriction at the site:

i. Ecology must issue a public notice and provide an opportunity for the public to comment on the proposal; and

ii. If Ecology approves of the proposal, the Covenant must be amended to reflect the change before the activity or use can proceed.

b. If the conditions at the site requiring a Covenant have changed or no longer exist, then the Grantors may submit a request to Ecology that this Covenant be amended or terminated. Any amendment or termination of this Covenant must follow the procedures in MTCA and UECA and any rules promulgated under these chapters.

Section 6. Enforcement and Construction.

a. This Covenant is being freely and voluntarily granted by the Grantors.

b. Within ten (10) days of execution of this Covenant, Grantors shall provide Ecology with an original signed Covenant and proof of recording and a copy of the Covenant and proof of recording to others required by RCW 64.70.070.

c. Ecology shall be entitled to enforce the terms of this Covenant by resort to specific performance or legal process. All remedies available in this Covenant shall be in addition to any and all remedies at law or in equity, including MTCA and UECA. Enforcement of the terms of this Covenant shall be at the discretion of Ecology, and any forbearance, delay or omission to exercise its rights under this Covenant in the event of a breach of any term of this Covenant is not a waiver by Ecology of that term or of any subsequent breach of that term, or any other term in this Covenant, or of any rights of Ecology under this Covenant.

d. The Grantors shall be responsible for all costs associated with implementation of this Covenant. Furthermore, the Grantors, upon request by Ecology, shall be obligated to pay for Ecology's costs to process a request for any modification or termination of this Covenant and any approval required by this Covenant.

e. This Covenant shall be liberally construed to meet the intent of MTCA and UECA.

f. The provisions of this Covenant shall be severable. If any provision in this Covenant or its application to any person or circumstance is held invalid, the remainder of this Covenant or its application to any person or circumstance is not affected and shall continue in full force and effect as though such void provision had not been contained herein.

g. A heading used at the beginning of any section or paragraph or exhibit of this Covenant may be used to aid in the interpretation of that section or paragraph or exhibit but does not override the specific requirements in that section or paragraph.

The undersigned Grantor warrants it hold title(s) to the Property and have authority to execute this Covenant.

EXECUTED this 3 day of April, 2018.

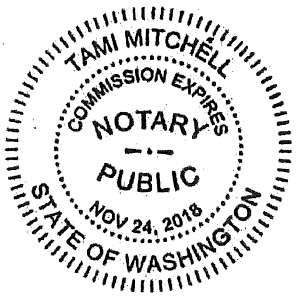
Lisa Lefeber
Acting CEO/ Executive Director

GRANTOR ACKNOWLEDGMENT

STATE OF WASHINGTON

COUNTY OF SNOHOMISH

On this 3rd day of April, 2018, I certify that LISA LEFEBER personally appeared before me, acknowledged that he is the ACTING CEO/EXECUTIVE DIRECTOR of the Port of Everett that executed the within and foregoing instrument, and signed said instrument by free and voluntary act and deed of the Port of Everett, for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument for said corporation.



Notary Public in and for the State of Washington, residing at Snohomish.
My appointment expires 11-24-18.

The undersigned Grantor warrants it hold the title(s) to the Property and have authority to execute this Covenant.

EXECUTED this 4TH day of APRIL, 2018.

Michael Palacios
Real Property Manager

GRANTOR ACKNOWLEDGMENT

STATE OF WASHINGTON

COUNTY OF SNOHOMISH

On this 4TH day of April, 2018, I certify that Michael Palacios personally appeared before me, acknowledged that he is the Real Property Manager of the City of Everett that executed the within and foregoing instrument, and signed said instrument by free and voluntary act and deed of the City of Everett, for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument for said corporation.

Barbara L. Hardman
Notary Public in and for the State of Washington, residing at Everett.
My appointment expires 3-13-2020.

BARBARA L. HARDMAN
NOTARY PUBLIC
COMMISSION EXPIRES
03-13-2020
STATE OF WASHINGTON

The Department of Ecology, hereby accepts the status as GRANTEE and HOLDER of the above Environmental Covenant.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Barry Rogowski

Barry Rogowski
Headquarters Cleanup Section Manger
Toxics Cleanup Program
HQ Regional Office

Dated: April 10, 2018

STATE ACKNOWLEDGMENT

STATE OF WASHINGTON

COUNTY OF THURSTON

On this 10th day of April 2018 ~~2017~~, I certify that Barry Rogowski personally appeared before me, acknowledged that he is the Headquarters Cleanup Section Manager for the Washington State Department of Ecology's Toxics Cleanup Program of the state agency that executed the within and foregoing instrument, and signed said instrument by free and voluntary act and deed, for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument for said state agency.

Valerie L Pearson

Notary Public in and for the State of
Washington, residing at Lacey, WA.
My appointment expires 03/28/2020

VALERIE L. PEARSON
NOTARY PUBLIC
COMMISSION EXPIRES
3-28-20
STATE OF WASHINGTON

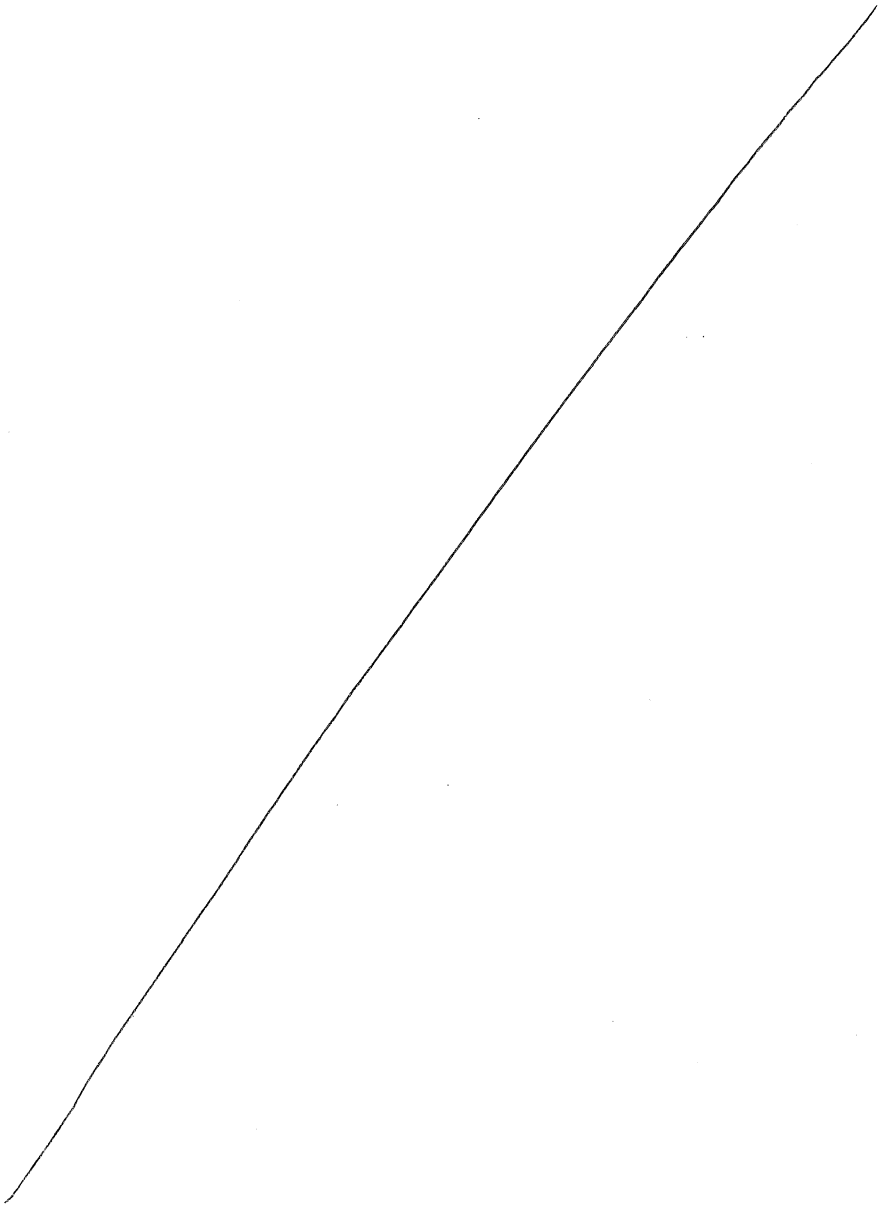
Exhibit A

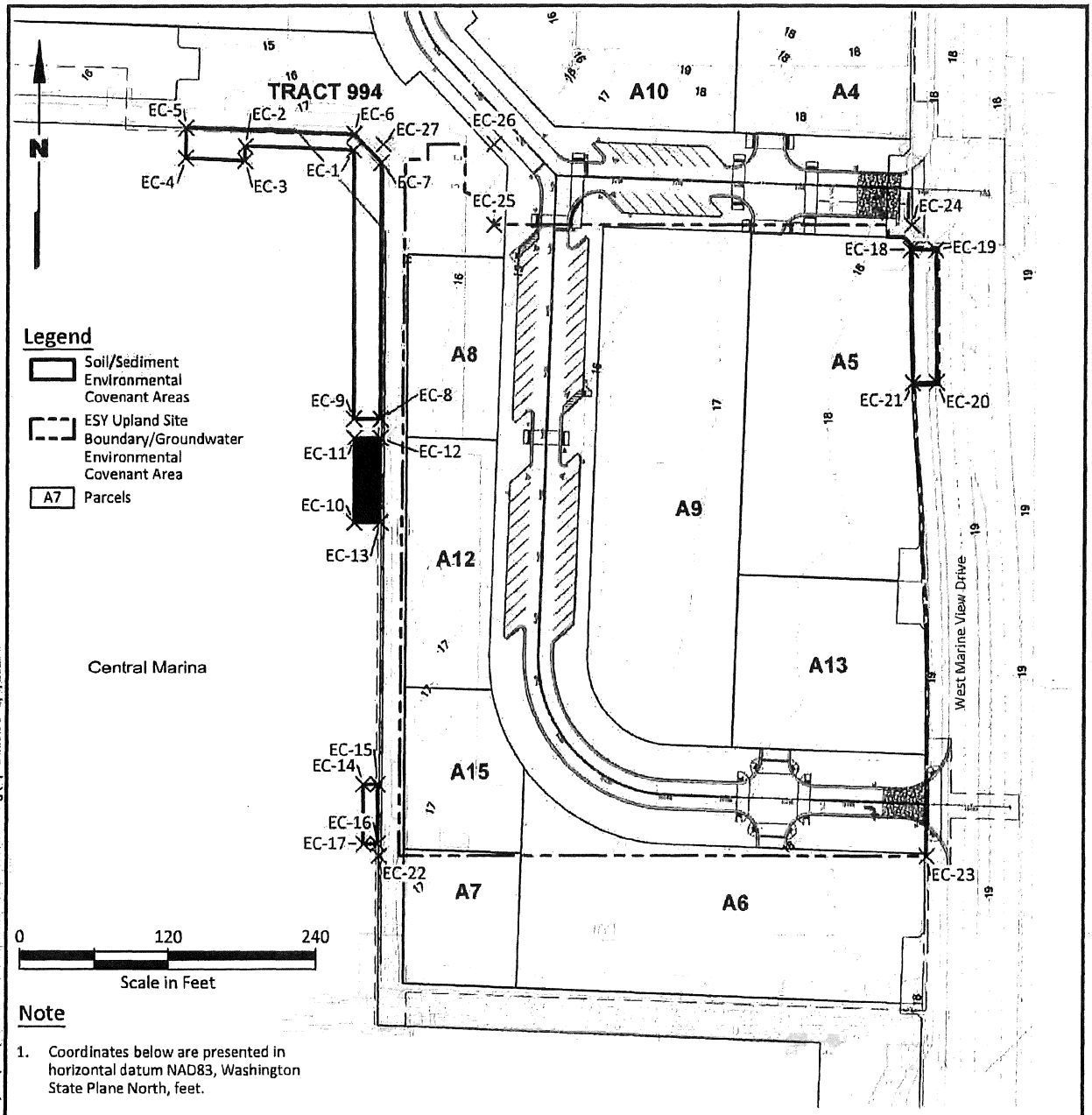
LEGAL DESCRIPTION

NE1/4 SE1/4, Section 18, Township 29N, Range 05E. The legal description for the Property and the specific covenant areas within the Property are more specifically defined on Exhibit B.

Exhibit B

PROPERTY MAP & LOCATION OF RESTRICTIONS





Note

1. Coordinates below are presented in horizontal datum NAD83, Washington State Plane North, feet.

Reference Point Designation	Reference Point Northing	Reference Point Easting	Reference Point Designation	Reference Point Northing	Reference Point Easting	Reference Point Designation	Reference Point Northing	Reference Point Easting
EC-1	367475.2521	1301946.1316	EC-10	367173.4853	1301947.2736	EC-19	367394.8772	1302421.9748
EC-2	367478.8965	1301858.2546	EC-11	367242.1321	1301947.2736	EC-20	367287.6593	1302422.8321
EC-3	367466.7736	1301857.9838	EC-12	367242.1321	1301968.4957	EC-21	367286.8597	1302403.3695
EC-4	367469.0136	1301809.3687	EC-13	367173.4853	1301968.4957	EC-22	366903.5871	130968.1423
EC-5	367493.7361	1301809.6055	EC-14	366961.3663	1301955.2497	EC-23	366903.4434	1302415.9576
EC-6	367488.5556	1301946.6082	EC-15	366961.3663	1301967.0945	EC-24	367414.6244	1302402.2053
EC-7	367465.0181	1301968.5110	EC-16	366913.0868	1301967.0945	EC-25	367414.8067	1302060.6375
EC-8	367257.6577	1301968.4359	EC-17	366913.0868	1301955.7497	EC-26	367480.0509	1302060.7252
EC-9	367257.8483	1301946.6326	EC-18	367394.7604	1302401.4581	EC-27	367480.1050	1301970.2809

Source: Port of Everett 2016

LANDAU ASSOCIATES

Everett Shipyard Site Everett, Washington	**Environmental Covenant Areas**	Exhibit **B**

APPENDIX B

2021 Laboratory Data Reports

Analytical Resources, LLC
Analytical Chemists and Consultants

14 February 2022

Danille Jorgensen
Landau Associates, Inc.
130 2nd Avenue S.
Edmonds, WA 98020

RE: Everett Shipyard 2021 Nov (Everett Shipyard 2021 Nov)

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)
21K0379	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, LLC

Kelly Bottem, Client Services Manager

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 its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

21K0379

LANDAU ASSOCIATES

Chain-of-Custody Record

☒ North Seattle (206) 631-8660 ☐ Spokane (509) 327-9737
☐ Tacoma (253) 926-2493 ☐ Portland (503) 542-1080
☐ Olympia (360) 791-3178 ☐ _____

Date 11/22/21
Page 1 of 1

Turnaround Time:
Standard X
Accelerated _____

Project Name ESY
Project No. 147041.020.021
Project Location/Event Everett, WA / CSO2 Sed. Sampling Nov 2021
Sampler's Name Devan Brandt & Samantha Lindstrom
Project Contact Stephanie Renando
Send Results To " " & Dani Jorgenson

Special Handling Requirements: _____
Shipment Method: _____
Stored on ice: (Yes) / No

Sample I.D.	Date	Time	Matrix	No. of Containers	Metals (SW6020B/SW7471B)*	SVOCs (8270E)**	Dioxins/furans (1613B)	PCB Aroclors (SW8082A)	PCB Congeners (SW1668A)	Total Solids (SM2540G)	TOC (9060A)	PFAS (537.1)***
CSO2-1-112221	11/22/21	1000	solid	4	X	X	X	X	X	X	X	X
CSO2-2-112221	11/22/21	1010	solid	4	X	X	X	X	X	X	X	X
DUP-1-112221	11/22/21	1018	Solid	3	X	X	X	X	X	X	X	X
CSO2-3-112221	11/22/21	1050	solid	3	X	X	X	X		X	X	
CSO2-4-112221	11/22/21	1350	solid	3	X	X	X	X		X	X	
CSO2-5-112221	11/22/21	1420	solid	3	X	X	X	X		X	X	
CSO2-6-112221	11/22/21	1450	solid	3	X	X	X	X		X	X	

Observations/Comments

__ Allow water samples to settle, collect aliquot from clear portion ☐
__ NWTPH-Dx - Acid wash cleanup ☐
- Silica gel cleanup ☐
__ Dissolved metal samples were field filtered

Other
* - Arsenic, cadmium, Chromium, copper, Lead, Silver, zinc, & Mercury.
** - Including PAHs
*** - 36 compounds, including PFOA & PFOS

Relinquished by	Received by	Relinquished by	Received by
Signature Samantha Lindstrom	Signature APaist	Signature	Signature
Printed Name Samantha Lindstrom	Printed Name Arden Paist	Printed Name	Printed Name
Company LAI	Company ARI	Company	Company
Date 11/22/21 Time 1840	Date 11/23/21 Time 8 20	Date Time	Date Time

WHITE COPY - Laboratory YELLOW COPY - Project File PINK COPY - Client Re

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CS02-1-112221	21K0379-01	Solid	22-Nov-2021 10:00	23-Nov-2021 08:19
CS02-2-112221	21K0379-02	Solid	22-Nov-2021 10:10	23-Nov-2021 08:19
DUP-1-112221	21K0379-03	Solid	22-Nov-2021 10:18	23-Nov-2021 08:19
CS02-3-112221	21K0379-04	Solid	22-Nov-2021 10:50	23-Nov-2021 08:19
CS02-4-112221	21K0379-05	Solid	22-Nov-2021 13:50	23-Nov-2021 08:19
CS02-5-112221	21K0379-06	Solid	22-Nov-2021 14:20	23-Nov-2021 08:19
CS02-6-112221	21K0379-07	Solid	22-Nov-2021 14:50	23-Nov-2021 08:19

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Work Order Case Narrative

Total Metals - EPA Method 6020B and 7471B

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

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Wet Chemistry

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

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

PCB Aroclors - EPA Method SW8082A

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Semivolatiles - EPA Method SW8270E

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

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control high in ICV1-SJL0027 and pentachlorophenol, 4-Chlorophenylphenylether, 4-Nitrophenol and 2,2'-Oxybis(1-chloropropane) are out of control low. All associated samples that contain analyte have been flagged with a "Q" qualifer.

Internal standard areas were within limits with the exception of Crysene-d12 which failed in all samples. All of the associated samples were re-analyzed at dilutions with internal standards in control.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Dioxin/Furans - EPA Method 1613

The sample(s) were extracted and analyzed within the recommended holding times. Analysis was performed using an application specific column developed by Restek. The RTX-DIoxin2 column has unique isomer separation for the 2378-TCDF, eliminating the need for confirmation analysis.

Initial and continuing calibrations were within method requirements.

Labeled internal standard areas were within limits.

The cleanup surrogate percent recoveries were within control limits.

The method blank(s) contained 1,2,3,4,6,7,8- HPCDD, 1,2,3,4,6,7,8- HPCDF,OCDF and OCDD. Associated samples that contain analyte have been flagged with a "B" qualifer.

The OPR (Ongoing Precision and Recovery) standard percent recoveries were within control limits with the exception of analytes flagged on the associated forms.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Landau N. Seattle Project Name: ESY

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

Assigned ARI Job No: 21K0379 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)

Time 819 3.1

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 2565

Cooler Accepted by: AP Date: 11/23/21 Time: 819

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:		
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?		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: AP Date: 11/23/21 Time: _____ Labels checked by: _____

*** 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:

By: Date:

February 14, 2022

Vista Work Order No. 2112004

Ms. Kelly Bottem
Analytical Resources, Inc.
4611 S. 134th Place Suite 100
Tukwila, WA 98168-3240

Dear Ms. Bottem,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on December 01, 2021 under your Project Name '21K0379'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at jfox@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Jamie Fox
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 2112004
Case Narrative

Sample Condition on Receipt:

Three solid samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. The samples were received in good condition and within the recommended temperature requirements.

Analytical Notes:

PFAS Isotope Dilution Method - Solid

The samples were extracted and analyzed for a selected list of PFAS using Vista's Isotope Dilution Method. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit (RL). The recovery of 11Cl-PF3OUdS was greater than 135% in the OPR. This analyte was not detected in the samples. The recoveries of all other analytes were within the acceptance criteria.

The labeled standard recoveries for all QC and field samples were within the acceptance criteria.

EPA Method 1668C

These samples were extracted and analyzed for 209 PCB congeners by EPA Method 1668C using a ZB-1 GC column.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the

preparation batch. No analytes were detected above the sample quantitation limits in the Method Blank. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2112004-01	21K0379-01	22-Nov-21 10:00	01-Dec-21 09:49	Amber Glass, 250mL
2112004-02	21K0379-02	22-Nov-21 10:10	01-Dec-21 09:49	Amber Glass, 250mL
2112004-03	21K0379-03	22-Nov-21 10:18	01-Dec-21 09:49	Amber Glass, 250mL

ANALYTICAL RESULTS

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid

Laboratory Data

Lab Sample: B1L0176-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.125		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
PFPeA	2706-90-3	ND	0.125		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
PFBS	375-73-5	ND	0.125		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
PFHxA	307-24-4	ND	0.250		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
HFPO-DA	13252-13-6	ND	0.250		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
PFHpA	375-85-9	ND	0.125		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
ADONA	919005-14-4	ND	0.125		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
PFHxS	355-46-4	ND	0.125		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
PFOA	335-67-1	ND	0.125		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
PFNA	375-95-1	ND	0.125		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
PFOS	1763-23-1	ND	0.195		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
9Cl-PF3ONS	756426-58-1	ND	0.250		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
PFDA	335-76-2	ND	0.188		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
MeFOSAA	2355-31-9	ND	0.125		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
EtFOSAA	2991-50-6	ND	0.250		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
PFUnA	2058-94-8	ND	0.125		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
11Cl-PF3OUdS	763051-92-9	ND	0.375		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
PFDoA	307-55-1	ND	0.125		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
PFTrDA	72629-94-8	ND	0.250		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
PFTeDA	376-06-7	ND	0.250		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	106	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
13C3-PFPeA	IS	86.6	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
13C3-PFBS	IS	106	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
13C3-HFPO-DA	IS	85.4	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
13C2-PFHxA	IS	81.3	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
13C4-PFHpA	IS	82.2	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
13C3-PFHxS	IS	97.9	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
13C5-PFNA	IS	78.9	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
13C2-PFOA	IS	80.4	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
13C8-PFOS	IS	96.0	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
13C2-PFDA	IS	59.2	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
d3-MeFOSAA	IS	67.0	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
13C2-PFUnA	IS	44.3	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
d5-EtFOSAA	IS	60.2	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: Analytical Resources, Inc. Matrix: Solid

Project: 21K0379

Laboratory Data

Lab Sample: B1L0176-BLK1 Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFDoA	IS	49.5	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1
13C2-PFTeDA	IS	60.9	20 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:34	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name: Analytical Resources, Inc. Matrix: Solid
Project: 21K0379

Laboratory Data

Lab Sample: B1L0176-BS1 Column: BEH C18

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.49	2.50	99.5	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
PFPeA	2706-90-3	2.54	2.50	102	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
PFBS	375-73-5	2.52	2.50	101	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
PFHxA	307-24-4	2.47	2.50	98.7	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
HFPO-DA	13252-13-6	3.13	2.50	125	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
PFHpA	375-85-9	2.40	2.50	96.2	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
ADONA	919005-14-4	2.75	2.50	110	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
PFHxS	355-46-4	2.68	2.50	107	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
PFOA	335-67-1	2.47	2.50	99.0	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
PFNA	375-95-1	2.75	2.50	110	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
PFOS	1763-23-1	2.30	2.50	92.0	65 - 140		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
9Cl-PF3ONS	756426-58-1	2.67	2.50	107	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
PFDA	335-76-2	2.73	2.50	109	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
MeFOSAA	2355-31-9	2.21	2.50	88.3	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
EtFOSAA	2991-50-6	2.29	2.50	91.8	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
PFUnA	2058-94-8	2.78	2.50	111	65 - 140		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
11Cl-PF3OUdS	763051-92-9	3.44	2.50	138	65 - 135	H	B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
PFDoA	307-55-1	2.59	2.50	103	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
PFTrDA	72629-94-8	2.69	2.50	108	60 - 140		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
PFTeDA	376-06-7	2.40	2.50	96.0	65 - 135		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.7	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
13C3-PFPeA	IS	78.3	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
13C3-PFBS	IS	102	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
13C3-HFPO-DA	IS	65.9	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
13C2-PFHxA	IS	75.5	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
13C4-PFHpA	IS	74.5	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
13C3-PFHxS	IS	85.7	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
13C5-PFNA	IS	73.8	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
13C2-PFOA	IS	80.4	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
13C8-PFOS	IS	84.1	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
13C2-PFDA	IS	54.1	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
d3-MeFOSAA	IS	63.5	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
13C2-PFUnA	IS	45.0	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
d5-EtFOSAA	IS	60.7	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid

Laboratory Data

Lab Sample: B1L0176-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFDoA	IS	49.8	25 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1
13C2-PFTeDA	IS	60.7	20 - 150		B1L0176	27-Dec-21	4.00 g	05-Jan-22 02:45	1

Sample ID: 21K0379-01

PFAS Isotope Dilution Method

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:00

Laboratory Data

Lab Sample: 2112004-01
Date Received: 01-Dec-21 09:49
% Solids: 39.2
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.494		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
PFPeA	2706-90-3	ND	0.494		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
PFBS	375-73-5	ND	0.494		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
PFHxA	307-24-4	ND	0.988		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
HFPO-DA	13252-13-6	ND	0.988		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
PFHpA	375-85-9	ND	0.494		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
ADONA	919005-14-4	ND	0.494		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
PFHxS	355-46-4	ND	0.494		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
PFOA	335-67-1	ND	0.494		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
PFNA	375-95-1	ND	0.494		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
PFOS	1763-23-1	ND	0.988		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
9Cl-PF3ONS	756426-58-1	ND	0.988		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
PFDA	335-76-2	ND	0.988		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
MeFOSAA	2355-31-9	ND	0.494		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
EtFOSAA	2991-50-6	ND	0.988		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
PFUnA	2058-94-8	ND	0.494		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
11Cl-PF3OUdS	763051-92-9	ND	1.48		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
PFDoA	307-55-1	ND	0.494		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
PFTrDA	72629-94-8	ND	0.988		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
PFTeDA	376-06-7	ND	0.988		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	98.1	25 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
13C3-PFPeA	IS	82.2	25 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
13C3-PFBS	IS	92.7	25 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
13C3-HFPO-DA	IS	69.5	25 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
13C2-PFHxA	IS	77.9	25 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
13C4-PFHpA	IS	77.4	25 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
13C3-PFHxS	IS	83.4	25 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
13C5-PFNA	IS	74.4	25 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
13C2-PFOA	IS	83.2	25 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
13C8-PFOS	IS	85.3	25 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
13C2-PFDA	IS	61.0	25 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
d3-MeFOSAA	IS	57.0	25 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
13C2-PFUnA	IS	63.4	25 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1

Sample ID: 21K0379-01 **PFAS Isotope Dilution Method**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:00

Laboratory Data

Lab Sample: 2112004-01
Date Received: 01-Dec-21 09:49
% Solids: 39.2
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA	IS	60.2	25 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
13C2-PFDoA	IS	58.8	25 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1
13C2-PFTeDA	IS	36.2	20 - 150		B1L0176	27-Dec-21	2.58 g	05-Jan-22 04:59	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: 21K0379-02 **PFAS Isotope Dilution Method**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:10

Laboratory Data

Lab Sample: 2112004-02
Date Received: 01-Dec-21 09:49
% Solids: 48.0
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.496		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
PFPeA	2706-90-3	ND	0.496		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
PFBS	375-73-5	ND	0.496		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
PFHxA	307-24-4	ND	0.993		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
HFPO-DA	13252-13-6	ND	0.993		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
PFHpA	375-85-9	ND	0.496		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
ADONA	919005-14-4	ND	0.496		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
PFHxS	355-46-4	ND	0.496		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
PFOA	335-67-1	ND	0.496		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
PFNA	375-95-1	ND	0.496		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
PFOS	1763-23-1	ND	0.993		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
9Cl-PF3ONS	756426-58-1	ND	0.993		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
PFDA	335-76-2	ND	0.993		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
MeFOSAA	2355-31-9	ND	0.496		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
EtFOSAA	2991-50-6	ND	0.993		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
PFUnA	2058-94-8	ND	0.496		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
11Cl-PF3OUdS	763051-92-9	ND	1.49		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
PFDoA	307-55-1	ND	0.496		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
PFTrDA	72629-94-8	ND	0.993		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
PFTeDA	376-06-7	ND	0.993		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.8	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
13C3-PFPeA	IS	78.9	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
13C3-PFBS	IS	82.4	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
13C3-HFPO-DA	IS	60.3	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
13C2-PFHxA	IS	74.4	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
13C4-PFHpA	IS	77.7	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
13C3-PFHxS	IS	86.4	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
13C5-PFNA	IS	71.7	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
13C2-PFOA	IS	76.3	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
13C8-PFOS	IS	78.1	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
13C2-PFDA	IS	64.5	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
d3-MeFOSAA	IS	67.4	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
13C2-PFUnA	IS	55.3	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1

Sample ID: 21K0379-02

PFAS Isotope Dilution Method

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:10

Laboratory Data

Lab Sample: 2112004-02
Date Received: 01-Dec-21 09:49
% Solids: 48.0
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA	IS	65.3	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
13C2-PFDoA	IS	58.3	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1
13C2-PFTeDA	IS	34.3	20 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:10	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: 21K0379-03 **PFAS Isotope Dilution Method**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:18

Laboratory Data

Lab Sample: 2112004-03
Date Received: 01-Dec-21 09:49
% Solids: 47.9
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.497		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
PFPeA	2706-90-3	ND	0.497		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
PFBS	375-73-5	ND	0.497		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
PFHxA	307-24-4	ND	0.994		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
HFPO-DA	13252-13-6	ND	0.994		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
PFHpA	375-85-9	ND	0.497		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
ADONA	919005-14-4	ND	0.497		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
PFHxS	355-46-4	ND	0.497		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
PFOA	335-67-1	ND	0.497		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
PFNA	375-95-1	ND	0.497		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
PFOS	1763-23-1	ND	0.994		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
9Cl-PF3ONS	756426-58-1	ND	0.994		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
PFDA	335-76-2	ND	0.994		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
MeFOSAA	2355-31-9	ND	0.497		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
EtFOSAA	2991-50-6	ND	0.994		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
PFUnA	2058-94-8	ND	0.497		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
11Cl-PF3OUdS	763051-92-9	ND	1.49		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
PFDoA	307-55-1	ND	0.497		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
PFTrDA	72629-94-8	ND	0.994		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
PFTeDA	376-06-7	ND	0.994		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	97.4	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
13C3-PFPeA	IS	85.9	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
13C3-PFBS	IS	95.1	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
13C3-HFPO-DA	IS	77.4	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
13C2-PFHxA	IS	81.4	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
13C4-PFHpA	IS	78.1	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
13C3-PFHxS	IS	86.8	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
13C5-PFNA	IS	76.5	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
13C2-PFOA	IS	78.6	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
13C8-PFOS	IS	81.6	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
13C2-PFDA	IS	70.8	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
d3-MeFOSAA	IS	54.7	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
13C2-PFUnA	IS	62.0	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1

Sample ID: 21K0379-03 **PFAS Isotope Dilution Method**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:18

Laboratory Data

Lab Sample: 2112004-03
Date Received: 01-Dec-21 09:49
% Solids: 47.9
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA	IS	61.2	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
13C2-PFDoA	IS	58.4	25 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1
13C2-PFTeDA	IS	38.0	20 - 150		B1L0176	27-Dec-21	2.10 g	05-Jan-22 05:20	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Method Blank

EPA Method 1668C

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid

Laboratory Data

Lab Sample: B22B061-BLK1
QC Batch: B22B061
Sample Size: 1.00 g
Date Extracted: 05-Feb-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-1	ND	2.08			08-Feb-22 17:58	1
PCB-2	ND	2.32			08-Feb-22 17:58	1
PCB-3	ND	2.37			08-Feb-22 17:58	1
PCB-4/10	ND	36.9			08-Feb-22 17:58	1
PCB-5/8	ND	27.9			08-Feb-22 17:58	1
PCB-6	ND	27.4			08-Feb-22 17:58	1
PCB-7/9	ND	29.0			08-Feb-22 17:58	1
PCB-11	ND	26.5			08-Feb-22 17:58	1
PCB-12/13	ND	29.1			08-Feb-22 17:58	1
PCB-14	ND	28.9			08-Feb-22 17:58	1
PCB-15	ND	29.1			08-Feb-22 17:58	1
PCB-16/32	ND	3.81			08-Feb-22 17:58	1
PCB-17	ND	4.68			08-Feb-22 17:58	1
PCB-18	ND	4.37			08-Feb-22 17:58	1
PCB-19	ND	4.62			08-Feb-22 17:58	1
PCB-20/21/33	ND	3.92			08-Feb-22 17:58	1
PCB-22	ND	3.77			08-Feb-22 17:58	1
PCB-23	ND	4.01			08-Feb-22 17:58	1
PCB-24/27	ND	3.37			08-Feb-22 17:58	1
PCB-25	ND	3.91			08-Feb-22 17:58	1
PCB-26	ND	3.91			08-Feb-22 17:58	1
PCB-28	ND	3.53			08-Feb-22 17:58	1
PCB-29	ND	4.15			08-Feb-22 17:58	1
PCB-30	ND	2.92			08-Feb-22 17:58	1
PCB-31	ND	3.47			08-Feb-22 17:58	1
PCB-34	ND	4.08			08-Feb-22 17:58	1
PCB-35	ND	4.34			08-Feb-22 17:58	1
PCB-36	ND	4.25			08-Feb-22 17:58	1
PCB-37	ND	4.42			08-Feb-22 17:58	1
PCB-38	ND	4.32			08-Feb-22 17:58	1
PCB-39	ND	4.52			08-Feb-22 17:58	1
PCB-40	ND	5.19			08-Feb-22 17:58	1
PCB-41/64/71/72	ND	2.66			08-Feb-22 17:58	1
PCB-42/59	ND	3.05			08-Feb-22 17:58	1
PCB-43/49	ND	3.29			08-Feb-22 17:58	1
PCB-44	ND	3.92			08-Feb-22 17:58	1
PCB-45	ND	3.79			08-Feb-22 17:58	1
PCB-46	ND	3.95			08-Feb-22 17:58	1
PCB-47	ND	3.44			08-Feb-22 17:58	1
PCB-48/75	ND	2.86			08-Feb-22 17:58	1
PCB-50	ND	3.04			08-Feb-22 17:58	1
PCB-51	ND	3.05			08-Feb-22 17:58	1
PCB-52/69	ND	2.81			08-Feb-22 17:58	1
PCB-53	ND	3.24			08-Feb-22 17:58	1
PCB-54	ND	2.51			08-Feb-22 17:58	1
PCB-55	ND	2.28			08-Feb-22 17:58	1
PCB-56/60	ND	2.57			08-Feb-22 17:58	1
PCB-57	ND	2.24			08-Feb-22 17:58	1
PCB-58	ND	2.23			08-Feb-22 17:58	1
PCB-61/70	ND	2.46			08-Feb-22 17:58	1
PCB-62	ND	2.86			08-Feb-22 17:58	1

Vista
an Enthalpy Analytical Laboratory

Sample ID: Method Blank

EPA Method 1668C

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid

Laboratory Data

Lab Sample: B22B061-BLK1
QC Batch: B22B061
Sample Size: 1.00 g
Date Extracted: 05-Feb-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-63	ND	2.48			08-Feb-22 17:58	1
PCB-65	ND	2.56			08-Feb-22 17:58	1
PCB-66/76	ND	2.25			08-Feb-22 17:58	1
PCB-67	ND	2.37			08-Feb-22 17:58	1
PCB-68	ND	2.50			08-Feb-22 17:58	1
PCB-73	ND	2.33			08-Feb-22 17:58	1
PCB-74	ND	2.21			08-Feb-22 17:58	1
PCB-77	ND	2.63			08-Feb-22 17:58	1
PCB-78	ND	2.71			08-Feb-22 17:58	1
PCB-79	ND	2.29			08-Feb-22 17:58	1
PCB-80	ND	2.25			08-Feb-22 17:58	1
PCB-81	ND	2.89			08-Feb-22 17:58	1
PCB-82	ND	4.07			08-Feb-22 17:58	1
PCB-83	ND	2.68			08-Feb-22 17:58	1
PCB-84/92	ND	3.89			08-Feb-22 17:58	1
PCB-85/116	ND	3.39			08-Feb-22 17:58	1
PCB-86	ND	3.95			08-Feb-22 17:58	1
PCB-87/117/125	ND	3.12			08-Feb-22 17:58	1
PCB-88/91	ND	3.71			08-Feb-22 17:58	1
PCB-89	ND	3.63			08-Feb-22 17:58	1
PCB-90/101	ND	3.55			08-Feb-22 17:58	1
PCB-93	ND	4.44			08-Feb-22 17:58	1
PCB-94	ND	4.07			08-Feb-22 17:58	1
PCB-95/98/102	ND	3.15			08-Feb-22 17:58	1
PCB-96	ND	2.52			08-Feb-22 17:58	1
PCB-97	ND	3.72			08-Feb-22 17:58	1
PCB-99	ND	3.23			08-Feb-22 17:58	1
PCB-100	ND	3.08			08-Feb-22 17:58	1
PCB-103	ND	3.22			08-Feb-22 17:58	1
PCB-104	ND	2.52			08-Feb-22 17:58	1
PCB-105	ND	3.34			08-Feb-22 17:58	1
PCB-106/118	ND	2.61			08-Feb-22 17:58	1
PCB-107/109	ND	2.34			08-Feb-22 17:58	1
PCB-108/112	ND	3.35			08-Feb-22 17:58	1
PCB-110	ND	2.79			08-Feb-22 17:58	1
PCB-111/115	ND	2.59			08-Feb-22 17:58	1
PCB-113	ND	2.55			08-Feb-22 17:58	1
PCB-114	ND	2.97			08-Feb-22 17:58	1
PCB-119	ND	2.73			08-Feb-22 17:58	1
PCB-120	ND	2.33			08-Feb-22 17:58	1
PCB-121	ND	2.31			08-Feb-22 17:58	1
PCB-122	ND	3.46			08-Feb-22 17:58	1
PCB-123	ND	2.60			08-Feb-22 17:58	1
PCB-124	ND	2.41			08-Feb-22 17:58	1
PCB-126	ND	3.36			08-Feb-22 17:58	1
PCB-127	ND	3.07			08-Feb-22 17:58	1
PCB-128/162	ND	2.57			08-Feb-22 17:58	1
PCB-129	ND	3.20			08-Feb-22 17:58	1
PCB-130	ND	3.28			08-Feb-22 17:58	1
PCB-131/133	ND	2.97			08-Feb-22 17:58	1
PCB-132/161	ND	2.38			08-Feb-22 17:58	1

Sample ID: Method Blank

EPA Method 1668C

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid

Laboratory Data

Lab Sample: B22B061-BLK1
QC Batch: B22B061
Sample Size: 1.00 g
Date Extracted: 05-Feb-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-134/143	ND	3.18			08-Feb-22 17:58	1
PCB-135	ND	2.40			08-Feb-22 17:58	1
PCB-136	ND	1.97			08-Feb-22 17:58	1
PCB-137	ND	2.78			08-Feb-22 17:58	1
PCB-138/163/164	ND	2.24			08-Feb-22 17:58	1
PCB-139/149	ND	2.25			08-Feb-22 17:58	1
PCB-140	ND	2.66			08-Feb-22 17:58	1
PCB-141	ND	2.82			08-Feb-22 17:58	1
PCB-142	ND	3.32			08-Feb-22 17:58	1
PCB-144	ND	2.51			08-Feb-22 17:58	1
PCB-145	ND	1.77			08-Feb-22 17:58	1
PCB-146/165	ND	2.42			08-Feb-22 17:58	1
PCB-147	ND	2.44			08-Feb-22 17:58	1
PCB-148	ND	2.61			08-Feb-22 17:58	1
PCB-150	ND	1.86			08-Feb-22 17:58	1
PCB-151	ND	2.58			08-Feb-22 17:58	1
PCB-152	ND	1.71			08-Feb-22 17:58	1
PCB-153	ND	2.30			08-Feb-22 17:58	1
PCB-154	ND	2.41			08-Feb-22 17:58	1
PCB-155	ND	2.04			08-Feb-22 17:58	1
PCB-156	ND	2.06			08-Feb-22 17:58	1
PCB-157	ND	2.34			08-Feb-22 17:58	1
PCB-158/160	ND	2.27			08-Feb-22 17:58	1
PCB-159	ND	1.96			08-Feb-22 17:58	1
PCB-166	ND	2.08			08-Feb-22 17:58	1
PCB-167	ND	2.12			08-Feb-22 17:58	1
PCB-168	ND	2.20			08-Feb-22 17:58	1
PCB-169	ND	2.20			08-Feb-22 17:58	1
PCB-170	ND	2.69			08-Feb-22 17:58	1
PCB-171	ND	2.86			08-Feb-22 17:58	1
PCB-172	ND	2.77			08-Feb-22 17:58	1
PCB-173	ND	3.26			08-Feb-22 17:58	1
PCB-174	ND	2.91			08-Feb-22 17:58	1
PCB-175	ND	2.56			08-Feb-22 17:58	1
PCB-176	ND	1.96			08-Feb-22 17:58	1
PCB-177	ND	3.05			08-Feb-22 17:58	1
PCB-178	ND	2.63			08-Feb-22 17:58	1
PCB-179	ND	2.03			08-Feb-22 17:58	1
PCB-180	ND	2.68			08-Feb-22 17:58	1
PCB-181	ND	2.62			08-Feb-22 17:58	1
PCB-182/187	ND	2.32			08-Feb-22 17:58	1
PCB-183	ND	2.40			08-Feb-22 17:58	1
PCB-184	ND	1.92			08-Feb-22 17:58	1
PCB-185	ND	2.81			08-Feb-22 17:58	1
PCB-186	ND	1.77			08-Feb-22 17:58	1
PCB-188	ND	1.90			08-Feb-22 17:58	1
PCB-189	ND	1.33			08-Feb-22 17:58	1
PCB-190	ND	2.06			08-Feb-22 17:58	1
PCB-191	ND	2.31			08-Feb-22 17:58	1
PCB-192	ND	2.16			08-Feb-22 17:58	1
PCB-193	ND	2.37			08-Feb-22 17:58	1

Sample ID: Method Blank

EPA Method 1668C

Client Data
Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid

Laboratory Data
Lab Sample: B22B061-BLK1
QC Batch: B22B061
Sample Size: 1.00 g
Date Extracted: 05-Feb-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-194	ND	2.25			08-Feb-22 17:58	1
PCB-195	ND	2.49			08-Feb-22 17:58	1
PCB-196/203	ND	2.16			08-Feb-22 17:58	1
PCB-197	ND	1.69			08-Feb-22 17:58	1
PCB-198	ND	2.34			08-Feb-22 17:58	1
PCB-199	ND	2.30			08-Feb-22 17:58	1
PCB-200	ND	1.78			08-Feb-22 17:58	1
PCB-201	ND	1.80			08-Feb-22 17:58	1
PCB-202	ND	1.64			08-Feb-22 17:58	1
PCB-204	ND	1.70			08-Feb-22 17:58	1
PCB-205	ND	1.88			08-Feb-22 17:58	1
PCB-206	ND	1.65			08-Feb-22 17:58	1
PCB-207	ND	1.08			08-Feb-22 17:58	1
PCB-208	ND	1.07			08-Feb-22 17:58	1
PCB-209	ND	0.812			08-Feb-22 17:58	1
Totals						
Total monoCB	ND	2.37				
Total diCB	ND	36.9				
Total triCB	ND	4.68				
Total tetraCB	ND	5.19				
Total pentaCB	ND	4.44				
Total hexaCB	ND	3.32				
Total heptaCB	ND	3.26				
Total octaCB	ND	2.49				
Total nonaCB	ND	1.65				
DecaCB	ND	0.812				
Total PCB	ND					

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-1	IS	88.9	5 - 145		08-Feb-22 17:58	1
13C-PCB-3	IS	84.5	5 - 145		08-Feb-22 17:58	1
13C-PCB-4	IS	76.8	5 - 145		08-Feb-22 17:58	1
13C-PCB-11	IS	80.5	5 - 145		08-Feb-22 17:58	1
13C-PCB-9	IS	81.1	5 - 145		08-Feb-22 17:58	1
13C-PCB-19	IS	85.9	5 - 145		08-Feb-22 17:58	1
13C-PCB-28	IS	88.0	5 - 145		08-Feb-22 17:58	1
13C-PCB-32	IS	89.0	5 - 145		08-Feb-22 17:58	1
13C-PCB-37	IS	78.5	5 - 145		08-Feb-22 17:58	1
13C-PCB-47	IS	84.5	5 - 145		08-Feb-22 17:58	1
13C-PCB-52	IS	86.7	5 - 145		08-Feb-22 17:58	1
13C-PCB-54	IS	86.2	5 - 145		08-Feb-22 17:58	1
13C-PCB-70	IS	90.3	5 - 145		08-Feb-22 17:58	1
13C-PCB-77	IS	87.4	10 - 145		08-Feb-22 17:58	1
13C-PCB-80	IS	89.1	10 - 145		08-Feb-22 17:58	1
13C-PCB-81	IS	84.2	10 - 145		08-Feb-22 17:58	1
13C-PCB-95	IS	78.6	10 - 145		08-Feb-22 17:58	1
13C-PCB-97	IS	74.9	10 - 145		08-Feb-22 17:58	1
13C-PCB-101	IS	79.3	10 - 145		08-Feb-22 17:58	1
13C-PCB-104	IS	82.5	10 - 145		08-Feb-22 17:58	1
13C-PCB-105	IS	75.9	10 - 145		08-Feb-22 17:58	1

Sample ID: Method Blank

EPA Method 1668C

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid

Laboratory Data

Lab Sample: B22B061-BLK1
QC Batch: B22B061
Sample Size: 1.00 g
Date Extracted: 05-Feb-22
Column: ZB-1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-114	IS	79.0	10 - 145		08-Feb-22 17:58	1
13C-PCB-118	IS	81.8	10 - 145		08-Feb-22 17:58	1
13C-PCB-123	IS	83.9	10 - 145		08-Feb-22 17:58	1
13C-PCB-126	IS	69.2	10 - 145		08-Feb-22 17:58	1
13C-PCB-127	IS	78.8	10 - 145		08-Feb-22 17:58	1
13C-PCB-138	IS	80.6	10 - 145		08-Feb-22 17:58	1
13C-PCB-141	IS	83.6	10 - 145		08-Feb-22 17:58	1
13C-PCB-153	IS	79.5	10 - 145		08-Feb-22 17:58	1
13C-PCB-155	IS	87.6	10 - 145		08-Feb-22 17:58	1
13C-PCB-156	IS	82.9	10 - 145		08-Feb-22 17:58	1
13C-PCB-157	IS	87.0	10 - 145		08-Feb-22 17:58	1
13C-PCB-159	IS	83.0	10 - 145		08-Feb-22 17:58	1
13C-PCB-167	IS	84.2	10 - 145		08-Feb-22 17:58	1
13C-PCB-169	IS	82.8	10 - 145		08-Feb-22 17:58	1
13C-PCB-170	IS	87.8	10 - 145		08-Feb-22 17:58	1
13C-PCB-180	IS	84.6	10 - 145		08-Feb-22 17:58	1
13C-PCB-188	IS	85.1	10 - 145		08-Feb-22 17:58	1
13C-PCB-189	IS	119	10 - 145		08-Feb-22 17:58	1
13C-PCB-194	IS	67.7	10 - 145		08-Feb-22 17:58	1
13C-PCB-202	IS	96.8	10 - 145		08-Feb-22 17:58	1
13C-PCB-206	IS	67.0	10 - 145		08-Feb-22 17:58	1
13C-PCB-208	IS	77.1	10 - 145		08-Feb-22 17:58	1
13C-PCB-209	IS	70.0	10 - 145		08-Feb-22 17:58	1
13C-PCB-79	CRS	89.8	10 - 145		08-Feb-22 17:58	1
13C-PCB-178	CRS	90.0	10 - 145		08-Feb-22 17:58	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

The results are reported in dry weight.
The sample size is reported in wet weight.

Sample ID: OPR **EPA Method 1668C**

Client Data
Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid

Laboratory Data
Lab Sample: B22B061-BS1
QC Batch: B22B061 Date Extracted: 05-Feb-22 07:10
Sample Size: 1.00 g Column: ZB-1

Analyte	Amt Found (pg/g)	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
PCB-1	5000	5000	100	60-135		08-Feb-22 15:56	1
PCB-3	4950	5000	99.1	60-135		08-Feb-22 15:56	1
PCB-4/10	10600	10000	106	60-135		08-Feb-22 15:56	1
PCB-15	5290	5000	106	60-135		08-Feb-22 15:56	1
PCB-19	4900	5000	98.0	60-135		08-Feb-22 15:56	1
PCB-37	5470	5000	109	60-135		08-Feb-22 15:56	1
PCB-54	5140	5000	103	60-135		08-Feb-22 15:56	1
PCB-77	5480	5000	110	60-135		08-Feb-22 15:56	1
PCB-81	5270	5000	105	60-135		08-Feb-22 15:56	1
PCB-104	5030	5000	101	60-135		08-Feb-22 15:56	1
PCB-105	5050	5000	101	60-135		08-Feb-22 15:56	1
PCB-106/118	9960	10000	99.6	60-135		08-Feb-22 15:56	1
PCB-114	4910	5000	98.3	60-135		08-Feb-22 15:56	1
PCB-123	4940	5000	98.8	60-135		08-Feb-22 15:56	1
PCB-126	5260	5000	105	60-135		08-Feb-22 15:56	1
PCB-155	5160	5000	103	60-135		08-Feb-22 15:56	1
PCB-156	5160	5000	103	60-135		08-Feb-22 15:56	1
PCB-157	5030	5000	101	60-135		08-Feb-22 15:56	1
PCB-167	5140	5000	103	60-135		08-Feb-22 15:56	1
PCB-169	5070	5000	101	60-135		08-Feb-22 15:56	1
PCB-188	5070	5000	101	60-135		08-Feb-22 15:56	1
PCB-189	4850	5000	97.0	60-135		08-Feb-22 15:56	1
PCB-202	4890	5000	97.7	60-135		08-Feb-22 15:56	1
PCB-205	5350	5000	107	60-135		08-Feb-22 15:56	1
PCB-206	4940	5000	98.8	60-135		08-Feb-22 15:56	1
PCB-208	5130	5000	103	60-135		08-Feb-22 15:56	1
PCB-209	4750	5000	94.9	60-135		08-Feb-22 15:56	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-1	IS	77.9	15-145		08-Feb-22 15:56	1
13C-PCB-3	IS	77.2	15-145		08-Feb-22 15:56	1
13C-PCB-4	IS	69.7	15-145		08-Feb-22 15:56	1
13C-PCB-11	IS	72.0	15-145		08-Feb-22 15:56	1
13C-PCB-9	IS	73.2	15-145		08-Feb-22 15:56	1
13C-PCB-19	IS	79.6	15-145		08-Feb-22 15:56	1
13C-PCB-28	IS	75.3	15-145		08-Feb-22 15:56	1
13C-PCB-32	IS	82.3	15-145		08-Feb-22 15:56	1
13C-PCB-37	IS	73.4	15-145		08-Feb-22 15:56	1
13C-PCB-47	IS	73.8	15-145		08-Feb-22 15:56	1
13C-PCB-52	IS	73.2	15-145		08-Feb-22 15:56	1
13C-PCB-54	IS	72.1	15-145		08-Feb-22 15:56	1
13C-PCB-70	IS	76.3	15-145		08-Feb-22 15:56	1
13C-PCB-77	IS	73.3	40-145		08-Feb-22 15:56	1
13C-PCB-80	IS	77.3	40-145		08-Feb-22 15:56	1
13C-PCB-81	IS	73.5	40-145		08-Feb-22 15:56	1

Sample ID: OPR **EPA Method 1668C**

Client Data
Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid

Laboratory Data
Lab Sample: B22B061-BS1
QC Batch: B22B061 Date Extracted: 05-Feb-22 07:10
Sample Size: 1.00 g Column: ZB-1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-95	IS	71.1	40-145		08-Feb-22 15:56	1
13C-PCB-97	IS	78.6	40-145		08-Feb-22 15:56	1
13C-PCB-101	IS	78.1	40-145		08-Feb-22 15:56	1
13C-PCB-104	IS	76.5	40-145		08-Feb-22 15:56	1
13C-PCB-105	IS	77.0	40-145		08-Feb-22 15:56	1
13C-PCB-114	IS	75.6	40-145		08-Feb-22 15:56	1
13C-PCB-118	IS	78.5	40-145		08-Feb-22 15:56	1
13C-PCB-123	IS	81.2	40-145		08-Feb-22 15:56	1
13C-PCB-126	IS	66.6	40-145		08-Feb-22 15:56	1
13C-PCB-127	IS	74.8	40-145		08-Feb-22 15:56	1
13C-PCB-138	IS	79.3	40-145		08-Feb-22 15:56	1
13C-PCB-141	IS	78.3	40-145		08-Feb-22 15:56	1
13C-PCB-153	IS	81.0	40-145		08-Feb-22 15:56	1
13C-PCB-155	IS	81.3	40-145		08-Feb-22 15:56	1
13C-PCB-156	IS	76.0	40-145		08-Feb-22 15:56	1
13C-PCB-157	IS	81.8	40-145		08-Feb-22 15:56	1
13C-PCB-159	IS	81.1	40-145		08-Feb-22 15:56	1
13C-PCB-167	IS	80.8	40-145		08-Feb-22 15:56	1
13C-PCB-169	IS	66.0	40-145		08-Feb-22 15:56	1
13C-PCB-170	IS	88.8	40-145		08-Feb-22 15:56	1
13C-PCB-180	IS	82.0	40-145		08-Feb-22 15:56	1
13C-PCB-188	IS	89.5	40-145		08-Feb-22 15:56	1
13C-PCB-189	IS	92.5	40-145		08-Feb-22 15:56	1
13C-PCB-194	IS	80.0	40-145		08-Feb-22 15:56	1
13C-PCB-202	IS	99.4	40-145		08-Feb-22 15:56	1
13C-PCB-206	IS	78.8	40-145		08-Feb-22 15:56	1
13C-PCB-208	IS	88.2	40-145		08-Feb-22 15:56	1
13C-PCB-209	IS	79.5	40-145		08-Feb-22 15:56	1
13C-PCB-79	CRS	76.5	40-145		08-Feb-22 15:56	1
13C-PCB-178	CRS	83.2	40-145		08-Feb-22 15:56	1

Sample ID: 21K0379-01 **EPA Method 1668C**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:00

Laboratory Data

Lab Sample: 2112004-01
QC Batch: B22B061
Sample Size: 2.57 g
% Solids: 39.2
Date Received: 01-Dec-21 09:49
Date Extracted: 19-Jan-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-1	15.4			J	10-Feb-22 17:04	1
PCB-2	10.8			J	10-Feb-22 17:04	1
PCB-3	17.6			J	10-Feb-22 17:04	1
PCB-4/10	ND	24.7			10-Feb-22 17:04	1
PCB-5/8	ND	17.3			10-Feb-22 17:04	1
PCB-6	ND	17.0			10-Feb-22 17:04	1
PCB-7/9	ND	18.0			10-Feb-22 17:04	1
PCB-11	ND	13.2			10-Feb-22 17:04	1
PCB-12/13	ND	14.4			10-Feb-22 17:04	1
PCB-14	ND	14.3			10-Feb-22 17:04	1
PCB-15	ND	14.4			10-Feb-22 17:04	1
PCB-16/32	83.5				10-Feb-22 17:04	1
PCB-17	53.7				10-Feb-22 17:04	1
PCB-18	98.4				10-Feb-22 17:04	1
PCB-19	ND	5.15			10-Feb-22 17:04	1
PCB-20/21/33	125				10-Feb-22 17:04	1
PCB-22	ND		64.0		10-Feb-22 17:04	1
PCB-23	ND	4.49			10-Feb-22 17:04	1
PCB-24/27	ND	3.33			10-Feb-22 17:04	1
PCB-25	40.4				10-Feb-22 17:04	1
PCB-26	77.3				10-Feb-22 17:04	1
PCB-28	271				10-Feb-22 17:04	1
PCB-29	ND	4.65			10-Feb-22 17:04	1
PCB-30	ND	3.25			10-Feb-22 17:04	1
PCB-31	183				10-Feb-22 17:04	1
PCB-34	ND	4.56			10-Feb-22 17:04	1
PCB-35	ND	4.14			10-Feb-22 17:04	1
PCB-36	ND	4.06			10-Feb-22 17:04	1
PCB-37	77.5				10-Feb-22 17:04	1
PCB-38	ND	4.13			10-Feb-22 17:04	1
PCB-39	ND	4.32			10-Feb-22 17:04	1
PCB-40	ND		25.0		10-Feb-22 17:04	1
PCB-41/64/71/72	210				10-Feb-22 17:04	1
PCB-42/59	113				10-Feb-22 17:04	1
PCB-43/49	415				10-Feb-22 17:04	1
PCB-44	273				10-Feb-22 17:04	1
PCB-45	27.7				10-Feb-22 17:04	1
PCB-46	17.0			J	10-Feb-22 17:04	1
PCB-47	180				10-Feb-22 17:04	1
PCB-48/75	54.6				10-Feb-22 17:04	1
PCB-50	ND	2.43			10-Feb-22 17:04	1
PCB-51	24.1			J	10-Feb-22 17:04	1
PCB-52/69	469				10-Feb-22 17:04	1
PCB-53	46.9				10-Feb-22 17:04	1
PCB-54	ND	2.00			10-Feb-22 17:04	1
PCB-55	ND	1.74			10-Feb-22 17:04	1
PCB-56/60	192				10-Feb-22 17:04	1
PCB-57	ND	1.78			10-Feb-22 17:04	1
PCB-58	ND	1.77			10-Feb-22 17:04	1
PCB-61/70	492				10-Feb-22 17:04	1
PCB-62	ND	1.95			10-Feb-22 17:04	1

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an Enthalpy Analytical Laboratory

Sample ID: 21K0379-01 **EPA Method 1668C**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:00

Laboratory Data

Lab Sample: 2112004-01
QC Batch: B22B061
Sample Size: 2.57 g
% Solids: 39.2
Date Received: 01-Dec-21 09:49
Date Extracted: 19-Jan-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-63	ND		16.7		10-Feb-22 17:04	1
PCB-65	ND	1.74			10-Feb-22 17:04	1
PCB-66/76	399				10-Feb-22 17:04	1
PCB-67	ND		10.7		10-Feb-22 17:04	1
PCB-68	7.58			J	10-Feb-22 17:04	1
PCB-73	ND	1.61			10-Feb-22 17:04	1
PCB-74	171				10-Feb-22 17:04	1
PCB-77	38.1				10-Feb-22 17:04	1
PCB-78	ND	1.94			10-Feb-22 17:04	1
PCB-79	14.1			J	10-Feb-22 17:04	1
PCB-80	ND	1.72			10-Feb-22 17:04	1
PCB-81	ND	2.08			10-Feb-22 17:04	1
PCB-82	70.0				10-Feb-22 17:04	1
PCB-83	ND	3.11			10-Feb-22 17:04	1
PCB-84/92	343				10-Feb-22 17:04	1
PCB-85/116	ND	3.94			10-Feb-22 17:04	1
PCB-86	ND	4.58			10-Feb-22 17:04	1
PCB-87/117/125	231				10-Feb-22 17:04	1
PCB-88/91	117				10-Feb-22 17:04	1
PCB-89	ND	4.23			10-Feb-22 17:04	1
PCB-90/101	925				10-Feb-22 17:04	1
PCB-93	9.39			J	10-Feb-22 17:04	1
PCB-94	ND	4.79			10-Feb-22 17:04	1
PCB-95/98/102	527				10-Feb-22 17:04	1
PCB-96	ND	3.05			10-Feb-22 17:04	1
PCB-97	231				10-Feb-22 17:04	1
PCB-99	465				10-Feb-22 17:04	1
PCB-100	7.41			J	10-Feb-22 17:04	1
PCB-103	14.2			J	10-Feb-22 17:04	1
PCB-104	ND	1.55			10-Feb-22 17:04	1
PCB-105	246				10-Feb-22 17:04	1
PCB-106/118	783				10-Feb-22 17:04	1
PCB-107/109	63.0				10-Feb-22 17:04	1
PCB-108/112	ND		34.1		10-Feb-22 17:04	1
PCB-110	873				10-Feb-22 17:04	1
PCB-111/115	82.4				10-Feb-22 17:04	1
PCB-113	ND	2.97			10-Feb-22 17:04	1
PCB-114	ND		13.4		10-Feb-22 17:04	1
PCB-119	38.5				10-Feb-22 17:04	1
PCB-120	ND	2.71			10-Feb-22 17:04	1
PCB-121	ND	2.72			10-Feb-22 17:04	1
PCB-122	ND	3.75			10-Feb-22 17:04	1
PCB-123	11.3			J	10-Feb-22 17:04	1
PCB-124	20.4			J	10-Feb-22 17:04	1
PCB-126	ND	3.35			10-Feb-22 17:04	1
PCB-127	ND	3.11			10-Feb-22 17:04	1
PCB-128/162	139				10-Feb-22 17:04	1
PCB-129	34.5				10-Feb-22 17:04	1
PCB-130	71.0				10-Feb-22 17:04	1
PCB-131/133	26.3			J	10-Feb-22 17:04	1
PCB-132/161	211				10-Feb-22 17:04	1

Sample ID: 21K0379-01 **EPA Method 1668C**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:00

Laboratory Data

Lab Sample: 2112004-01
QC Batch: B22B061
Sample Size: 2.57 g
% Solids: 39.2
Date Received: 01-Dec-21 09:49
Date Extracted: 19-Jan-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-134/143	44.7			J	10-Feb-22 17:04	1
PCB-135	109				10-Feb-22 17:04	1
PCB-136	111				10-Feb-22 17:04	1
PCB-137	37.1				10-Feb-22 17:04	1
PCB-138/163/164	807				10-Feb-22 17:04	1
PCB-139/149	631				10-Feb-22 17:04	1
PCB-140	ND	2.73			10-Feb-22 17:04	1
PCB-141	119				10-Feb-22 17:04	1
PCB-142	ND	4.06			10-Feb-22 17:04	1
PCB-144	ND		21.7		10-Feb-22 17:04	1
PCB-145	ND	1.81			10-Feb-22 17:04	1
PCB-146/165	165				10-Feb-22 17:04	1
PCB-147	ND		22.4		10-Feb-22 17:04	1
PCB-148	ND	2.68			10-Feb-22 17:04	1
PCB-150	ND		3.94		10-Feb-22 17:04	1
PCB-151	172				10-Feb-22 17:04	1
PCB-152	ND	1.75			10-Feb-22 17:04	1
PCB-153	797				10-Feb-22 17:04	1
PCB-154	33.3				10-Feb-22 17:04	1
PCB-155	ND	2.09			10-Feb-22 17:04	1
PCB-156	84.5				10-Feb-22 17:04	1
PCB-157	19.8			J	10-Feb-22 17:04	1
PCB-158/160	92.5				10-Feb-22 17:04	1
PCB-159	ND	2.44			10-Feb-22 17:04	1
PCB-166	ND	2.59			10-Feb-22 17:04	1
PCB-167	33.8				10-Feb-22 17:04	1
PCB-168	ND	2.70			10-Feb-22 17:04	1
PCB-169	ND	2.92			10-Feb-22 17:04	1
PCB-170	160				10-Feb-22 17:04	1
PCB-171	ND		46.6		10-Feb-22 17:04	1
PCB-172	ND		22.7		10-Feb-22 17:04	1
PCB-173	ND	2.29			10-Feb-22 17:04	1
PCB-174	ND		141		10-Feb-22 17:04	1
PCB-175	7.85			J	10-Feb-22 17:04	1
PCB-176	ND		22.0		10-Feb-22 17:04	1
PCB-177	112				10-Feb-22 17:04	1
PCB-178	55.7				10-Feb-22 17:04	1
PCB-179	91.5				10-Feb-22 17:04	1
PCB-180	412				10-Feb-22 17:04	1
PCB-181	ND	1.84			10-Feb-22 17:04	1
PCB-182/187	279				10-Feb-22 17:04	1
PCB-183	ND		89.9		10-Feb-22 17:04	1
PCB-184	ND	1.43			10-Feb-22 17:04	1
PCB-185	16.6			J	10-Feb-22 17:04	1
PCB-186	ND	1.33			10-Feb-22 17:04	1
PCB-188	ND	1.42			10-Feb-22 17:04	1
PCB-189	ND		5.66		10-Feb-22 17:04	1
PCB-190	ND		29.8		10-Feb-22 17:04	1
PCB-191	ND		6.48		10-Feb-22 17:04	1
PCB-192	ND	1.51			10-Feb-22 17:04	1
PCB-193	26.8				10-Feb-22 17:04	1

Sample ID: 21K0379-01

EPA Method 1668C

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:00

Laboratory Data

Lab Sample: 2112004-01
QC Batch: B22B061
Sample Size: 2.57 g
% Solids: 39.2
Date Received: 01-Dec-21 09:49
Date Extracted: 19-Jan-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-194	101				10-Feb-22 17:04	1
PCB-195	ND		36.3		10-Feb-22 17:04	1
PCB-196/203	119				10-Feb-22 17:04	1
PCB-197	ND	2.20			10-Feb-22 17:04	1
PCB-198	ND	3.04			10-Feb-22 17:04	1
PCB-199	104				10-Feb-22 17:04	1
PCB-200	ND		11.2		10-Feb-22 17:04	1
PCB-201	17.9			J	10-Feb-22 17:04	1
PCB-202	ND		23.7		10-Feb-22 17:04	1
PCB-204	ND	2.22			10-Feb-22 17:04	1
PCB-205	ND	2.31			10-Feb-22 17:04	1
PCB-206	ND		58.0		10-Feb-22 17:04	1
PCB-207	ND		8.66		10-Feb-22 17:04	1
PCB-208	ND		20.0		10-Feb-22 17:04	1
PCB-209	ND		50.5		10-Feb-22 17:04	1
Totals						
Total monoCB	43.7					
Total diCB	ND	24.7				
Total triCB	1010		1070			
Total tetraCB	3150		3200			
Total pentaCB	5060		5110			
Total hexaCB	3740		3790			
Total heptaCB	1160		1520			
Total octaCB	342		413			
Total nonaCB	ND		86.7			
DecaCB	ND		50.5			
Total PCB	14500					

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-1	IS	58.2	5 - 145		10-Feb-22 17:04	1
13C-PCB-3	IS	61.9	5 - 145		10-Feb-22 17:04	1
13C-PCB-4	IS	53.6	5 - 145		10-Feb-22 17:04	1
13C-PCB-11	IS	75.7	5 - 145		10-Feb-22 17:04	1
13C-PCB-9	IS	59.6	5 - 145		10-Feb-22 17:04	1
13C-PCB-19	IS	62.4	5 - 145		10-Feb-22 17:04	1
13C-PCB-28	IS	58.5	5 - 145		10-Feb-22 17:04	1
13C-PCB-32	IS	69.0	5 - 145		10-Feb-22 17:04	1
13C-PCB-37	IS	73.8	5 - 145		10-Feb-22 17:04	1
13C-PCB-47	IS	76.8	5 - 145		10-Feb-22 17:04	1
13C-PCB-52	IS	74.8	5 - 145		10-Feb-22 17:04	1
13C-PCB-54	IS	63.9	5 - 145		10-Feb-22 17:04	1
13C-PCB-70	IS	67.9	5 - 145		10-Feb-22 17:04	1
13C-PCB-77	IS	63.9	10 - 145		10-Feb-22 17:04	1
13C-PCB-80	IS	66.5	10 - 145		10-Feb-22 17:04	1
13C-PCB-81	IS	65.3	10 - 145		10-Feb-22 17:04	1
13C-PCB-95	IS	64.7	10 - 145		10-Feb-22 17:04	1
13C-PCB-97	IS	63.4	10 - 145		10-Feb-22 17:04	1
13C-PCB-101	IS	65.1	10 - 145		10-Feb-22 17:04	1
13C-PCB-104	IS	76.8	10 - 145		10-Feb-22 17:04	1
13C-PCB-105	IS	64.9	10 - 145		10-Feb-22 17:04	1

Sample ID: 21K0379-01 **EPA Method 1668C**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:00

Laboratory Data

Lab Sample: 2112004-01
QC Batch: B22B061
Sample Size: 2.57 g
% Solids: 39.2
Date Received: 01-Dec-21 09:49
Date Extracted: 19-Jan-22
Column: ZB-1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-114	IS	63.7	10 - 145		10-Feb-22 17:04	1
13C-PCB-118	IS	66.3	10 - 145		10-Feb-22 17:04	1
13C-PCB-123	IS	67.7	10 - 145		10-Feb-22 17:04	1
13C-PCB-126	IS	58.4	10 - 145		10-Feb-22 17:04	1
13C-PCB-127	IS	65.7	10 - 145		10-Feb-22 17:04	1
13C-PCB-138	IS	60.1	10 - 145		10-Feb-22 17:04	1
13C-PCB-141	IS	67.0	10 - 145		10-Feb-22 17:04	1
13C-PCB-153	IS	65.1	10 - 145		10-Feb-22 17:04	1
13C-PCB-155	IS	63.8	10 - 145		10-Feb-22 17:04	1
13C-PCB-156	IS	66.1	10 - 145		10-Feb-22 17:04	1
13C-PCB-157	IS	65.2	10 - 145		10-Feb-22 17:04	1
13C-PCB-159	IS	64.8	10 - 145		10-Feb-22 17:04	1
13C-PCB-167	IS	67.4	10 - 145		10-Feb-22 17:04	1
13C-PCB-169	IS	64.5	10 - 145		10-Feb-22 17:04	1
13C-PCB-170	IS	66.6	10 - 145		10-Feb-22 17:04	1
13C-PCB-180	IS	69.3	10 - 145		10-Feb-22 17:04	1
13C-PCB-188	IS	68.1	10 - 145		10-Feb-22 17:04	1
13C-PCB-189	IS	66.2	10 - 145		10-Feb-22 17:04	1
13C-PCB-194	IS	57.6	10 - 145		10-Feb-22 17:04	1
13C-PCB-202	IS	75.1	10 - 145		10-Feb-22 17:04	1
13C-PCB-206	IS	54.3	10 - 145		10-Feb-22 17:04	1
13C-PCB-208	IS	66.1	10 - 145		10-Feb-22 17:04	1
13C-PCB-209	IS	59.7	10 - 145		10-Feb-22 17:04	1
13C-PCB-79	CRS	66.6	10 - 145		10-Feb-22 17:04	1
13C-PCB-178	CRS	70.4	10 - 145		10-Feb-22 17:04	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

The results are reported in dry weight.
The sample size is reported in wet weight.

Sample ID: 21K0379-02 **EPA Method 1668C**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:10

Laboratory Data

Lab Sample: 2112004-02
QC Batch: B22B061
Sample Size: 2.10 g
% Solids: 48.0
Date Received: 01-Dec-21 09:49
Date Extracted: 19-Jan-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-1	16.6			J	10-Feb-22 19:04	1
PCB-2	ND		12.9		10-Feb-22 19:04	1
PCB-3	20.4			J	10-Feb-22 19:04	1
PCB-4/10	ND	35.3			10-Feb-22 19:04	1
PCB-5/8	ND	24.5			10-Feb-22 19:04	1
PCB-6	ND	24.0			10-Feb-22 19:04	1
PCB-7/9	ND	25.5			10-Feb-22 19:04	1
PCB-11	ND		72.5		10-Feb-22 19:04	1
PCB-12/13	ND	17.6			10-Feb-22 19:04	1
PCB-14	ND	17.5			10-Feb-22 19:04	1
PCB-15	ND	17.6			10-Feb-22 19:04	1
PCB-16/32	ND		50.8		10-Feb-22 19:04	1
PCB-17	ND		37.3		10-Feb-22 19:04	1
PCB-18	63.4				10-Feb-22 19:04	1
PCB-19	ND	7.01			10-Feb-22 19:04	1
PCB-20/21/33	91.5				10-Feb-22 19:04	1
PCB-22	53.3				10-Feb-22 19:04	1
PCB-23	ND	6.88			10-Feb-22 19:04	1
PCB-24/27	ND	4.58			10-Feb-22 19:04	1
PCB-25	29.1				10-Feb-22 19:04	1
PCB-26	44.7				10-Feb-22 19:04	1
PCB-28	182				10-Feb-22 19:04	1
PCB-29	ND	7.13			10-Feb-22 19:04	1
PCB-30	ND	4.42			10-Feb-22 19:04	1
PCB-31	148				10-Feb-22 19:04	1
PCB-34	ND	7.00			10-Feb-22 19:04	1
PCB-35	ND	6.12			10-Feb-22 19:04	1
PCB-36	ND	6.00			10-Feb-22 19:04	1
PCB-37	ND		58.3		10-Feb-22 19:04	1
PCB-38	ND	6.10			10-Feb-22 19:04	1
PCB-39	ND	6.39			10-Feb-22 19:04	1
PCB-40	ND		21.9		10-Feb-22 19:04	1
PCB-41/64/71/72	181				10-Feb-22 19:04	1
PCB-42/59	75.8				10-Feb-22 19:04	1
PCB-43/49	276				10-Feb-22 19:04	1
PCB-44	193				10-Feb-22 19:04	1
PCB-45	ND		17.1		10-Feb-22 19:04	1
PCB-46	10.4			J	10-Feb-22 19:04	1
PCB-47	118				10-Feb-22 19:04	1
PCB-48/75	35.1			J	10-Feb-22 19:04	1
PCB-50	ND	3.85			10-Feb-22 19:04	1
PCB-51	16.6			J	10-Feb-22 19:04	1
PCB-52/69	331				10-Feb-22 19:04	1
PCB-53	38.0				10-Feb-22 19:04	1
PCB-54	ND	3.17			10-Feb-22 19:04	1
PCB-55	ND	2.68			10-Feb-22 19:04	1
PCB-56/60	147				10-Feb-22 19:04	1
PCB-57	ND	2.80			10-Feb-22 19:04	1
PCB-58	ND	2.79			10-Feb-22 19:04	1
PCB-61/70	375				10-Feb-22 19:04	1
PCB-62	ND	2.87			10-Feb-22 19:04	1

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an Enthalpy Analytical Laboratory

Sample ID: 21K0379-02 **EPA Method 1668C**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:10

Laboratory Data

Lab Sample: 2112004-02
QC Batch: B22B061
Sample Size: 2.10 g
% Solids: 48.0
Date Received: 01-Dec-21 09:49
Date Extracted: 19-Jan-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-63	ND		9.18		10-Feb-22 19:04	1
PCB-65	ND	2.57			10-Feb-22 19:04	1
PCB-66/76	292				10-Feb-22 19:04	1
PCB-67	9.02			J	10-Feb-22 19:04	1
PCB-68	ND	2.50			10-Feb-22 19:04	1
PCB-73	ND	2.52			10-Feb-22 19:04	1
PCB-74	110				10-Feb-22 19:04	1
PCB-77	34.6				10-Feb-22 19:04	1
PCB-78	ND	3.10			10-Feb-22 19:04	1
PCB-79	ND		7.45		10-Feb-22 19:04	1
PCB-80	ND	2.64			10-Feb-22 19:04	1
PCB-81	ND	3.32			10-Feb-22 19:04	1
PCB-82	ND		37.7		10-Feb-22 19:04	1
PCB-83	ND	4.09			10-Feb-22 19:04	1
PCB-84/92	266				10-Feb-22 19:04	1
PCB-85/116	ND		69.9		10-Feb-22 19:04	1
PCB-86	ND	6.02			10-Feb-22 19:04	1
PCB-87/117/125	161				10-Feb-22 19:04	1
PCB-88/91	106				10-Feb-22 19:04	1
PCB-89	ND	6.03			10-Feb-22 19:04	1
PCB-90/101	657				10-Feb-22 19:04	1
PCB-93	ND	7.81			10-Feb-22 19:04	1
PCB-94	ND	7.16			10-Feb-22 19:04	1
PCB-95/98/102	425				10-Feb-22 19:04	1
PCB-96	ND	3.81			10-Feb-22 19:04	1
PCB-97	176				10-Feb-22 19:04	1
PCB-99	369				10-Feb-22 19:04	1
PCB-100	ND	4.65			10-Feb-22 19:04	1
PCB-103	ND	4.87			10-Feb-22 19:04	1
PCB-104	ND	3.82			10-Feb-22 19:04	1
PCB-105	216				10-Feb-22 19:04	1
PCB-106/118	582				10-Feb-22 19:04	1
PCB-107/109	47.0			J	10-Feb-22 19:04	1
PCB-108/112	32.5			J	10-Feb-22 19:04	1
PCB-110	664				10-Feb-22 19:04	1
PCB-111/115	ND	3.94			10-Feb-22 19:04	1
PCB-113	ND	4.24			10-Feb-22 19:04	1
PCB-114	ND	5.10			10-Feb-22 19:04	1
PCB-119	27.1				10-Feb-22 19:04	1
PCB-120	ND	3.55			10-Feb-22 19:04	1
PCB-121	ND	4.06			10-Feb-22 19:04	1
PCB-122	ND	5.94			10-Feb-22 19:04	1
PCB-123	ND	4.22			10-Feb-22 19:04	1
PCB-124	ND	3.91			10-Feb-22 19:04	1
PCB-126	ND	5.04			10-Feb-22 19:04	1
PCB-127	ND	4.80			10-Feb-22 19:04	1
PCB-128/162	109				10-Feb-22 19:04	1
PCB-129	ND		17.4		10-Feb-22 19:04	1
PCB-130	49.2				10-Feb-22 19:04	1
PCB-131/133	ND		21.8		10-Feb-22 19:04	1
PCB-132/161	170				10-Feb-22 19:04	1

Sample ID: 21K0379-02 **EPA Method 1668C**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:10

Laboratory Data

Lab Sample: 2112004-02
QC Batch: B22B061
Sample Size: 2.10 g
% Solids: 48.0
Date Received: 01-Dec-21 09:49
Date Extracted: 19-Jan-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-134/143	39.7			J	10-Feb-22 19:04	1
PCB-135	75.1				10-Feb-22 19:04	1
PCB-136	92.0				10-Feb-22 19:04	1
PCB-137	30.2				10-Feb-22 19:04	1
PCB-138/163/164	660				10-Feb-22 19:04	1
PCB-139/149	526				10-Feb-22 19:04	1
PCB-140	ND	2.72			10-Feb-22 19:04	1
PCB-141	101				10-Feb-22 19:04	1
PCB-142	ND	4.57			10-Feb-22 19:04	1
PCB-144	28.1				10-Feb-22 19:04	1
PCB-145	ND	1.81			10-Feb-22 19:04	1
PCB-146/165	133				10-Feb-22 19:04	1
PCB-147	22.7			J	10-Feb-22 19:04	1
PCB-148	ND	2.67			10-Feb-22 19:04	1
PCB-150	ND		5.00		10-Feb-22 19:04	1
PCB-151	136				10-Feb-22 19:04	1
PCB-152	ND	1.75			10-Feb-22 19:04	1
PCB-153	629				10-Feb-22 19:04	1
PCB-154	25.2				10-Feb-22 19:04	1
PCB-155	ND	2.08			10-Feb-22 19:04	1
PCB-156	67.1				10-Feb-22 19:04	1
PCB-157	ND		19.7		10-Feb-22 19:04	1
PCB-158/160	80.3				10-Feb-22 19:04	1
PCB-159	ND	2.78			10-Feb-22 19:04	1
PCB-166	ND	2.95			10-Feb-22 19:04	1
PCB-167	ND		22.8		10-Feb-22 19:04	1
PCB-168	ND	3.03			10-Feb-22 19:04	1
PCB-169	ND	3.39			10-Feb-22 19:04	1
PCB-170	167				10-Feb-22 19:04	1
PCB-171	46.9				10-Feb-22 19:04	1
PCB-172	25.3				10-Feb-22 19:04	1
PCB-173	ND	4.48			10-Feb-22 19:04	1
PCB-174	155				10-Feb-22 19:04	1
PCB-175	ND		6.90		10-Feb-22 19:04	1
PCB-176	27.6				10-Feb-22 19:04	1
PCB-177	ND		101		10-Feb-22 19:04	1
PCB-178	ND		32.9		10-Feb-22 19:04	1
PCB-179	75.5				10-Feb-22 19:04	1
PCB-180	350				10-Feb-22 19:04	1
PCB-181	ND	3.60			10-Feb-22 19:04	1
PCB-182/187	ND		217		10-Feb-22 19:04	1
PCB-183	98.7				10-Feb-22 19:04	1
PCB-184	ND	2.73			10-Feb-22 19:04	1
PCB-185	13.3			J	10-Feb-22 19:04	1
PCB-186	ND	2.53			10-Feb-22 19:04	1
PCB-188	ND	2.71			10-Feb-22 19:04	1
PCB-189	ND	2.59			10-Feb-22 19:04	1
PCB-190	ND		28.6		10-Feb-22 19:04	1
PCB-191	8.22			J	10-Feb-22 19:04	1
PCB-192	ND	2.96			10-Feb-22 19:04	1
PCB-193	21.1			J	10-Feb-22 19:04	1

Sample ID: 21K0379-02

EPA Method 1668C

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:10

Laboratory Data

Lab Sample: 2112004-02
QC Batch: B22B061
Sample Size: 2.10 g
% Solids: 48.0
Date Received: 01-Dec-21 09:49
Date Extracted: 19-Jan-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-194	103				10-Feb-22 19:04	1
PCB-195	34.7				10-Feb-22 19:04	1
PCB-196/203	ND		107		10-Feb-22 19:04	1
PCB-197	ND	2.02			10-Feb-22 19:04	1
PCB-198	ND	2.80			10-Feb-22 19:04	1
PCB-199	112				10-Feb-22 19:04	1
PCB-200	10.5			J	10-Feb-22 19:04	1
PCB-201	ND		16.2		10-Feb-22 19:04	1
PCB-202	26.5				10-Feb-22 19:04	1
PCB-204	ND	2.04			10-Feb-22 19:04	1
PCB-205	ND	3.80			10-Feb-22 19:04	1
PCB-206	ND		58.4		10-Feb-22 19:04	1
PCB-207	ND		8.72		10-Feb-22 19:04	1
PCB-208	ND		21.3		10-Feb-22 19:04	1
PCB-209	ND		48.5		10-Feb-22 19:04	1
Totals						
Total monoCB	37.0		49.9			
Total diCB	ND		72.5			
Total triCB	612		758			
Total tetraCB	2240		2300			
Total pentaCB	3730		3840			
Total hexaCB	2970		3060			
Total heptaCB	988		1370			
Total octaCB	286		409			
Total nonaCB	ND		88.4			
DecaCB	ND		48.5			
Total PCB	10900					

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-1	IS	62.1	5 - 145		10-Feb-22 19:04	1
13C-PCB-3	IS	57.0	5 - 145		10-Feb-22 19:04	1
13C-PCB-4	IS	49.7	5 - 145		10-Feb-22 19:04	1
13C-PCB-11	IS	77.1	5 - 145		10-Feb-22 19:04	1
13C-PCB-9	IS	55.4	5 - 145		10-Feb-22 19:04	1
13C-PCB-19	IS	60.7	5 - 145		10-Feb-22 19:04	1
13C-PCB-28	IS	62.7	5 - 145		10-Feb-22 19:04	1
13C-PCB-32	IS	66.9	5 - 145		10-Feb-22 19:04	1
13C-PCB-37	IS	81.7	5 - 145		10-Feb-22 19:04	1
13C-PCB-47	IS	81.6	5 - 145		10-Feb-22 19:04	1
13C-PCB-52	IS	76.5	5 - 145		10-Feb-22 19:04	1
13C-PCB-54	IS	65.4	5 - 145		10-Feb-22 19:04	1
13C-PCB-70	IS	69.0	5 - 145		10-Feb-22 19:04	1
13C-PCB-77	IS	67.9	10 - 145		10-Feb-22 19:04	1
13C-PCB-80	IS	70.2	10 - 145		10-Feb-22 19:04	1
13C-PCB-81	IS	65.7	10 - 145		10-Feb-22 19:04	1
13C-PCB-95	IS	65.3	10 - 145		10-Feb-22 19:04	1
13C-PCB-97	IS	70.9	10 - 145		10-Feb-22 19:04	1
13C-PCB-101	IS	69.6	10 - 145		10-Feb-22 19:04	1
13C-PCB-104	IS	88.7	10 - 145		10-Feb-22 19:04	1
13C-PCB-105	IS	69.4	10 - 145		10-Feb-22 19:04	1

Sample ID: 21K0379-02 **EPA Method 1668C**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:10

Laboratory Data

Lab Sample: 2112004-02
QC Batch: B22B061
Sample Size: 2.10 g
% Solids: 48.0
Date Received: 01-Dec-21 09:49
Date Extracted: 19-Jan-22
Column: ZB-1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-114	IS	67.2	10 - 145		10-Feb-22 19:04	1
13C-PCB-118	IS	73.6	10 - 145		10-Feb-22 19:04	1
13C-PCB-123	IS	75.6	10 - 145		10-Feb-22 19:04	1
13C-PCB-126	IS	62.2	10 - 145		10-Feb-22 19:04	1
13C-PCB-127	IS	69.5	10 - 145		10-Feb-22 19:04	1
13C-PCB-138	IS	72.2	10 - 145		10-Feb-22 19:04	1
13C-PCB-141	IS	71.1	10 - 145		10-Feb-22 19:04	1
13C-PCB-153	IS	71.5	10 - 145		10-Feb-22 19:04	1
13C-PCB-155	IS	73.6	10 - 145		10-Feb-22 19:04	1
13C-PCB-156	IS	70.5	10 - 145		10-Feb-22 19:04	1
13C-PCB-157	IS	72.3	10 - 145		10-Feb-22 19:04	1
13C-PCB-159	IS	72.4	10 - 145		10-Feb-22 19:04	1
13C-PCB-167	IS	67.3	10 - 145		10-Feb-22 19:04	1
13C-PCB-169	IS	72.0	10 - 145		10-Feb-22 19:04	1
13C-PCB-170	IS	73.2	10 - 145		10-Feb-22 19:04	1
13C-PCB-180	IS	72.3	10 - 145		10-Feb-22 19:04	1
13C-PCB-188	IS	71.7	10 - 145		10-Feb-22 19:04	1
13C-PCB-189	IS	77.8	10 - 145		10-Feb-22 19:04	1
13C-PCB-194	IS	66.0	10 - 145		10-Feb-22 19:04	1
13C-PCB-202	IS	81.8	10 - 145		10-Feb-22 19:04	1
13C-PCB-206	IS	64.5	10 - 145		10-Feb-22 19:04	1
13C-PCB-208	IS	68.6	10 - 145		10-Feb-22 19:04	1
13C-PCB-209	IS	63.3	10 - 145		10-Feb-22 19:04	1
13C-PCB-79	CRS	68.3	10 - 145		10-Feb-22 19:04	1
13C-PCB-178	CRS	73.5	10 - 145		10-Feb-22 19:04	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

The results are reported in dry weight.
The sample size is reported in wet weight.

Sample ID: 21K0379-03 **EPA Method 1668C**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:18

Laboratory Data

Lab Sample: 2112004-03
QC Batch: B22B061
Sample Size: 2.10 g
% Solids: 47.9
Date Received: 01-Dec-21 09:49
Date Extracted: 19-Jan-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-1	10.0			J	10-Feb-22 21:05	1
PCB-2	ND		9.65		10-Feb-22 21:05	1
PCB-3	ND		13.2		10-Feb-22 21:05	1
PCB-4/10	ND	25.8			10-Feb-22 21:05	1
PCB-5/8	ND	18.2			10-Feb-22 21:05	1
PCB-6	ND	17.8			10-Feb-22 21:05	1
PCB-7/9	ND	18.9			10-Feb-22 21:05	1
PCB-11	ND	12.9			10-Feb-22 21:05	1
PCB-12/13	ND	14.1			10-Feb-22 21:05	1
PCB-14	ND	14.0			10-Feb-22 21:05	1
PCB-15	ND	14.1			10-Feb-22 21:05	1
PCB-16/32	ND		38.6		10-Feb-22 21:05	1
PCB-17	ND		29.9		10-Feb-22 21:05	1
PCB-18	49.9				10-Feb-22 21:05	1
PCB-19	ND	6.18			10-Feb-22 21:05	1
PCB-20/21/33	74.8				10-Feb-22 21:05	1
PCB-22	44.4				10-Feb-22 21:05	1
PCB-23	ND	6.41			10-Feb-22 21:05	1
PCB-24/27	ND	4.03			10-Feb-22 21:05	1
PCB-25	23.5			J	10-Feb-22 21:05	1
PCB-26	39.0				10-Feb-22 21:05	1
PCB-28	163				10-Feb-22 21:05	1
PCB-29	ND	6.63			10-Feb-22 21:05	1
PCB-30	ND	3.90			10-Feb-22 21:05	1
PCB-31	118				10-Feb-22 21:05	1
PCB-34	ND	6.51			10-Feb-22 21:05	1
PCB-35	ND	5.53			10-Feb-22 21:05	1
PCB-36	ND	5.42			10-Feb-22 21:05	1
PCB-37	58.5				10-Feb-22 21:05	1
PCB-38	ND	5.51			10-Feb-22 21:05	1
PCB-39	ND	5.77			10-Feb-22 21:05	1
PCB-40	ND		15.3		10-Feb-22 21:05	1
PCB-41/64/71/72	169				10-Feb-22 21:05	1
PCB-42/59	74.5				10-Feb-22 21:05	1
PCB-43/49	218				10-Feb-22 21:05	1
PCB-44	200				10-Feb-22 21:05	1
PCB-45	15.8			J	10-Feb-22 21:05	1
PCB-46	ND	3.37			10-Feb-22 21:05	1
PCB-47	111				10-Feb-22 21:05	1
PCB-48/75	33.2			J	10-Feb-22 21:05	1
PCB-50	ND	2.94			10-Feb-22 21:05	1
PCB-51	9.43			J	10-Feb-22 21:05	1
PCB-52/69	275				10-Feb-22 21:05	1
PCB-53	25.0				10-Feb-22 21:05	1
PCB-54	ND	2.42			10-Feb-22 21:05	1
PCB-55	ND		5.63		10-Feb-22 21:05	1
PCB-56/60	132				10-Feb-22 21:05	1
PCB-57	ND	2.17			10-Feb-22 21:05	1
PCB-58	ND	2.16			10-Feb-22 21:05	1
PCB-61/70	334				10-Feb-22 21:05	1
PCB-62	ND	2.67			10-Feb-22 21:05	1

Sample ID: 21K0379-03 **EPA Method 1668C**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:18

Laboratory Data

Lab Sample: 2112004-03
QC Batch: B22B061
Sample Size: 2.10 g
% Solids: 47.9
Date Received: 01-Dec-21 09:49
Date Extracted: 19-Jan-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-63	9.09			J	10-Feb-22 21:05	1
PCB-65	ND	2.39			10-Feb-22 21:05	1
PCB-66/76	261				10-Feb-22 21:05	1
PCB-67	9.09			J	10-Feb-22 21:05	1
PCB-68	ND	2.33			10-Feb-22 21:05	1
PCB-73	ND	1.99			10-Feb-22 21:05	1
PCB-74	113				10-Feb-22 21:05	1
PCB-77	ND		31.9		10-Feb-22 21:05	1
PCB-78	ND	2.53			10-Feb-22 21:05	1
PCB-79	4.94			J	10-Feb-22 21:05	1
PCB-80	ND	2.10			10-Feb-22 21:05	1
PCB-81	ND	2.70			10-Feb-22 21:05	1
PCB-82	ND		45.7		10-Feb-22 21:05	1
PCB-83	ND	2.79			10-Feb-22 21:05	1
PCB-84/92	257				10-Feb-22 21:05	1
PCB-85/116	77.2				10-Feb-22 21:05	1
PCB-86	ND	4.11			10-Feb-22 21:05	1
PCB-87/117/125	153				10-Feb-22 21:05	1
PCB-88/91	100				10-Feb-22 21:05	1
PCB-89	ND	3.99			10-Feb-22 21:05	1
PCB-90/101	616				10-Feb-22 21:05	1
PCB-93	ND	4.99			10-Feb-22 21:05	1
PCB-94	ND	4.57			10-Feb-22 21:05	1
PCB-95/98/102	364				10-Feb-22 21:05	1
PCB-96	ND	2.82			10-Feb-22 21:05	1
PCB-97	162				10-Feb-22 21:05	1
PCB-99	323				10-Feb-22 21:05	1
PCB-100	ND	3.44			10-Feb-22 21:05	1
PCB-103	ND		11.4		10-Feb-22 21:05	1
PCB-104	ND	2.82			10-Feb-22 21:05	1
PCB-105	188				10-Feb-22 21:05	1
PCB-106/118	531				10-Feb-22 21:05	1
PCB-107/109	39.1			J	10-Feb-22 21:05	1
PCB-108/112	ND		30.4		10-Feb-22 21:05	1
PCB-110	584				10-Feb-22 21:05	1
PCB-111/115	ND	2.69			10-Feb-22 21:05	1
PCB-113	ND	2.81			10-Feb-22 21:05	1
PCB-114	ND		9.18		10-Feb-22 21:05	1
PCB-119	26.4				10-Feb-22 21:05	1
PCB-120	ND	2.43			10-Feb-22 21:05	1
PCB-121	ND	2.59			10-Feb-22 21:05	1
PCB-122	ND	3.86			10-Feb-22 21:05	1
PCB-123	ND		10.2		10-Feb-22 21:05	1
PCB-124	ND		14.7		10-Feb-22 21:05	1
PCB-126	ND	3.60			10-Feb-22 21:05	1
PCB-127	ND	3.24			10-Feb-22 21:05	1
PCB-128/162	99.4				10-Feb-22 21:05	1
PCB-129	26.1				10-Feb-22 21:05	1
PCB-130	50.9				10-Feb-22 21:05	1
PCB-131/133	24.1			J	10-Feb-22 21:05	1
PCB-132/161	140				10-Feb-22 21:05	1

Sample ID: 21K0379-03 **EPA Method 1668C**

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:18

Laboratory Data

Lab Sample: 2112004-03
QC Batch: B22B061
Sample Size: 2.10 g
% Solids: 47.9
Date Received: 01-Dec-21 09:49
Date Extracted: 19-Jan-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-134/143	ND		31.7		10-Feb-22 21:05	1
PCB-135	70.0				10-Feb-22 21:05	1
PCB-136	70.9				10-Feb-22 21:05	1
PCB-137	35.9				10-Feb-22 21:05	1
PCB-138/163/164	593				10-Feb-22 21:05	1
PCB-139/149	430				10-Feb-22 21:05	1
PCB-140	ND	3.01			10-Feb-22 21:05	1
PCB-141	94.9				10-Feb-22 21:05	1
PCB-142	ND	3.46			10-Feb-22 21:05	1
PCB-144	ND		18.7		10-Feb-22 21:05	1
PCB-145	ND	2.00			10-Feb-22 21:05	1
PCB-146/165	106				10-Feb-22 21:05	1
PCB-147	ND		14.7		10-Feb-22 21:05	1
PCB-148	ND	2.95			10-Feb-22 21:05	1
PCB-150	ND	2.10			10-Feb-22 21:05	1
PCB-151	112				10-Feb-22 21:05	1
PCB-152	ND	1.93			10-Feb-22 21:05	1
PCB-153	580				10-Feb-22 21:05	1
PCB-154	21.2			J	10-Feb-22 21:05	1
PCB-155	ND	2.30			10-Feb-22 21:05	1
PCB-156	52.6				10-Feb-22 21:05	1
PCB-157	ND		16.1		10-Feb-22 21:05	1
PCB-158/160	ND		59.3		10-Feb-22 21:05	1
PCB-159	ND	2.12			10-Feb-22 21:05	1
PCB-166	ND	2.25			10-Feb-22 21:05	1
PCB-167	ND		21.8		10-Feb-22 21:05	1
PCB-168	ND	2.30			10-Feb-22 21:05	1
PCB-169	ND	2.50			10-Feb-22 21:05	1
PCB-170	122				10-Feb-22 21:05	1
PCB-171	ND		29.1		10-Feb-22 21:05	1
PCB-172	ND		17.4		10-Feb-22 21:05	1
PCB-173	ND	2.28			10-Feb-22 21:05	1
PCB-174	134				10-Feb-22 21:05	1
PCB-175	ND		7.58		10-Feb-22 21:05	1
PCB-176	ND		14.4		10-Feb-22 21:05	1
PCB-177	75.8				10-Feb-22 21:05	1
PCB-178	ND		27.1		10-Feb-22 21:05	1
PCB-179	71.8				10-Feb-22 21:05	1
PCB-180	318				10-Feb-22 21:05	1
PCB-181	ND	1.83			10-Feb-22 21:05	1
PCB-182/187	203				10-Feb-22 21:05	1
PCB-183	93.8				10-Feb-22 21:05	1
PCB-184	ND	1.55			10-Feb-22 21:05	1
PCB-185	ND		15.1		10-Feb-22 21:05	1
PCB-186	ND	1.43			10-Feb-22 21:05	1
PCB-188	ND	1.53			10-Feb-22 21:05	1
PCB-189	4.47			J	10-Feb-22 21:05	1
PCB-190	ND		20.9		10-Feb-22 21:05	1
PCB-191	6.08			J	10-Feb-22 21:05	1
PCB-192	ND	1.51			10-Feb-22 21:05	1
PCB-193	ND		13.0		10-Feb-22 21:05	1

Vista
an Enthalpy Analytical Laboratory

Sample ID: 21K0379-03

EPA Method 1668C

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:18

Laboratory Data

Lab Sample: 2112004-03
QC Batch: B22B061
Sample Size: 2.10 g
% Solids: 47.9
Date Received: 01-Dec-21 09:49
Date Extracted: 19-Jan-22
Column: ZB-1

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
PCB-194	75.6				10-Feb-22 21:05	1
PCB-195	26.2				10-Feb-22 21:05	1
PCB-196/203	114				10-Feb-22 21:05	1
PCB-197	ND	2.42			10-Feb-22 21:05	1
PCB-198	ND	3.36			10-Feb-22 21:05	1
PCB-199	96.8				10-Feb-22 21:05	1
PCB-200	ND		9.01		10-Feb-22 21:05	1
PCB-201	15.1			J	10-Feb-22 21:05	1
PCB-202	ND		18.9		10-Feb-22 21:05	1
PCB-204	ND	2.45			10-Feb-22 21:05	1
PCB-205	ND	2.30			10-Feb-22 21:05	1
PCB-206	ND		54.2		10-Feb-22 21:05	1
PCB-207	ND		7.72		10-Feb-22 21:05	1
PCB-208	ND		18.7		10-Feb-22 21:05	1
PCB-209	46.8				10-Feb-22 21:05	1
Totals						
Total monoCB	10.0		32.9			
Total diCB	ND	25.8				
Total triCB	571		639			
Total tetraCB	1990		2040			
Total pentaCB	3420		3540			
Total hexaCB	2510		2670			
Total heptaCB	1030		1170			
Total octaCB	328		356			
Total nonaCB	ND		80.5			
DecaCB	46.8					
Total PCB	9900					

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-1	IS	70.1	5 - 145		10-Feb-22 21:05	1
13C-PCB-3	IS	65.0	5 - 145		10-Feb-22 21:05	1
13C-PCB-4	IS	56.2	5 - 145		10-Feb-22 21:05	1
13C-PCB-11	IS	81.9	5 - 145		10-Feb-22 21:05	1
13C-PCB-9	IS	61.4	5 - 145		10-Feb-22 21:05	1
13C-PCB-19	IS	65.4	5 - 145		10-Feb-22 21:05	1
13C-PCB-28	IS	69.9	5 - 145		10-Feb-22 21:05	1
13C-PCB-32	IS	72.0	5 - 145		10-Feb-22 21:05	1
13C-PCB-37	IS	89.6	5 - 145		10-Feb-22 21:05	1
13C-PCB-47	IS	76.6	5 - 145		10-Feb-22 21:05	1
13C-PCB-52	IS	81.1	5 - 145		10-Feb-22 21:05	1
13C-PCB-54	IS	68.9	5 - 145		10-Feb-22 21:05	1
13C-PCB-70	IS	70.8	5 - 145		10-Feb-22 21:05	1
13C-PCB-77	IS	64.8	10 - 145		10-Feb-22 21:05	1
13C-PCB-80	IS	71.2	10 - 145		10-Feb-22 21:05	1
13C-PCB-81	IS	69.4	10 - 145		10-Feb-22 21:05	1
13C-PCB-95	IS	66.7	10 - 145		10-Feb-22 21:05	1
13C-PCB-97	IS	69.0	10 - 145		10-Feb-22 21:05	1
13C-PCB-101	IS	67.4	10 - 145		10-Feb-22 21:05	1
13C-PCB-104	IS	80.6	10 - 145		10-Feb-22 21:05	1
13C-PCB-105	IS	68.6	10 - 145		10-Feb-22 21:05	1

Sample ID: 21K0379-03

EPA Method 1668C

Client Data

Name: Analytical Resources, Inc.
Project: 21K0379
Matrix: Solid
Date Collected: 22-Nov-21 10:18

Laboratory Data

Lab Sample: 2112004-03
QC Batch: B22B061
Sample Size: 2.10 g
% Solids: 47.9
Date Received: 01-Dec-21 09:49
Date Extracted: 19-Jan-22
Column: ZB-1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-PCB-114	IS	68.9	10 - 145		10-Feb-22 21:05	1
13C-PCB-118	IS	72.2	10 - 145		10-Feb-22 21:05	1
13C-PCB-123	IS	71.9	10 - 145		10-Feb-22 21:05	1
13C-PCB-126	IS	60.2	10 - 145		10-Feb-22 21:05	1
13C-PCB-127	IS	67.6	10 - 145		10-Feb-22 21:05	1
13C-PCB-138	IS	72.5	10 - 145		10-Feb-22 21:05	1
13C-PCB-141	IS	68.1	10 - 145		10-Feb-22 21:05	1
13C-PCB-153	IS	70.6	10 - 145		10-Feb-22 21:05	1
13C-PCB-155	IS	73.5	10 - 145		10-Feb-22 21:05	1
13C-PCB-156	IS	70.3	10 - 145		10-Feb-22 21:05	1
13C-PCB-157	IS	75.0	10 - 145		10-Feb-22 21:05	1
13C-PCB-159	IS	72.6	10 - 145		10-Feb-22 21:05	1
13C-PCB-167	IS	67.9	10 - 145		10-Feb-22 21:05	1
13C-PCB-169	IS	74.1	10 - 145		10-Feb-22 21:05	1
13C-PCB-170	IS	74.1	10 - 145		10-Feb-22 21:05	1
13C-PCB-180	IS	75.4	10 - 145		10-Feb-22 21:05	1
13C-PCB-188	IS	68.0	10 - 145		10-Feb-22 21:05	1
13C-PCB-189	IS	73.3	10 - 145		10-Feb-22 21:05	1
13C-PCB-194	IS	68.1	10 - 145		10-Feb-22 21:05	1
13C-PCB-202	IS	79.9	10 - 145		10-Feb-22 21:05	1
13C-PCB-206	IS	66.0	10 - 145		10-Feb-22 21:05	1
13C-PCB-208	IS	68.8	10 - 145		10-Feb-22 21:05	1
13C-PCB-209	IS	71.5	10 - 145		10-Feb-22 21:05	1
13C-PCB-79	CRS	70.5	10 - 145		10-Feb-22 21:05	1
13C-PCB-178	CRS	75.2	10 - 145		10-Feb-22 21:05	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

The results are reported in dry weight.
The sample size is reported in wet weight.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-26
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Massachusetts Department of Environmental Protection	M-CA413
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1980678
New Hampshire Environmental Accreditation Program	207720
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-016
Pennsylvania Department of Environmental Protection	017
Texas Commission on Environmental Quality	T104704189-21-12
Vermont Department of Health	VT-4042
Virginia Department of General Services	10769
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p- Dioxins & Polychlorinated Dibenzofurans	EPA 23
Polychlorinated Dibenzodioxins in Ambient Air by GC/HRMS	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613/1613B
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537.1
Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry	EPA 533
Perfluorooctanesulonate (PFOS) and Perfluorooctanoate (PFOA) - Method for Unfiltered Samples Using Solid Phase Extraction and Liquid Chromatography/Mass Spectrometry	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Analytical Resources, LLC
Analytical Chemists and Consultants

SUBCONTRACT ORDER
To: Vista Analytical Laboratory
ARI Work Order:21K0379 2112004 1.8°C

SENDING LABORATORY:

Analytical Resources, LLC
4611 S. 134th Place, Suite 100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax: (206) 695-6202
Project Manager: Kelly Bottem
E-Mail: kelly.bottem@arilabs.com

RECEIVING LABORATORY:

Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
Phone :(916) 673-1520
Fax: -

PLEASE SEND DATA TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 21K0379-01 **Sampled: 11/22/21 10:00 Matrix: Solid**				
537 PFOA/PFAAs in Solids by LC/MS/MS (Su	12/08/21	12/06/21 10:00		
1668 PCB Congeners (Subc)	12/08/21	11/22/22 10:00		

Containers Supplied:

21K0379-01 B
Glass WM, Amber, 8 oz

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 21K0379-02 **Sampled: 11/22/21 10:10 Matrix: Solid**				
1668 PCB Congeners (Subc)	12/08/21	11/22/22 10:10		
537 PFOA/PFAAs in Solids by LC/MS/MS (Su	12/08/21	12/06/21 10:10		

Containers Supplied:

21K0379-02 B
Glass WM, Amber, 8 oz

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 21K0379-03 **Sampled: 11/22/21 10:18 Matrix: Solid**				
537 PFOA/PFAAs in Solids by LC/MS/MS (Su	12/08/21	12/06/21 10:18		
1668 PCB Congeners (Subc)	12/08/21	11/22/22 10:18		

Containers Supplied:

21K0379-03 B
Glass WM, Amber, 8 oz

Full package and EDD.
Thank you!

Released By	Date	Received By	Date
D. [signature] ARI	11/29/21 1411 ~~11/24/21 1315~~	Justin Briseño [signature]	12/01/21 0949
Released By	Date	Received By	Date

Printed: 11/23/2021 12:06:56PM

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 2112004 TAT STD

Samples Arrival:	**Date/Time** 12/01/21 0949		**Initials:** JB			**Location:** WR-2 **Shelf/Rack:** N/A	
Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Techni Ice	Dry Ice	None
Temp °C: 1.8 (uncorrected) **Temp °C:** 1.8 (corrected)			**Probe used: Y / N**			**Thermometer ID:** IR-3	

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?		✓	✓
Airbill — Trk # 1Z8326950359554612	✓		
Shipping Documentation Present?	✓		
Shipping Container: Vista / Client / Retain / Return			Dispose
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	**Date/Time** 12/01/21 1002	**Initials:** JB	**Location:** WR-2 **Shelf/Rack:** G-4
COC Anomaly/Sample Acceptance Form completed?		—	—

Comments:

CoC/Label Reconciliation Report WO# 2112004

LabNumber	CoC Sample ID		SampleAlias	Sample Date/Time		Container	BaseMatrix	Sample Comments
2112004-01	A 21K0379-01	☑		22-Nov-21 10:00	☑	Amber Glass, 250mL	Solid	
2112004-02	A 21K0379-02	☑		22-Nov-21 10:10	☑	Amber Glass, 250mL	Solid	
2112004-03	A 21K0379-03	☑		22-Nov-21 10:18	☑	Amber Glass, 250mL	Solid	

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?		/	/
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)	✓		

Comments:

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 None (ALL) Other

Verifed by/Date: 12/01/21

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-1-112221

21K0379-01 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:00

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 14:06

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-01 A 01
	Preparation Batch: BJK0689	Sample Size: 24.65 g (wet)	Dry Weight:10.02 g
	Prepared: 11/30/2021	Final Volume: 1 mL	% Solids: 40.65
Sample Cleanup:	Cleanup Method: GPC		Extract ID:21K0379-01 A 01
	Cleanup Batch: CJL0018	Initial Volume: 1 uL	
	Cleaned: 01-Dec-2021	Final Volume: 1 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	4.4	20.0	46.2	ug/kg	
bis(2-chloroethyl) ether	111-44-4	1	19.3	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	13.8	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	3.1	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	3.1	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.4	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	16.2	20.0	17.2	ug/kg	J
2,2'-Oxybis(1-chloropropane)	108-60-1	1	3.4	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	6.6	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	3.4	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	7.4	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	7.4	20.0	938	ug/kg	
Nitrobenzene	98-95-3	1	7.2	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	3.9	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	4.9	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	3.8	99.8	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	4.3	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	15.3	99.8	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	3.6	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	4.2	20.0	36.3	ug/kg	
Benzoic acid	65-85-0	1	39.0	200	66.7	ug/kg	J
4-Chloroaniline	106-47-8	1	8.4	99.8	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	4.8	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	12.4	99.8	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	4.5	20.0	14.3	ug/kg	J
Hexachlorocyclopentadiene	77-47-4	1	24.4	99.8	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	9.0	99.8	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	25.7	99.8	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	7.9	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	16.4	99.8	ND	ug/kg	U
Acenaphthylene	208-96-8	1	6.2	20.0	9.5	ug/kg	J

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-1-112221

21K0379-01 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:00

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 14:06

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dimethylphthalate	131-11-3	1	4.4	20.0	7.3	ug/kg	J
2,6-Dinitrotoluene	606-20-2	1	20.4	99.8	ND	ug/kg	U
Acenaphthene	83-32-9	1	5.2	20.0	21.2	ug/kg	
3-Nitroaniline	99-09-2	1	22.2	99.8	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	1	33.7	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	14.1	20.0	21.1	ug/kg	
4-Nitrophenol	100-02-7	1	32.6	99.8	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	16.2	99.8	ND	ug/kg	U
Fluorene	86-73-7	1	14.5	20.0	15.6	ug/kg	J
4-Chlorophenylphenyl ether	7005-72-3	1	19.1	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	19.7	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	29.4	99.8	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	37.9	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	5.3	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	17.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	13.5	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	31.2	99.8	ND	ug/kg	U
Phenanthrene	85-01-8	1	8.7	20.0	68.3	ug/kg	
Anthracene	120-12-7	1	7.2	20.0	28.5	ug/kg	
Carbazole	86-74-8	1	4.3	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	5.6	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	6.1	20.0	355	ug/kg	Q
Pyrene	129-00-0	1	5.7	20.0	267	ug/kg	Q
Butylbenzylphthalate	85-68-7	1	9.4	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	5.9	20.0	54.9	ug/kg	
3,3'-Dichlorobenzidine	91-94-1	1	7.1	99.8	ND	ug/kg	U
Chrysene	218-01-9	1	6.0	20.0	97.3	ug/kg	
bis(2-Ethylhexyl)phthalate	117-81-7	1	5.4	49.9	132	ug/kg	
Di-n-Octylphthalate	117-84-0	1	4.4	20.0	ND	ug/kg	U
Benzofluoranthenes, Total		1	10.0	39.9	126	ug/kg	
Benzo(a)pyrene	50-32-8	1	4.2	20.0	40.1	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	14.6	20.0	23.0	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	17.2	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	13.6	20.0	26.0	ug/kg	
1-Methylnaphthalene	90-12-0	1	5.2	20.0	8.7	ug/kg	J
Surrogate: 2-Fluorophenol				*27-120 %*	*45.7*	*%*	
Surrogate: Phenol-d5				*29-120 %*	*54.4*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-1-112221

21K0379-01 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:00

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 14:06

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2-Chlorophenol-d4		*31-120 %*	*70.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*32-120 %*	*71.8*	*%*	
Surrogate: Nitrobenzene-d5		*30-120 %*	*60.3*	*%*	
Surrogate: 2-Fluorobiphenyl		*35-120 %*	*85.9*	*%*	
Surrogate: 2,4,6-Tribromophenol		*24-134 %*	*92.6*	*%*	
Surrogate: p-Terphenyl-d14		*37-120 %*	*86.4*	*%*	Q

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-1-112221

21K0379-01 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/22/2021 10:00
Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2021 19:00

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-01 A 03
	Preparation Batch: BJK0721	Sample Size: 30.77 g (wet)	Dry Weight:12.51 g
	Prepared: 11/30/2021	Final Volume: 2.5 mL	% Solids: 40.65
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21K0379-01 A 03
	Cleanup Batch: CJL0024	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21K0379-01 A 03
	Cleanup Batch: CJL0022	Initial Volume: 2.5 uL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21K0379-01 A 03
	Cleanup Batch: CJL0023	Initial Volume: 2.5 uL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	4.5	ug/kg	
Aroclor 1254	11097-69-1	1	1.6	4.0	7.0	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	4.7	ug/kg	
Aroclor 1262	37324-23-5	1	0.6	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*69.9*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*58.8*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*62.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*61.2*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-1-112221

21K0379-01 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 10:00

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 01:52

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 21K0379-01 C 01
	Preparation Batch: BJL0178	Sample Size: 24.63 g (wet)	Dry Weight:10.01 g
	Prepared: 11/07/2021	Final Volume: 20 uL	% Solids: 40.65
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21K0379-01 C 01
	Cleanup Batch: CKA0061	Initial Volume: 20 mL	
	Cleaned: 11-Jan-2022	Final Volume: 20 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21K0379-01 C 01
	Cleanup Batch: CKA0060	Initial Volume: 20 uL	
	Cleaned: 10-Jan-2022	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:21K0379-01 C 01
	Cleanup Batch: CKA0062	Initial Volume: 20 uL	
	Cleaned: 11-Jan-2021	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF		0.803	0.655-0.886	0.091	0.999	**2.72**	ng/kg	
2,3,7,8-TCDD		0.633	0.655-0.886	0.153	0.999	**0.501**	ng/kg	EMPC, J
1,2,3,7,8-PeCDF			1.318-1.783	0.189	0.999	ND	ng/kg	U
2,3,4,7,8-PeCDF		1.849	1.318-1.783	0.180	0.999	**0.881**	ng/kg	EMPC, J
1,2,3,7,8-PeCDD		1.179	1.318-1.783	0.221	0.999	**1.99**	ng/kg	EMPC
1,2,3,4,7,8-HxCDF		1.151	1.054-1.426	0.221	0.999	**1.76**	ng/kg	
1,2,3,6,7,8-HxCDF		1.297	1.054-1.426	0.242	0.999	**1.47**	ng/kg	
2,3,4,6,7,8-HxCDF		1.271	1.054-1.426	0.238	0.999	**2.19**	ng/kg	
1,2,3,7,8,9-HxCDF		1.804	1.054-1.426	0.253	0.999	**0.664**	ng/kg	EMPC, J
1,2,3,4,7,8-HxCDD		1.298	1.054-1.426	0.377	0.999	**3.04**	ng/kg	
1,2,3,6,7,8-HxCDD		1.165	1.054-1.426	0.360	0.999	**9.02**	ng/kg	
1,2,3,7,8,9-HxCDD		1.243	1.054-1.426	0.400	0.999	**6.64**	ng/kg	
1,2,3,4,6,7,8-HpCDF		1.025	0.893-1.208	0.203	0.999	**30.6**	ng/kg	
1,2,3,4,7,8,9-HpCDF		1.181	0.893-1.208	0.282	0.999	**1.93**	ng/kg	
1,2,3,4,6,7,8-HpCDD		1.056	0.893-1.208	0.598	2.50	**242**	ng/kg	B
OCDF		0.903	0.757-1.024	0.303	2.50	**74.2**	ng/kg	B
OCDD		0.889	0.757-1.024	0.574	9.99	**1850**	ng/kg	B
Homologue groups								
Total TCDF					0.999	**14.7**	ng/kg	
Total TCDD					0.999	**19.4**	ng/kg	
Total PeCDF					0.999	**13.6**	ng/kg	
Total PeCDD					0.999	**11.7**	ng/kg	
Total HxCDF					0.999	**41.9**	ng/kg	
Total HxCDD					0.999	**93.2**	ng/kg	
Total HpCDF					0.999	**89.5**	ng/kg	
Total HpCDD					0.999	**642**	ng/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-1-112221

21K0379-01 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 10:00

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 01:52

Analysis by: Analytical Resources, LLC

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):					8.83		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):					8.83		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):					7.42		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):					6.01		

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-1-112221

21K0379-01 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 10:00

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 01:52

Analysis by: Analytical Resources, LLC

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.802*	*0.655-0.886*	*24-169 %*	*98.2*	*%*	
13C12-2,3,7,8-TCDD		*0.774*	*0.655-0.886*	*25-164 %*	*99.6*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.558*	*1.318-1.783*	*24-185 %*	*119*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.549*	*1.318-1.783*	*21-178 %*	*115*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.635*	*1.318-1.783*	*25-181 %*	*114*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.508*	*0.434-0.587*	*26-152 %*	*95.8*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.504*	*0.434-0.587*	*26-123 %*	*87.2*	*%*	
13C12-2,3,4,6,7,8-HxCDF		*0.512*	*0.434-0.587*	*28-136 %*	*92.5*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.510*	*0.434-0.587*	*29-147 %*	*95.5*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.262*	*1.054-1.426*	*32-141 %*	*99.2*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.263*	*1.054-1.426*	*28-130 %*	*89.2*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.450*	*0.374-0.506*	*28-143 %*	*89.4*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.451*	*0.374-0.506*	*26-138 %*	*94.5*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.100*	*0.893-1.208*	*23-140 %*	*96.5*	*%*	
13C12-OCDD		*0.901*	*0.757-1.024*	*17-157 %*	*90.5*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*105*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-1-112221

21K0379-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 11/22/2021 10:00

Instrument: ICPMS2 Analyst: SKD — Analyzed: 12/03/2021 18:47

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21K0379-01 D 01

Preparation Batch: BJK0697 — Sample Size: 1.042 g (wet) — Dry Weight:0.38 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 36.08

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.69	1.33	57.7	mg/kg	
Lead	7439-92-1	20	0.14	0.27	14.8	mg/kg	
Silver	7440-22-4	20	0.06	0.53	0.22	mg/kg	J

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-1-112221

21K0379-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 11/22/2021 10:00

Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/01/2021 05:04

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21K0379-01 D 01

Preparation Batch: BJK0697 — Sample Size: 1.042 g (wet) — Dry Weight:0.38 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 36.08

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.10	0.53	9.86	mg/kg	
Cadmium	7440-43-9	20	0.08	0.27	0.64	mg/kg	
Copper	7440-50-8	20	0.46	1.33	70.6	mg/kg	
Zinc	7440-66-6	20	7.8	16.0	129	mg/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-1-112221

21K0379-01 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/22/2021 10:00

Instrument: HYDRA Analyst: ML — Analyzed: 12/01/2021 11:18

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21K0379-01 D

Preparation Batch: BJK0698 — Sample Size: 0.276 g (wet) — Dry Weight:0.10 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 36.76

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0103	0.0493	0.0906	mg/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-1-112221

21K0379-01 (Solid)

Wet Chemistry

Method: Plumb 1981, Combustion IR — Sampled: 11/22/2021 10:00

Instrument: TOC Cube Analyst: DOE — Analyzed: 11/30/2021 14:06

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: PSEP 1986 — Extract ID: 21K0379-01 D

Preparation Batch: BJK0703 — Sample Size: 0.4398 g (wet) — Dry Weight:0.16 g

Prepared: 11/29/2021 — Final Volume: 0.4398 mL — % Solids: 36.08

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	2.12	%	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-1-112221

21K0379-01 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/22/2021 10:00

Instrument: BAL2 Analyst: DOE — Analyzed: 11/24/2021 10:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21K0379-01

Preparation Batch: BJK0652 — Sample Size: 5 g (wet) — Dry Weight:1.80 g

Prepared: 11/24/2021 — Final Volume: 5 g — % Solids: 36.08

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	36.08	%	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-1-112221

21K0379-01RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:00

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 16:31

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-01RE1 A 01
	Preparation Batch: BJK0689	Sample Size: 24.65 g (wet)	Dry Weight:10.02 g
	Prepared: 11/30/2021	Final Volume: 1 mL	% Solids: 40.65
Sample Cleanup:	Cleanup Method: GPC		Extract ID:21K0379-01RE1 A 01
	Cleanup Batch: CJL0018	Initial Volume: 1 uL	
	Cleaned: 01-Dec-2021	Final Volume: 1 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	3	13.1	59.9	47.2	ug/kg	J, D
bis(2-chloroethyl) ether	111-44-4	3	57.8	150	ND	ug/kg	U
2-Chlorophenol	95-57-8	3	41.5	59.9	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	3	9.4	59.9	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	3	9.4	59.9	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	3	7.1	59.9	ND	ug/kg	U
Benzyl Alcohol	100-51-6	3	48.7	59.9	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	3	10.1	59.9	ND	ug/kg	U
2-Methylphenol	95-48-7	3	19.9	59.9	ND	ug/kg	U
Hexachloroethane	67-72-1	3	10.3	59.9	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	3	22.3	59.9	ND	ug/kg	U
4-Methylphenol	106-44-5	3	22.1	59.9	1100	ug/kg	D
Nitrobenzene	98-95-3	3	21.7	59.9	ND	ug/kg	U
Isophorone	78-59-1	3	11.8	59.9	ND	ug/kg	U
2-Nitrophenol	88-75-5	3	14.6	59.9	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	3	11.3	299	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	3	12.9	59.9	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	3	45.9	299	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	3	10.7	59.9	ND	ug/kg	U
Naphthalene	91-20-3	3	12.7	59.9	43.2	ug/kg	J, D
Benzoic acid	65-85-0	3	117	599	ND	ug/kg	U
4-Chloroaniline	106-47-8	3	25.1	299	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	3	14.4	59.9	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	3	37.2	299	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	3	13.5	59.9	14.5	ug/kg	J, D
Hexachlorocyclopentadiene	77-47-4	3	73.2	299	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	3	26.9	299	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	3	77.1	299	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	3	23.8	59.9	ND	ug/kg	U
2-Nitroaniline	88-74-4	3	49.2	299	ND	ug/kg	U
Acenaphthylene	208-96-8	3	18.7	59.9	ND	ug/kg	U

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-1-112221

21K0379-01RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:00

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 16:31

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dimethylphthalate	131-11-3	3	13.1	59.9	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	3	61.3	299	ND	ug/kg	U
Acenaphthene	83-32-9	3	15.6	59.9	23.7	ug/kg	J, D
3-Nitroaniline	99-09-2	3	66.6	299	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	3	101	599	ND	ug/kg	U
Dibenzofuran	132-64-9	3	42.3	59.9	ND	ug/kg	U
4-Nitrophenol	100-02-7	3	97.7	299	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	3	48.5	299	ND	ug/kg	U
Fluorene	86-73-7	3	43.6	59.9	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	3	57.3	150	ND	ug/kg	U
Diethyl phthalate	84-66-2	3	59.0	150	ND	ug/kg	U
4-Nitroaniline	100-01-6	3	88.1	299	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	3	114	599	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	3	15.9	59.9	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	3	50.9	59.9	ND	ug/kg	U
Hexachlorobenzene	118-74-1	3	40.4	59.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	3	93.6	299	ND	ug/kg	U
Phenanthrene	85-01-8	3	26.1	59.9	89.0	ug/kg	D
Anthracene	120-12-7	3	21.5	59.9	40.1	ug/kg	J, D
Carbazole	86-74-8	3	12.8	59.9	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	3	16.8	59.9	ND	ug/kg	U
Fluoranthene	206-44-0	3	18.2	59.9	289	ug/kg	D
Pyrene	129-00-0	3	17.0	59.9	260	ug/kg	D
Butylbenzylphthalate	85-68-7	3	28.2	59.9	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	3	17.8	59.9	77.4	ug/kg	D
3,3'-Dichlorobenzidine	91-94-1	3	21.2	299	ND	ug/kg	U
Chrysene	218-01-9	3	18.1	59.9	129	ug/kg	D
bis(2-Ethylhexyl)phthalate	117-81-7	3	16.3	150	164	ug/kg	D
Di-n-Octylphthalate	117-84-0	3	13.1	59.9	ND	ug/kg	U
Benzofluoranthenes, Total		3	29.9	120	171	ug/kg	D
Benzo(a)pyrene	50-32-8	3	12.7	59.9	60.7	ug/kg	D
Indeno(1,2,3-cd)pyrene	193-39-5	3	43.9	59.9	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	3	51.6	59.9	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	3	40.7	59.9	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	3	15.7	59.9	ND	ug/kg	U
Surrogate: 2-Fluorophenol				*27-120 %*	*67.6*	*%*	
Surrogate: Phenol-d5				*29-120 %*	*64.3*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-1-112221

21K0379-01RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:00

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 16:31

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2-Chlorophenol-d4		*31-120 %*	*79.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*32-120 %*	*79.1*	*%*	
Surrogate: Nitrobenzene-d5		*30-120 %*	*80.7*	*%*	
Surrogate: 2-Fluorobiphenyl		*35-120 %*	*87.7*	*%*	
Surrogate: 2,4,6-Tribromophenol		*24-134 %*	*97.3*	*%*	
Surrogate: p-Terphenyl-d14		*37-120 %*	*90.0*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-2-112221

21K0379-02 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:10

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 14:43

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-02 A 01
	Preparation Batch: BJK0689	Sample Size: 18.92 g (wet)	Dry Weight:10.01 g
	Prepared: 11/30/2021	Final Volume: 1 mL	% Solids: 52.91
Sample Cleanup:	Cleanup Method: GPC		Extract ID:21K0379-02 A 01
	Cleanup Batch: CJL0018	Initial Volume: 1 uL	
	Cleaned: 01-Dec-2021	Final Volume: 1 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	4.4	20.0	12.4	ug/kg	J
bis(2-chloroethyl) ether	111-44-4	1	19.3	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	13.8	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	3.1	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	3.1	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.4	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	16.2	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	3.4	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	6.7	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	3.4	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	7.4	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	7.4	20.0	23.2	ug/kg	
Nitrobenzene	98-95-3	1	7.2	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	3.9	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	4.9	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	3.8	99.9	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	4.3	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	15.3	99.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	3.6	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	4.2	20.0	17.6	ug/kg	J
Benzoic acid	65-85-0	1	39.0	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	8.4	99.9	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	4.8	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	12.4	99.9	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	4.5	20.0	7.1	ug/kg	J
Hexachlorocyclopentadiene	77-47-4	1	24.4	99.9	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	9.0	99.9	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	25.7	99.9	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	8.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	16.4	99.9	ND	ug/kg	U
Acenaphthylene	208-96-8	1	6.2	20.0	6.4	ug/kg	J

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-2-112221

21K0379-02 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:10

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 14:43

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dimethylphthalate	131-11-3	1	4.4	20.0	10.9	ug/kg	J
2,6-Dinitrotoluene	606-20-2	1	20.5	99.9	ND	ug/kg	U
Acenaphthene	83-32-9	1	5.2	20.0	6.8	ug/kg	J
3-Nitroaniline	99-09-2	1	22.2	99.9	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	1	33.8	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	14.1	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	32.6	99.9	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	16.2	99.9	ND	ug/kg	U
Fluorene	86-73-7	1	14.6	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	19.1	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	19.7	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	29.4	99.9	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	37.9	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	5.3	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	17.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	13.5	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	31.2	99.9	ND	ug/kg	U
Phenanthrene	85-01-8	1	8.7	20.0	43.0	ug/kg	
Anthracene	120-12-7	1	7.2	20.0	15.6	ug/kg	J
Carbazole	86-74-8	1	4.3	20.0	6.8	ug/kg	J
Di-n-Butylphthalate	84-74-2	1	5.6	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	6.1	20.0	137	ug/kg	Q
Pyrene	129-00-0	1	5.7	20.0	141	ug/kg	Q
Butylbenzylphthalate	85-68-7	1	9.4	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	6.0	20.0	35.2	ug/kg	
3,3'-Dichlorobenzidine	91-94-1	1	7.1	99.9	ND	ug/kg	U
Chrysene	218-01-9	1	6.1	20.0	66.8	ug/kg	
bis(2-Ethylhexyl)phthalate	117-81-7	1	5.5	49.9	113	ug/kg	
Di-n-Octylphthalate	117-84-0	1	4.4	20.0	ND	ug/kg	U
Benzofluoranthenes, Total		1	10.0	40.0	87.6	ug/kg	
Benzo(a)pyrene	50-32-8	1	4.2	20.0	32.7	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	14.6	20.0	19.6	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	17.2	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	13.6	20.0	27.5	ug/kg	
1-Methylnaphthalene	90-12-0	1	5.3	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				*27-120 %*	*46.2*	*%*	
Surrogate: Phenol-d5				*29-120 %*	*57.0*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-2-112221

21K0379-02 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:10

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 14:43

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2-Chlorophenol-d4		*31-120 %*	*73.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*32-120 %*	*71.9*	*%*	
Surrogate: Nitrobenzene-d5		*30-120 %*	*70.1*	*%*	
Surrogate: 2-Fluorobiphenyl		*35-120 %*	*83.5*	*%*	
Surrogate: 2,4,6-Tribromophenol		*24-134 %*	*96.2*	*%*	
Surrogate: p-Terphenyl-d14		*37-120 %*	*96.8*	*%*	Q

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-2-112221

21K0379-02 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/22/2021 10:10

Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2021 19:21

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-02 A 03
	Preparation Batch: BJK0721	Sample Size: 23.65 g (wet)	Dry Weight:12.51 g
	Prepared: 11/30/2021	Final Volume: 2.5 mL	% Solids: 52.91
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21K0379-02 A 03
	Cleanup Batch: CJL0024	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21K0379-02 A 03
	Cleanup Batch: CJL0022	Initial Volume: 2.5 uL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21K0379-02 A 03
	Cleanup Batch: CJL0023	Initial Volume: 2.5 uL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	3.5	ug/kg	J
Aroclor 1254	11097-69-1	1	1.6	4.0	5.2	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	3.4	ug/kg	J
Aroclor 1262	37324-23-5	1	0.6	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*71.3*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*61.7*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*66.7*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*62.1*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-2-112221

21K0379-02 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 10:10

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/25/2022 09:37

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 21K0379-02 C 02
	Preparation Batch: BKA0291	Sample Size: 18.92 g (wet)	Dry Weight:10.01 g
	Prepared: 01/17/2022	Final Volume: 20 uL	% Solids: 52.91
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21K0379-02 C 02
	Cleanup Batch: CKA0130	Initial Volume: 20 mL	
	Cleaned: 21-Jan-2022	Final Volume: 20 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21K0379-02 C 02
	Cleanup Batch: CKA0129	Initial Volume: 20 uL	
	Cleaned: 19-Jan-2022	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:21K0379-02 C 02
	Cleanup Batch: CKA0131	Initial Volume: 20 uL	
	Cleaned: 21-Jan-2022	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF		0.960	0.655-0.886	0.338	0.999	**1.34**	ng/kg	EMPC
2,3,7,8-TCDD			0.655-0.886	0.298	0.999	ND	ng/kg	U
1,2,3,7,8-PeCDF		1.917	1.318-1.783	0.545	0.999	**0.678**	ng/kg	EMPC, J
2,3,4,7,8-PeCDF			1.318-1.783	0.533	0.999	ND	ng/kg	U
1,2,3,7,8-PeCDD		1.434	1.318-1.783	0.506	0.999	**2.70**	ng/kg	
1,2,3,4,7,8-HxCDF		1.256	1.054-1.426	0.304	0.999	**1.80**	ng/kg	
1,2,3,6,7,8-HxCDF		1.245	1.054-1.426	0.322	0.999	**1.88**	ng/kg	
2,3,4,6,7,8-HxCDF		1.313	1.054-1.426	0.317	0.999	**3.08**	ng/kg	
1,2,3,7,8,9-HxCDF		2.155	1.054-1.426	0.339	0.999	**0.750**	ng/kg	EMPC, J
1,2,3,4,7,8-HxCDD		1.146	1.054-1.426	0.518	0.999	**3.46**	ng/kg	
1,2,3,6,7,8-HxCDD		1.217	1.054-1.426	0.510	0.999	**9.39**	ng/kg	
1,2,3,7,8,9-HxCDD		1.226	1.054-1.426	0.558	0.999	**7.65**	ng/kg	
1,2,3,4,6,7,8-HpCDF		1.053	0.893-1.208	0.349	0.999	**56.3**	ng/kg	B
1,2,3,4,7,8,9-HpCDF		1.181	0.893-1.208	0.513	0.999	**3.48**	ng/kg	
1,2,3,4,6,7,8-HpCDD		1.070	0.893-1.208	1.11	2.50	**238**	ng/kg	B
OCDF		0.929	0.757-1.024	0.982	2.50	**171**	ng/kg	B
OCDD		0.895	0.757-1.024	1.47	9.99	**1790**	ng/kg	B
Homologue groups								
Total TCDF					0.999	**0.765**	ng/kg	J
Total TCDD					0.999	**2.33**	ng/kg	
Total PeCDF					0.999	**10.2**	ng/kg	
Total PeCDD					0.999	**4.92**	ng/kg	
Total HxCDF					0.999	**57.3**	ng/kg	B
Total HxCDD					0.999	**72.4**	ng/kg	
Total HpCDF					0.999	**166**	ng/kg	B
Total HpCDD					0.999	**509**	ng/kg	B

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-2-112221

21K0379-02 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 10:10

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/25/2022 09:37

Analysis by: Analytical Resources, LLC

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):					9.45		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):					9.22		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):					9.34		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):					8.99		

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-2-112221

21K0379-02 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 10:10

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/25/2022 09:37

Analysis by: Analytical Resources, LLC

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.800*	*0.655-0.886*	*24-169 %*	*81.7*	*%*	
13C12-2,3,7,8-TCDD		*0.769*	*0.655-0.886*	*25-164 %*	*81.1*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.564*	*1.318-1.783*	*24-185 %*	*101*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.598*	*1.318-1.783*	*21-178 %*	*97.7*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.641*	*1.318-1.783*	*25-181 %*	*93.6*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.506*	*0.434-0.587*	*26-152 %*	*82.5*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.514*	*0.434-0.587*	*26-123 %*	*76.4*	*%*	
13C12-2,3,4,6,7,8-HxCDF		*0.526*	*0.434-0.587*	*28-136 %*	*80.7*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.500*	*0.434-0.587*	*29-147 %*	*86.0*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.271*	*1.054-1.426*	*32-141 %*	*83.9*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.264*	*1.054-1.426*	*28-130 %*	*75.8*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.453*	*0.374-0.506*	*28-143 %*	*75.5*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.451*	*0.374-0.506*	*26-138 %*	*73.8*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.081*	*0.893-1.208*	*23-140 %*	*78.8*	*%*	
13C12-OCDD		*0.910*	*0.757-1.024*	*17-157 %*	*71.7*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*89.9*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-2-112221

21K0379-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 11/22/2021 10:10

Instrument: ICPMS2 Analyst: SKD — Analyzed: 12/03/2021 18:51

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21K0379-02 D 01

Preparation Batch: BJK0697 — Sample Size: 1 g (wet) — Dry Weight:0.49 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 49.23

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.49	1.02	46.0	mg/kg	
Lead	7439-92-1	20	0.11	0.20	13.1	mg/kg	
Silver	7440-22-4	20	0.04	0.41	0.18	mg/kg	J

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-2-112221

21K0379-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 11/22/2021 10:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/01/2021 05:08

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21K0379-02 D 01

Preparation Batch: BJK0697 — Sample Size: 1 g (wet) — Dry Weight:0.49 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 49.23

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.08	0.41	12.0	mg/kg	
Cadmium	7440-43-9	20	0.06	0.20	0.52	mg/kg	
Copper	7440-50-8	20	0.35	1.02	64.2	mg/kg	
Zinc	7440-66-6	20	5.9	12.2	129	mg/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-2-112221

21K0379-02 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/22/2021 10:10

Instrument: HYDRA Analyst: ML — Analyzed: 12/01/2021 11:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21K0379-02 D

Preparation Batch: BJK0698 — Sample Size: 0.238 g (wet) — Dry Weight:0.12 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 48.47

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00910	0.0433	0.0900	mg/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-2-112221

21K0379-02 (Solid)

Wet Chemistry

Method: Plumb 1981, Combustion IR — Sampled: 11/22/2021 10:10

Instrument: TOC Cube Analyst: DOE — Analyzed: 11/30/2021 15:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: PSEP 1986 — Extract ID: 21K0379-02 D

Preparation Batch: BJK0703 — Sample Size: 0.4169 g (wet) — Dry Weight:0.21 g

Prepared: 11/29/2021 — Final Volume: 0.4169 mL — % Solids: 49.23

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	2.17	%	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-2-112221

21K0379-02 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/22/2021 10:10

Instrument: BAL2 Analyst: DOE — Analyzed: 11/24/2021 10:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21K0379-02

Preparation Batch: BJK0652 — Sample Size: 5 g (wet) — Dry Weight:2.46 g

Prepared: 11/24/2021 — Final Volume: 5 g — % Solids: 49.23

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	49.23	%	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-2-112221

21K0379-02RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:10

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 17:08

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-02RE1 A 01
	Preparation Batch: BJK0689	Sample Size: 18.92 g (wet)	Dry Weight:10.01 g
	Prepared: 11/30/2021	Final Volume: 1 mL	% Solids: 52.91
Sample Cleanup:	Cleanup Method: GPC		Extract ID:21K0379-02RE1 A 01
	Cleanup Batch: CJL0018	Initial Volume: 1 uL	
	Cleaned: 01-Dec-2021	Final Volume: 1 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	3	13.2	59.9	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	3	57.8	150	ND	ug/kg	U
2-Chlorophenol	95-57-8	3	41.5	59.9	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	3	9.4	59.9	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	3	9.4	59.9	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	3	7.1	59.9	ND	ug/kg	U
Benzyl Alcohol	100-51-6	3	48.7	59.9	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	3	10.1	59.9	ND	ug/kg	U
2-Methylphenol	95-48-7	3	20.0	59.9	ND	ug/kg	U
Hexachloroethane	67-72-1	3	10.3	59.9	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	3	22.3	59.9	ND	ug/kg	U
4-Methylphenol	106-44-5	3	22.1	59.9	ND	ug/kg	U
Nitrobenzene	98-95-3	3	21.7	59.9	ND	ug/kg	U
Isophorone	78-59-1	3	11.8	59.9	ND	ug/kg	U
2-Nitrophenol	88-75-5	3	14.6	59.9	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	3	11.3	300	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	3	12.9	59.9	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	3	45.9	300	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	3	10.7	59.9	ND	ug/kg	U
Naphthalene	91-20-3	3	12.7	59.9	18.1	ug/kg	J, D
Benzoic acid	65-85-0	3	117	599	ND	ug/kg	U
4-Chloroaniline	106-47-8	3	25.1	300	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	3	14.4	59.9	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	3	37.2	300	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	3	13.5	59.9	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	3	73.3	300	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	3	26.9	300	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	3	77.2	300	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	3	23.9	59.9	ND	ug/kg	U
2-Nitroaniline	88-74-4	3	49.2	300	ND	ug/kg	U
Acenaphthylene	208-96-8	3	18.7	59.9	ND	ug/kg	U

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-2-112221

21K0379-02RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:10

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 17:08

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dimethylphthalate	131-11-3	3	13.2	59.9	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	3	61.4	300	ND	ug/kg	U
Acenaphthene	83-32-9	3	15.6	59.9	ND	ug/kg	U
3-Nitroaniline	99-09-2	3	66.7	300	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	3	101	599	ND	ug/kg	U
Dibenzofuran	132-64-9	3	42.3	59.9	ND	ug/kg	U
4-Nitrophenol	100-02-7	3	97.8	300	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	3	48.6	300	ND	ug/kg	U
Fluorene	86-73-7	3	43.7	59.9	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	3	57.4	150	ND	ug/kg	U
Diethyl phthalate	84-66-2	3	59.1	150	ND	ug/kg	U
4-Nitroaniline	100-01-6	3	88.1	300	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	3	114	599	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	3	15.9	59.9	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	3	51.0	59.9	ND	ug/kg	U
Hexachlorobenzene	118-74-1	3	40.4	59.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	3	93.7	300	ND	ug/kg	U
Phenanthrene	85-01-8	3	26.1	59.9	46.9	ug/kg	J, D
Anthracene	120-12-7	3	21.5	59.9	ND	ug/kg	U
Carbazole	86-74-8	3	12.9	59.9	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	3	16.8	59.9	ND	ug/kg	U
Fluoranthene	206-44-0	3	18.3	59.9	107	ug/kg	D
Pyrene	129-00-0	3	17.0	59.9	129	ug/kg	D
Butylbenzylphthalate	85-68-7	3	28.2	59.9	45.6	ug/kg	J, D
Benzo(a)anthracene	56-55-3	3	17.9	59.9	46.1	ug/kg	J, D
3,3'-Dichlorobenzidine	91-94-1	3	21.2	300	ND	ug/kg	U
Chrysene	218-01-9	3	18.2	59.9	84.7	ug/kg	D
bis(2-Ethylhexyl)phthalate	117-81-7	3	16.4	150	108	ug/kg	J, D
Di-n-Octylphthalate	117-84-0	3	13.2	59.9	ND	ug/kg	U
Benzofluoranthenes, Total		3	30.0	120	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	3	12.7	59.9	43.6	ug/kg	J, D
Indeno(1,2,3-cd)pyrene	193-39-5	3	43.9	59.9	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	3	51.6	59.9	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	3	40.7	59.9	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	3	15.8	59.9	ND	ug/kg	U
Surrogate: 2-Fluorophenol				*27-120 %*	*64.6*	*%*	
Surrogate: Phenol-d5				*29-120 %*	*60.8*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-2-112221

21K0379-02RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:10

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 17:08

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2-Chlorophenol-d4		*31-120 %*	*74.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*32-120 %*	*71.6*	*%*	
Surrogate: Nitrobenzene-d5		*30-120 %*	*76.3*	*%*	
Surrogate: 2-Fluorobiphenyl		*35-120 %*	*78.8*	*%*	
Surrogate: 2,4,6-Tribromophenol		*24-134 %*	*92.2*	*%*	
Surrogate: p-Terphenyl-d14		*37-120 %*	*90.8*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

DUP-1-112221

21K0379-03 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:18

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 15:21

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-03 A 01
	Preparation Batch: BJK0689	Sample Size: 20.47 g (wet)	Dry Weight:10.00 g
	Prepared: 11/30/2021	Final Volume: 1 mL	% Solids: 48.86
Sample Cleanup:	Cleanup Method: GPC		Extract ID:21K0379-03 A 01
	Cleanup Batch: CJL0018	Initial Volume: 1 uL	
	Cleaned: 01-Dec-2021	Final Volume: 1 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	4.4	20.0	18.5	ug/kg	J
bis(2-chloroethyl) ether	111-44-4	1	19.3	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	13.8	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	3.1	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	3.1	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.4	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	16.3	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	3.4	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	6.7	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	3.4	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	7.4	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	7.4	20.0	22.1	ug/kg	
Nitrobenzene	98-95-3	1	7.2	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	3.9	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	4.9	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	3.8	100	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	4.3	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	15.3	100	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	3.6	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	4.2	20.0	27.3	ug/kg	
Benzoic acid	65-85-0	1	39.0	200	50.1	ug/kg	J
4-Chloroaniline	106-47-8	1	8.4	100	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	4.8	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	12.4	100	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	4.5	20.0	11.6	ug/kg	J
Hexachlorocyclopentadiene	77-47-4	1	24.5	100	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	9.0	100	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	25.7	100	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	8.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	16.4	100	ND	ug/kg	U
Acenaphthylene	208-96-8	1	6.2	20.0	8.9	ug/kg	J

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

DUP-1-112221

21K0379-03 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:18

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 15:21

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dimethylphthalate	131-11-3	1	4.4	20.0	7.9	ug/kg	J
2,6-Dinitrotoluene	606-20-2	1	20.5	100	ND	ug/kg	U
Acenaphthene	83-32-9	1	5.2	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	22.3	100	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	1	33.8	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	14.1	20.0	15.9	ug/kg	J
4-Nitrophenol	100-02-7	1	32.6	100	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	16.2	100	ND	ug/kg	U
Fluorene	86-73-7	1	14.6	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	19.1	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	19.7	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	29.4	100	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	38.0	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	5.3	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	17.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	13.5	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	31.2	100	ND	ug/kg	U
Phenanthrene	85-01-8	1	8.7	20.0	53.8	ug/kg	
Anthracene	120-12-7	1	7.2	20.0	23.6	ug/kg	
Carbazole	86-74-8	1	4.3	20.0	6.2	ug/kg	J
Di-n-Butylphthalate	84-74-2	1	5.6	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	6.1	20.0	154	ug/kg	Q
Pyrene	129-00-0	1	5.7	20.0	167	ug/kg	Q
Butylbenzylphthalate	85-68-7	1	9.4	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	6.0	20.0	48.4	ug/kg	
3,3'-Dichlorobenzidine	91-94-1	1	7.1	100	ND	ug/kg	U
Chrysene	218-01-9	1	6.1	20.0	90.1	ug/kg	
bis(2-Ethylhexyl)phthalate	117-81-7	1	5.5	50.0	173	ug/kg	
Di-n-Octylphthalate	117-84-0	1	4.4	20.0	ND	ug/kg	U
Benzofluoranthenes, Total		1	10.0	40.0	122	ug/kg	
Benzo(a)pyrene	50-32-8	1	4.2	20.0	39.2	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	14.6	20.0	19.6	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	17.2	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	13.6	20.0	31.5	ug/kg	
1-Methylnaphthalene	90-12-0	1	5.3	20.0	7.3	ug/kg	J
Surrogate: 2-Fluorophenol				*27-120 %*	*37.1*	*%*	
Surrogate: Phenol-d5				*29-120 %*	*49.1*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

DUP-1-112221

21K0379-03 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:18

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 15:21

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2-Chlorophenol-d4		*31-120 %*	*65.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*32-120 %*	*62.2*	*%*	
Surrogate: Nitrobenzene-d5		*30-120 %*	*67.6*	*%*	
Surrogate: 2-Fluorobiphenyl		*35-120 %*	*82.0*	*%*	
Surrogate: 2,4,6-Tribromophenol		*24-134 %*	*94.5*	*%*	
Surrogate: p-Terphenyl-d14		*37-120 %*	*80.8*	*%*	Q

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

DUP-1-112221

21K0379-03 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/22/2021 10:18
Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2021 19:42

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-03 A 03
	Preparation Batch: BJK0721	Sample Size: 25.58 g (wet)	Dry Weight:12.50 g
	Prepared: 11/30/2021	Final Volume: 2.5 mL	% Solids: 48.86
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21K0379-03 A 03
	Cleanup Batch: CJL0024	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21K0379-03 A 03
	Cleanup Batch: CJL0022	Initial Volume: 2.5 uL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21K0379-03 A 03
	Cleanup Batch: CJL0023	Initial Volume: 2.5 uL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	3.9	ug/kg	J
Aroclor 1254	11097-69-1	1	1.6	4.0	5.8	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	3.8	ug/kg	J
Aroclor 1262	37324-23-5	1	0.6	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*75.2*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*63.5*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*69.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*64.7*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

DUP-1-112221

21K0379-03 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 10:18

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 03:30

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 21K0379-03 C 01
	Preparation Batch: BJL0178	Sample Size: 20.49 g (wet)	Dry Weight:10.01 g
	Prepared: 11/07/2021	Final Volume: 20 uL	% Solids: 48.86
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21K0379-03 C 01
	Cleanup Batch: CKA0061	Initial Volume: 20 mL	
	Cleaned: 11-Jan-2022	Final Volume: 20 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21K0379-03 C 01
	Cleanup Batch: CKA0060	Initial Volume: 20 uL	
	Cleaned: 10-Jan-2022	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:21K0379-03 C 01
	Cleanup Batch: CKA0062	Initial Volume: 20 uL	
	Cleaned: 11-Jan-2021	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF		0.805	0.655-0.886	0.254	0.999	**1.69**	ng/kg	
2,3,7,8-TCDD		0.686	0.655-0.886	0.231	0.999	**0.439**	ng/kg	J
1,2,3,7,8-PeCDF		1.380	1.318-1.783	0.210	0.999	**0.715**	ng/kg	J
2,3,4,7,8-PeCDF		1.298	1.318-1.783	0.205	0.999	**0.704**	ng/kg	EMPC, J
1,2,3,7,8-PeCDD		1.781	1.318-1.783	0.246	0.999	**2.90**	ng/kg	
1,2,3,4,7,8-HxCDF		1.244	1.054-1.426	0.204	0.999	**2.74**	ng/kg	
1,2,3,6,7,8-HxCDF		1.204	1.054-1.426	0.216	0.999	**2.46**	ng/kg	
2,3,4,6,7,8-HxCDF		1.296	1.054-1.426	0.213	0.999	**4.35**	ng/kg	
1,2,3,7,8,9-HxCDF		1.257	1.054-1.426	0.235	0.999	**1.11**	ng/kg	
1,2,3,4,7,8-HxCDD		1.370	1.054-1.426	0.291	0.999	**5.79**	ng/kg	
1,2,3,6,7,8-HxCDD		1.319	1.054-1.426	0.280	0.999	**13.0**	ng/kg	
1,2,3,7,8,9-HxCDD		1.155	1.054-1.426	0.310	0.999	**13.6**	ng/kg	
1,2,3,4,6,7,8-HpCDF		0.962	0.893-1.208	0.340	0.999	**92.3**	ng/kg	
1,2,3,4,7,8,9-HpCDF		1.070	0.893-1.208	0.483	0.999	**5.82**	ng/kg	
1,2,3,4,6,7,8-HpCDD		1.076	0.893-1.208	0.857	2.50	**432**	ng/kg	B
OCDF		0.953	0.757-1.024	0.447	2.50	**383**	ng/kg	B
OCDD		0.894	0.757-1.024	1.20	9.99	**3450**	ng/kg	B
Homologue groups								
Total TCDF					0.999	**11.1**	ng/kg	
Total TCDD					0.999	**15.3**	ng/kg	
Total PeCDF					0.999	**14.6**	ng/kg	
Total PeCDD					0.999	**16.2**	ng/kg	
Total HxCDF					0.999	**82.8**	ng/kg	
Total HxCDD					0.999	**103**	ng/kg	
Total HpCDF					0.999	**283**	ng/kg	
Total HpCDD					0.999	**792**	ng/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
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Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

DUP-1-112221

21K0379-03 (Solid)

Dioxins/Furans

Method: EPA 1613B
Instrument: AUTOSPEC01 Analyst: pk

Sampled: 11/22/2021 10:18
Analyzed: 01/14/2022 03:30

Analysis by: Analytical Resources, LLC

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):				14.50			
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):				14.50			
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):				14.39			
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):				14.29			

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

DUP-1-112221

21K0379-03 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 10:18

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 03:30

Analysis by: Analytical Resources, LLC

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.796*	*0.655-0.886*	*24-169 %*	*91.4*	*%*	
13C12-2,3,7,8-TCDD		*0.779*	*0.655-0.886*	*25-164 %*	*91.7*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.561*	*1.318-1.783*	*24-185 %*	*110*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.565*	*1.318-1.783*	*21-178 %*	*105*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.610*	*1.318-1.783*	*25-181 %*	*104*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.512*	*0.434-0.587*	*26-152 %*	*92.1*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.518*	*0.434-0.587*	*26-123 %*	*84.4*	*%*	
13C12-2,3,4,6,7,8-HxCDF		*0.516*	*0.434-0.587*	*28-136 %*	*90.0*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.509*	*0.434-0.587*	*29-147 %*	*94.2*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.246*	*1.054-1.426*	*32-141 %*	*93.5*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.242*	*1.054-1.426*	*28-130 %*	*85.8*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.460*	*0.374-0.506*	*28-143 %*	*88.3*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.448*	*0.374-0.506*	*26-138 %*	*90.4*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.080*	*0.893-1.208*	*23-140 %*	*94.4*	*%*	
13C12-OCDD		*0.907*	*0.757-1.024*	*17-157 %*	*91.3*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*96.3*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
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Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

DUP-1-112221

21K0379-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 11/22/2021 10:18
Instrument: ICPMS2 Analyst: SKD — Analyzed: 12/03/2021 18:55

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21K0379-03 A 02
Preparation Batch: BJK0697 — Sample Size: 1.068 g (wet) — Dry Weight:0.51 g
Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 47.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.51	0.99	50.1	mg/kg	
Lead	7439-92-1	20	0.10	0.20	13.8	mg/kg	
Silver	7440-22-4	20	0.04	0.40	0.19	mg/kg	J

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

DUP-1-112221

21K0379-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 11/22/2021 10:18
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/01/2021 05:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21K0379-03 A 02
Preparation Batch: BJK0697 — Sample Size: 1.068 g (wet) — Dry Weight:0.51 g
Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 47.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.08	0.40	12.0	mg/kg	
Cadmium	7440-43-9	20	0.06	0.20	0.59	mg/kg	
Copper	7440-50-8	20	0.34	0.99	63.0	mg/kg	
Zinc	7440-66-6	20	5.8	11.9	127	mg/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

DUP-1-112221

21K0379-03 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/22/2021 10:18
Instrument: HYDRA Analyst: ML — Analyzed: 12/01/2021 11:23

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21K0379-03 A
Preparation Batch: BJK0698 — Sample Size: 0.252 g (wet) — Dry Weight:0.10 g
Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 37.89

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0110	0.0524	0.133	mg/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

DUP-1-112221

21K0379-03 (Solid)

Wet Chemistry

Method: Plumb 1981, Combustion IR — Sampled: 11/22/2021 10:18
Instrument: TOC Cube Analyst: DOE — Analyzed: 11/30/2021 16:05

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: PSEP 1986 — Extract ID: 21K0379-03 A
Preparation Batch: BJK0703 — Sample Size: 0.4142 g (wet) — Dry Weight:0.20 g
Prepared: 11/29/2021 — Final Volume: 0.4142 mL — % Solids: 47.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	2.18	%	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

DUP-1-112221

21K0379-03 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/22/2021 10:18

Instrument: BAL2 Analyst: DOE — Analyzed: 11/24/2021 10:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21K0379-03

Preparation Batch: BJK0652 — Sample Size: 5 g (wet) — Dry Weight:2.37 g

Prepared: 11/24/2021 — Final Volume: 5 g — % Solids: 47.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	47.41	%	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

DUP-1-112221

21K0379-03RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:18

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 17:46

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-03RE1 A 01
	Preparation Batch: BJK0689	Sample Size: 20.47 g (wet)	Dry Weight:10.00 g
	Prepared: 11/30/2021	Final Volume: 1 mL	% Solids: 48.86
Sample Cleanup:	Cleanup Method: GPC		Extract ID:21K0379-03RE1 A 01
	Cleanup Batch: CJL0018	Initial Volume: 1 uL	
	Cleaned: 01-Dec-2021	Final Volume: 1 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	3	13.2	60.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	3	57.9	150	ND	ug/kg	U
2-Chlorophenol	95-57-8	3	41.5	60.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	3	9.4	60.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	3	9.4	60.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	3	7.1	60.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	3	48.8	60.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	3	10.1	60.0	ND	ug/kg	U
2-Methylphenol	95-48-7	3	20.0	60.0	ND	ug/kg	U
Hexachloroethane	67-72-1	3	10.3	60.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	3	22.3	60.0	ND	ug/kg	U
4-Methylphenol	106-44-5	3	22.2	60.0	ND	ug/kg	U
Nitrobenzene	98-95-3	3	21.7	60.0	ND	ug/kg	U
Isophorone	78-59-1	3	11.8	60.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	3	14.6	60.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	3	11.3	300	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	3	12.9	60.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	3	46.0	300	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	3	10.7	60.0	ND	ug/kg	U
Naphthalene	91-20-3	3	12.7	60.0	28.8	ug/kg	J, D
Benzoic acid	65-85-0	3	117	600	ND	ug/kg	U
4-Chloroaniline	106-47-8	3	25.1	300	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	3	14.4	60.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	3	37.2	300	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	3	13.5	60.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	3	73.4	300	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	3	26.9	300	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	3	77.2	300	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	3	23.9	60.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	3	49.3	300	ND	ug/kg	U
Acenaphthylene	208-96-8	3	18.7	60.0	ND	ug/kg	U

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

DUP-1-112221

21K0379-03RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:18

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 17:46

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dimethylphthalate	131-11-3	3	13.2	60.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	3	61.4	300	ND	ug/kg	U
Acenaphthene	83-32-9	3	15.7	60.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	3	66.8	300	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	3	101	600	ND	ug/kg	U
Dibenzofuran	132-64-9	3	42.4	60.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	3	97.9	300	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	3	48.6	300	ND	ug/kg	U
Fluorene	86-73-7	3	43.7	60.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	3	57.4	150	ND	ug/kg	U
Diethyl phthalate	84-66-2	3	59.1	150	ND	ug/kg	U
4-Nitroaniline	100-01-6	3	88.2	300	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	3	114	600	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	3	16.0	60.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	3	51.0	60.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	3	40.4	60.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	3	93.7	300	ND	ug/kg	U
Phenanthrene	85-01-8	3	26.2	60.0	55.2	ug/kg	J, D
Anthracene	120-12-7	3	21.6	60.0	27.7	ug/kg	J, D
Carbazole	86-74-8	3	12.9	60.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	3	16.8	60.0	ND	ug/kg	U
Fluoranthene	206-44-0	3	18.3	60.0	129	ug/kg	D
Pyrene	129-00-0	3	17.0	60.0	177	ug/kg	D
Butylbenzylphthalate	85-68-7	3	28.2	60.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	3	17.9	60.0	61.7	ug/kg	D
3,3'-Dichlorobenzidine	91-94-1	3	21.3	300	ND	ug/kg	U
Chrysene	218-01-9	3	18.2	60.0	107	ug/kg	D
bis(2-Ethylhexyl)phthalate	117-81-7	3	16.4	150	159	ug/kg	D
Di-n-Octylphthalate	117-84-0	3	13.2	60.0	ND	ug/kg	U
Benzofluoranthenes, Total		3	30.0	120	139	ug/kg	D
Benzo(a)pyrene	50-32-8	3	12.7	60.0	50.9	ug/kg	J, D
Indeno(1,2,3-cd)pyrene	193-39-5	3	43.9	60.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	3	51.7	60.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	3	40.8	60.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	3	15.8	60.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				*27-120 %*	*56.1*	*%*	
Surrogate: Phenol-d5				*29-120 %*	*55.0*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

DUP-1-112221

21K0379-03RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:18

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 17:46

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2-Chlorophenol-d4		*31-120 %*	*72.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*32-120 %*	*66.3*	*%*	
Surrogate: Nitrobenzene-d5		*30-120 %*	*69.2*	*%*	
Surrogate: 2-Fluorobiphenyl		*35-120 %*	*77.6*	*%*	
Surrogate: 2,4,6-Tribromophenol		*24-134 %*	*90.4*	*%*	
Surrogate: p-Terphenyl-d14		*37-120 %*	*85.1*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-3-112221

21K0379-04 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 15:59

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-04 A 01
	Preparation Batch: BJK0689	Sample Size: 16.98 g (wet)	Dry Weight:10.00 g
	Prepared: 11/30/2021	Final Volume: 1 mL	% Solids: 58.92
Sample Cleanup:	Cleanup Method: GPC		Extract ID:21K0379-04 A 01
	Cleanup Batch: CJL0018	Initial Volume: 1 uL	
	Cleaned: 01-Dec-2021	Final Volume: 1 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	4.4	20.0	11.5	ug/kg	J
bis(2-chloroethyl) ether	111-44-4	1	19.3	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	13.8	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	3.1	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	3.1	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.4	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	16.3	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	3.4	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	6.7	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	3.4	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	7.4	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	7.4	20.0	31.1	ug/kg	
Nitrobenzene	98-95-3	1	7.2	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	3.9	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	4.9	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	3.8	100	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	4.3	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	15.3	100	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	3.6	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	4.2	20.0	28.6	ug/kg	
Benzoic acid	65-85-0	1	39.0	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	8.4	100	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	4.8	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	12.4	100	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	4.5	20.0	10.1	ug/kg	J
Hexachlorocyclopentadiene	77-47-4	1	24.4	100	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	9.0	100	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	25.7	100	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	8.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	16.4	100	ND	ug/kg	U
Acenaphthylene	208-96-8	1	6.2	20.0	9.0	ug/kg	J

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-3-112221

21K0379-04 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 15:59

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dimethylphthalate	131-11-3	1	4.4	20.0	5.6	ug/kg	J
2,6-Dinitrotoluene	606-20-2	1	20.5	100	ND	ug/kg	U
Acenaphthene	83-32-9	1	5.2	20.0	10.6	ug/kg	J
3-Nitroaniline	99-09-2	1	22.2	100	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	1	33.8	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	14.1	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	32.6	100	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	16.2	100	ND	ug/kg	U
Fluorene	86-73-7	1	14.6	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	19.1	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	19.7	50.0	20.4	ug/kg	J
4-Nitroaniline	100-01-6	1	29.4	100	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	38.0	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	5.3	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	17.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	13.5	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	31.2	100	ND	ug/kg	U
Phenanthrene	85-01-8	1	8.7	20.0	63.7	ug/kg	
Anthracene	120-12-7	1	7.2	20.0	32.5	ug/kg	
Carbazole	86-74-8	1	4.3	20.0	10.9	ug/kg	J
Di-n-Butylphthalate	84-74-2	1	5.6	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	6.1	20.0	122	ug/kg	Q
Pyrene	129-00-0	1	5.7	20.0	116	ug/kg	Q
Butylbenzylphthalate	85-68-7	1	9.4	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	6.0	20.0	35.7	ug/kg	
3,3'-Dichlorobenzidine	91-94-1	1	7.1	100	ND	ug/kg	U
Chrysene	218-01-9	1	6.1	20.0	63.1	ug/kg	
bis(2-Ethylhexyl)phthalate	117-81-7	1	5.5	50.0	67.8	ug/kg	
Di-n-Octylphthalate	117-84-0	1	4.4	20.0	ND	ug/kg	U
Benzofluoranthenes, Total		1	10.0	40.0	86.4	ug/kg	
Benzo(a)pyrene	50-32-8	1	4.2	20.0	28.3	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	14.6	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	17.2	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	13.6	20.0	17.1	ug/kg	J
1-Methylnaphthalene	90-12-0	1	5.3	20.0	6.2	ug/kg	J
Surrogate: 2-Fluorophenol				*27-120 %*	*43.6*	*%*	
Surrogate: Phenol-d5				*29-120 %*	*52.8*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-3-112221

21K0379-04 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 15:59

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2-Chlorophenol-d4		*31-120 %*	*68.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*32-120 %*	*66.4*	*%*	
Surrogate: Nitrobenzene-d5		*30-120 %*	*67.9*	*%*	
Surrogate: 2-Fluorobiphenyl		*35-120 %*	*82.3*	*%*	
Surrogate: 2,4,6-Tribromophenol		*24-134 %*	*94.4*	*%*	
Surrogate: p-Terphenyl-d14		*37-120 %*	*81.6*	*%*	Q

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-3-112221

21K0379-04 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/22/2021 10:50

Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2021 20:03

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-04 A 02
	Preparation Batch: BJK0721	Sample Size: 21.24 g (wet)	Dry Weight:12.51 g
	Prepared: 11/30/2021	Final Volume: 2.5 mL	% Solids: 58.92
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21K0379-04 A 02
	Cleanup Batch: CJL0024	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21K0379-04 A 02
	Cleanup Batch: CJL0022	Initial Volume: 2.5 uL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21K0379-04 A 02
	Cleanup Batch: CJL0023	Initial Volume: 2.5 uL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	2.4	ug/kg	J
Aroclor 1254	11097-69-1	1	1.6	4.0	3.3	ug/kg	J
Aroclor 1260	11096-82-5	1	0.6	4.0	3.4	ug/kg	J
Aroclor 1262	37324-23-5	1	0.6	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*72.9*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*62.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*67.5*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*63.1*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-3-112221

21K0379-04 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 10:50

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 04:20

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 21K0379-04 B 01
	Preparation Batch: BJL0178	Sample Size: 16.99 g (wet)	Dry Weight:10.01 g
	Prepared: 11/07/2021	Final Volume: 20 uL	% Solids: 58.92
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21K0379-04 B 01
	Cleanup Batch: CKA0061	Initial Volume: 20 mL	
	Cleaned: 11-Jan-2022	Final Volume: 20 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21K0379-04 B 01
	Cleanup Batch: CKA0060	Initial Volume: 20 uL	
	Cleaned: 10-Jan-2022	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:21K0379-04 B 01
	Cleanup Batch: CKA0062	Initial Volume: 20 uL	
	Cleaned: 11-Jan-2021	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF			0.655-0.886	0.339	0.999	ND	ng/kg	U
2,3,7,8-TCDD			0.655-0.886	0.382	0.999	ND	ng/kg	U
1,2,3,7,8-PeCDF			1.318-1.783	0.485	0.999	ND	ng/kg	U
2,3,4,7,8-PeCDF			1.318-1.783	0.484	0.999	ND	ng/kg	U
1,2,3,7,8-PeCDD		0.772	1.318-1.783	0.528	0.999	**1.33**	ng/kg	EMPC
1,2,3,4,7,8-HxCDF			1.054-1.426	0.407	0.999	ND	ng/kg	U
1,2,3,6,7,8-HxCDF		1.586	1.054-1.426	0.449	0.999	**0.478**	ng/kg	EMPC, J
2,3,4,6,7,8-HxCDF			1.054-1.426	0.461	0.999	ND	ng/kg	U
1,2,3,7,8,9-HxCDF			1.054-1.426	0.540	0.999	ND	ng/kg	U
1,2,3,4,7,8-HxCDD		1.011	1.054-1.426	0.791	0.999	**1.34**	ng/kg	EMPC
1,2,3,6,7,8-HxCDD		1.112	1.054-1.426	0.803	0.999	**3.73**	ng/kg	
1,2,3,7,8,9-HxCDD		1.201	1.054-1.426	0.866	0.999	**2.86**	ng/kg	
1,2,3,4,6,7,8-HpCDF		1.064	0.893-1.208	0.473	0.999	**17.1**	ng/kg	
1,2,3,4,7,8,9-HpCDF			0.893-1.208	0.713	0.999	ND	ng/kg	U
1,2,3,4,6,7,8-HpCDD		1.088	0.893-1.208	1.10	2.50	**134**	ng/kg	B
OCDF		0.916	0.757-1.024	0.893	2.50	**57.2**	ng/kg	B
OCDD		0.886	0.757-1.024	1.19	9.99	**1080**	ng/kg	B
Homologue groups								
Total TCDF					0.999	**0.551**	ng/kg	J
Total TCDD					0.999	**4.90**	ng/kg	
Total PeCDF					0.999	**3.62**	ng/kg	
Total PeCDD					0.999	**1.53**	ng/kg	
Total HxCDF					0.999	**20.1**	ng/kg	
Total HxCDD					0.999	**35.0**	ng/kg	
Total HpCDF					0.999	**58.5**	ng/kg	
Total HpCDD					0.999	**386**	ng/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-3-112221

21K0379-04 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 10:50

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 04:20

Analysis by: Analytical Resources, LLC

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):					4.38		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):					4.02		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):					3.63		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):					2.51		

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-3-112221

21K0379-04 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 10:50

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 04:20

Analysis by: Analytical Resources, LLC

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.805*	*0.655-0.886*	*24-169 %*	*43.0*	*%*	
13C12-2,3,7,8-TCDD		*0.763*	*0.655-0.886*	*25-164 %*	*43.5*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.538*	*1.318-1.783*	*24-185 %*	*51.2*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.614*	*1.318-1.783*	*21-178 %*	*49.5*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.623*	*1.318-1.783*	*25-181 %*	*49.0*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.504*	*0.434-0.587*	*26-152 %*	*44.7*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.504*	*0.434-0.587*	*26-123 %*	*40.9*	*%*	
13C12-2,3,4,6,7,8-HxCDF		*0.530*	*0.434-0.587*	*28-136 %*	*41.4*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.499*	*0.434-0.587*	*29-147 %*	*42.0*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.311*	*1.054-1.426*	*32-141 %*	*46.3*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.275*	*1.054-1.426*	*28-130 %*	*42.6*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.469*	*0.374-0.506*	*28-143 %*	*41.6*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.452*	*0.374-0.506*	*26-138 %*	*39.5*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.053*	*0.893-1.208*	*23-140 %*	*43.0*	*%*	
13C12-OCDD		*0.865*	*0.757-1.024*	*17-157 %*	*39.3*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*93.9*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-3-112221

21K0379-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 11/22/2021 10:50

Instrument: ICPMS2 Analyst: SKD — Analyzed: 12/03/2021 18:59

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21K0379-04 C 01

Preparation Batch: BJK0697 — Sample Size: 1.041 g (wet) — Dry Weight:0.59 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 56.47

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.41	0.85	44.7	mg/kg	
Lead	7439-92-1	20	0.09	0.17	10.1	mg/kg	
Silver	7440-22-4	20	0.04	0.34	0.15	mg/kg	J

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-3-112221

21K0379-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 11/22/2021 10:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/01/2021 05:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21K0379-04 C 01

Preparation Batch: BJK0697 — Sample Size: 1.041 g (wet) — Dry Weight:0.59 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 56.47

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.06	0.34	10.2	mg/kg	
Cadmium	7440-43-9	20	0.05	0.17	0.38	mg/kg	
Copper	7440-50-8	20	0.30	0.85	52.5	mg/kg	
Zinc	7440-66-6	20	5.0	10.2	105	mg/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-3-112221

21K0379-04 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/22/2021 10:50

Instrument: HYDRA Analyst: ML — Analyzed: 12/01/2021 11:25

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21K0379-04 C

Preparation Batch: BJK0698 — Sample Size: 0.235 g (wet) — Dry Weight:0.13 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 54.39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00821	0.0391	0.0636	mg/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-3-112221

21K0379-04 (Solid)

Wet Chemistry

Method: Plumb 1981, Combustion IR — Sampled: 11/22/2021 10:50

Instrument: TOC Cube Analyst: DOE — Analyzed: 11/30/2021 16:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: PSEP 1986 — Extract ID: 21K0379-04 C

Preparation Batch: BJK0703 — Sample Size: 0.5351 g (wet) — Dry Weight:0.30 g

Prepared: 11/29/2021 — Final Volume: 0.5351 mL — % Solids: 56.47

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	1.36	%	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-3-112221

21K0379-04 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/22/2021 10:50

Instrument: BAL2 Analyst: DOE — Analyzed: 11/24/2021 10:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21K0379-04

Preparation Batch: BJK0652 — Sample Size: 5 g (wet) — Dry Weight:2.82 g

Prepared: 11/24/2021 — Final Volume: 5 g — % Solids: 56.47

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	56.47	%	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-3-112221

21K0379-04RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 18:24

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-04RE1 A 01
	Preparation Batch: BJK0689	Sample Size: 16.98 g (wet)	Dry Weight:10.00 g
	Prepared: 11/30/2021	Final Volume: 1 mL	% Solids: 58.92
Sample Cleanup:	Cleanup Method: GPC		Extract ID:21K0379-04RE1 A 01
	Cleanup Batch: CJL0018	Initial Volume: 1 uL	
	Cleaned: 01-Dec-2021	Final Volume: 1 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	3	13.2	60.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	3	57.8	150	ND	ug/kg	U
2-Chlorophenol	95-57-8	3	41.5	60.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	3	9.4	60.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	3	9.4	60.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	3	7.1	60.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	3	48.8	60.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	3	10.1	60.0	ND	ug/kg	U
2-Methylphenol	95-48-7	3	20.0	60.0	ND	ug/kg	U
Hexachloroethane	67-72-1	3	10.3	60.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	3	22.3	60.0	ND	ug/kg	U
4-Methylphenol	106-44-5	3	22.2	60.0	26.8	ug/kg	J, D
Nitrobenzene	98-95-3	3	21.7	60.0	ND	ug/kg	U
Isophorone	78-59-1	3	11.8	60.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	3	14.6	60.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	3	11.3	300	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	3	12.9	60.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	3	45.9	300	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	3	10.7	60.0	ND	ug/kg	U
Naphthalene	91-20-3	3	12.7	60.0	32.0	ug/kg	J, D
Benzoic acid	65-85-0	3	117	600	ND	ug/kg	U
4-Chloroaniline	106-47-8	3	25.1	300	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	3	14.4	60.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	3	37.2	300	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	3	13.5	60.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	3	73.3	300	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	3	26.9	300	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	3	77.2	300	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	3	23.9	60.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	3	49.2	300	ND	ug/kg	U
Acenaphthylene	208-96-8	3	18.7	60.0	ND	ug/kg	U

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-3-112221

21K0379-04RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 18:24

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dimethylphthalate	131-11-3	3	13.2	60.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	3	61.4	300	ND	ug/kg	U
Acenaphthene	83-32-9	3	15.7	60.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	3	66.7	300	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	3	101	600	ND	ug/kg	U
Dibenzofuran	132-64-9	3	42.3	60.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	3	97.9	300	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	3	48.6	300	ND	ug/kg	U
Fluorene	86-73-7	3	43.7	60.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	3	57.4	150	ND	ug/kg	U
Diethyl phthalate	84-66-2	3	59.1	150	ND	ug/kg	U
4-Nitroaniline	100-01-6	3	88.2	300	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	3	114	600	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	3	16.0	60.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	3	51.0	60.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	3	40.4	60.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	3	93.7	300	ND	ug/kg	U
Phenanthrene	85-01-8	3	26.1	60.0	71.6	ug/kg	D
Anthracene	120-12-7	3	21.6	60.0	37.6	ug/kg	J, D
Carbazole	86-74-8	3	12.9	60.0	14.5	ug/kg	J, D
Di-n-Butylphthalate	84-74-2	3	16.8	60.0	ND	ug/kg	U
Fluoranthene	206-44-0	3	18.3	60.0	129	ug/kg	D
Pyrene	129-00-0	3	17.0	60.0	136	ug/kg	D
Butylbenzylphthalate	85-68-7	3	28.2	60.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	3	17.9	60.0	51.7	ug/kg	J, D
3,3'-Dichlorobenzidine	91-94-1	3	21.3	300	ND	ug/kg	U
Chrysene	218-01-9	3	18.2	60.0	85.8	ug/kg	D
bis(2-Ethylhexyl)phthalate	117-81-7	3	16.4	150	70.7	ug/kg	J, D
Di-n-Octylphthalate	117-84-0	3	13.2	60.0	ND	ug/kg	U
Benzofluoranthenes, Total		3	30.0	120	112	ug/kg	J, D
Benzo(a)pyrene	50-32-8	3	12.7	60.0	41.0	ug/kg	J, D
Indeno(1,2,3-cd)pyrene	193-39-5	3	43.9	60.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	3	51.7	60.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	3	40.8	60.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	3	15.8	60.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				*27-120 %*	*67.4*	*%*	
Surrogate: Phenol-d5				*29-120 %*	*64.4*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-3-112221

21K0379-04RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 10:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 18:24

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2-Chlorophenol-d4		*31-120 %*	*78.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*32-120 %*	*73.5*	*%*	
Surrogate: Nitrobenzene-d5		*30-120 %*	*78.6*	*%*	
Surrogate: 2-Fluorobiphenyl		*35-120 %*	*84.7*	*%*	
Surrogate: 2,4,6-Tribromophenol		*24-134 %*	*92.8*	*%*	
Surrogate: p-Terphenyl-d14		*37-120 %*	*93.3*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-4-112221

21K0379-05 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 13:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 16:36

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-05 A 01
	Preparation Batch: BJK0689	Sample Size: 16.83 g (wet)	Dry Weight:10.01 g
	Prepared: 11/30/2021	Final Volume: 1 mL	% Solids: 59.48
Sample Cleanup:	Cleanup Method: GPC		Extract ID:21K0379-05 A 01
	Cleanup Batch: CJL0018	Initial Volume: 1 uL	
	Cleaned: 01-Dec-2021	Final Volume: 1 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	4.4	20.0	9.7	ug/kg	J
bis(2-chloroethyl) ether	111-44-4	1	19.3	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	13.8	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	3.1	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	3.1	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.4	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	16.2	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	3.4	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	6.7	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	3.4	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	7.4	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	7.4	20.0	17.0	ug/kg	J
Nitrobenzene	98-95-3	1	7.2	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	3.9	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	4.9	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	3.8	99.9	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	4.3	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	15.3	99.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	3.6	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	4.2	20.0	22.3	ug/kg	
Benzoic acid	65-85-0	1	39.0	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	8.4	99.9	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	4.8	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	12.4	99.9	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	4.5	20.0	12.0	ug/kg	J
Hexachlorocyclopentadiene	77-47-4	1	24.4	99.9	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	9.0	99.9	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	25.7	99.9	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	8.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	16.4	99.9	ND	ug/kg	U
Acenaphthylene	208-96-8	1	6.2	20.0	7.8	ug/kg	J

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-4-112221

21K0379-05 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 13:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 16:36

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dimethylphthalate	131-11-3	1	4.4	20.0	10.5	ug/kg	J
2,6-Dinitrotoluene	606-20-2	1	20.5	99.9	ND	ug/kg	U
Acenaphthene	83-32-9	1	5.2	20.0	18.8	ug/kg	J
3-Nitroaniline	99-09-2	1	22.2	99.9	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	1	33.8	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	14.1	20.0	22.9	ug/kg	
4-Nitrophenol	100-02-7	1	32.6	99.9	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	16.2	99.9	ND	ug/kg	U
Fluorene	86-73-7	1	14.6	20.0	18.4	ug/kg	J
4-Chlorophenylphenyl ether	7005-72-3	1	19.1	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	19.7	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	29.4	99.9	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	38.0	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	5.3	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	17.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	13.5	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	31.2	99.9	ND	ug/kg	U
Phenanthrene	85-01-8	1	8.7	20.0	86.0	ug/kg	
Anthracene	120-12-7	1	7.2	20.0	22.0	ug/kg	
Carbazole	86-74-8	1	4.3	20.0	8.0	ug/kg	J
Di-n-Butylphthalate	84-74-2	1	5.6	20.0	21.0	ug/kg	
Fluoranthene	206-44-0	1	6.1	20.0	168	ug/kg	Q
Pyrene	129-00-0	1	5.7	20.0	144	ug/kg	Q
Butylbenzylphthalate	85-68-7	1	9.4	20.0	29.8	ug/kg	Q
Benzo(a)anthracene	56-55-3	1	6.0	20.0	33.8	ug/kg	
3,3'-Dichlorobenzidine	91-94-1	1	7.1	99.9	ND	ug/kg	U
Chrysene	218-01-9	1	6.1	20.0	76.5	ug/kg	
bis(2-Ethylhexyl)phthalate	117-81-7	1	5.5	49.9	186	ug/kg	
Di-n-Octylphthalate	117-84-0	1	4.4	20.0	ND	ug/kg	U
Benzofluoranthenes, Total		1	10.0	40.0	82.3	ug/kg	
Benzo(a)pyrene	50-32-8	1	4.2	20.0	24.7	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	14.6	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	17.2	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	13.6	20.0	21.0	ug/kg	
1-Methylnaphthalene	90-12-0	1	5.3	20.0	11.4	ug/kg	J
Surrogate: 2-Fluorophenol				*27-120 %*	*47.1*	*%*	
Surrogate: Phenol-d5				*29-120 %*	*55.1*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-4-112221

21K0379-05 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 13:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 16:36

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2-Chlorophenol-d4		*31-120 %*	*71.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*32-120 %*	*68.9*	*%*	
Surrogate: Nitrobenzene-d5		*30-120 %*	*70.3*	*%*	
Surrogate: 2-Fluorobiphenyl		*35-120 %*	*84.4*	*%*	
Surrogate: 2,4,6-Tribromophenol		*24-134 %*	*99.2*	*%*	
Surrogate: p-Terphenyl-d14		*37-120 %*	*92.3*	*%*	Q

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-4-112221

21K0379-05 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/22/2021 13:50

Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2021 20:24

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-05 A 02
	Preparation Batch: BJK0721	Sample Size: 21.04 g (wet)	Dry Weight:12.51 g
	Prepared: 11/30/2021	Final Volume: 2.5 mL	% Solids: 59.48
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21K0379-05 A 02
	Cleanup Batch: CJL0024	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21K0379-05 A 02
	Cleanup Batch: CJL0022	Initial Volume: 2.5 uL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21K0379-05 A 02
	Cleanup Batch: CJL0023	Initial Volume: 2.5 uL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	2.5	ug/kg	J
Aroclor 1254	11097-69-1	1	1.6	4.0	4.0	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	2.8	ug/kg	J
Aroclor 1262	37324-23-5	1	0.6	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*78.9*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*66.9*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*73.8*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*69.5*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
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Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-4-112221

21K0379-05 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 13:50

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 05:09

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 21K0379-05 B 01
	Preparation Batch: BJL0178	Sample Size: 16.81 g (wet)	Dry Weight:10.00 g
	Prepared: 11/07/2021	Final Volume: 20 uL	% Solids: 59.48
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21K0379-05 B 01
	Cleanup Batch: CKA0061	Initial Volume: 20 mL	
	Cleaned: 11-Jan-2022	Final Volume: 20 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21K0379-05 B 01
	Cleanup Batch: CKA0060	Initial Volume: 20 uL	
	Cleaned: 10-Jan-2022	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:21K0379-05 B 01
	Cleanup Batch: CKA0062	Initial Volume: 20 uL	
	Cleaned: 11-Jan-2021	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF		0.865	0.655-0.886	0.212	1.00	**1.34**	ng/kg	X
2,3,7,8-TCDD		0.717	0.655-0.886	0.222	1.00	**0.441**	ng/kg	J
1,2,3,7,8-PeCDF		1.903	1.318-1.783	0.265	1.00	**0.757**	ng/kg	EMPC, J
2,3,4,7,8-PeCDF		1.446	1.318-1.783	0.248	1.00	**0.675**	ng/kg	J
1,2,3,7,8-PeCDD		1.508	1.318-1.783	0.316	1.00	**3.01**	ng/kg	
1,2,3,4,7,8-HxCDF		1.216	1.054-1.426	0.214	1.00	**1.81**	ng/kg	
1,2,3,6,7,8-HxCDF		1.208	1.054-1.426	0.213	1.00	**1.79**	ng/kg	
2,3,4,6,7,8-HxCDF		1.156	1.054-1.426	0.214	1.00	**2.42**	ng/kg	
1,2,3,7,8,9-HxCDF		1.008	1.054-1.426	0.232	1.00	**0.535**	ng/kg	EMPC, J
1,2,3,4,7,8-HxCDD		1.176	1.054-1.426	0.349	1.00	**4.02**	ng/kg	
1,2,3,6,7,8-HxCDD		1.174	1.054-1.426	0.319	1.00	**13.6**	ng/kg	
1,2,3,7,8,9-HxCDD		1.125	1.054-1.426	0.362	1.00	**9.82**	ng/kg	
1,2,3,4,6,7,8-HpCDF		1.005	0.893-1.208	0.268	1.00	**48.8**	ng/kg	
1,2,3,4,7,8,9-HpCDF		1.277	0.893-1.208	0.371	1.00	**2.56**	ng/kg	EMPC
1,2,3,4,6,7,8-HpCDD		1.062	0.893-1.208	0.865	2.50	**331**	ng/kg	B
OCDF		0.920	0.757-1.024	0.490	2.50	**145**	ng/kg	B
OCDD		0.886	0.757-1.024	0.774	10.0	**2620**	ng/kg	B
Homologue groups								
Total TCDF					1.00	**8.85**	ng/kg	
Total TCDD					1.00	**7.49**	ng/kg	
Total PeCDF					1.00	**10.1**	ng/kg	
Total PeCDD					1.00	**14.0**	ng/kg	
Total HxCDF					1.00	**53.7**	ng/kg	
Total HxCDD					1.00	**102**	ng/kg	
Total HpCDF					1.00	**131**	ng/kg	
Total HpCDD					1.00	**716**	ng/kg	

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CS02-4-112221

21K0379-05 (Solid)

Dioxins/Furans

Method: EPA 1613B
Instrument: AUTOSPEC01 Analyst: pk

Sampled: 11/22/2021 13:50
Analyzed: 01/14/2022 05:09

Analysis by: Analytical Resources, LLC

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):					11.86		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):					11.86		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):					11.81		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):					11.76		

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-4-112221

21K0379-05 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 13:50

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 05:09

Analysis by: Analytical Resources, LLC

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.789*	*0.655-0.886*	*24-169 %*	*95.5*	*%*	
13C12-2,3,7,8-TCDD		*0.783*	*0.655-0.886*	*25-164 %*	*96.3*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.591*	*1.318-1.783*	*24-185 %*	*114*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.590*	*1.318-1.783*	*21-178 %*	*112*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.610*	*1.318-1.783*	*25-181 %*	*109*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.518*	*0.434-0.587*	*26-152 %*	*92.1*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.520*	*0.434-0.587*	*26-123 %*	*84.6*	*%*	
13C12-2,3,4,6,7,8-HxCDF		*0.512*	*0.434-0.587*	*28-136 %*	*90.1*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.514*	*0.434-0.587*	*29-147 %*	*94.5*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.259*	*1.054-1.426*	*32-141 %*	*93.6*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.277*	*1.054-1.426*	*28-130 %*	*84.7*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.456*	*0.374-0.506*	*28-143 %*	*87.5*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.444*	*0.374-0.506*	*26-138 %*	*88.2*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.083*	*0.893-1.208*	*23-140 %*	*94.2*	*%*	
13C12-OCDD		*0.923*	*0.757-1.024*	*17-157 %*	*88.6*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*100*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
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Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-4-112221

21K0379-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 11/22/2021 13:50

Instrument: ICPMS2 Analyst: SKD — Analyzed: 12/03/2021 19:03

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21K0379-05 C 01

Preparation Batch: BJK0697 — Sample Size: 1.007 g (wet) — Dry Weight:0.54 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 53.83

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.44	0.92	42.9	mg/kg	
Lead	7439-92-1	20	0.10	0.18	10.5	mg/kg	
Silver	7440-22-4	20	0.04	0.37	0.15	mg/kg	J

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-4-112221

21K0379-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 11/22/2021 13:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/01/2021 05:19

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21K0379-05 C 01

Preparation Batch: BJK0697 — Sample Size: 1.007 g (wet) — Dry Weight:0.54 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 53.83

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.07	0.37	10.0	mg/kg	
Cadmium	7440-43-9	20	0.06	0.18	0.39	mg/kg	
Copper	7440-50-8	20	0.32	0.92	51.5	mg/kg	
Zinc	7440-66-6	20	5.4	11.1	116	mg/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
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Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-4-112221

21K0379-05 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/22/2021 13:50

Instrument: HYDRA Analyst: ML — Analyzed: 12/01/2021 11:27

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21K0379-05 C

Preparation Batch: BJK0698 — Sample Size: 0.202 g (wet) — Dry Weight:0.11 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 55.96

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00929	0.0442	0.0530	mg/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
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Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-4-112221

21K0379-05 (Solid)

Wet Chemistry

Method: Plumb 1981, Combustion IR — Sampled: 11/22/2021 13:50

Instrument: TOC Cube Analyst: DOE — Analyzed: 11/30/2021 17:05

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: PSEP 1986 — Extract ID: 21K0379-05 C

Preparation Batch: BJK0703 — Sample Size: 0.401 g (wet) — Dry Weight:0.22 g

Prepared: 11/29/2021 — Final Volume: 0.401 mL — % Solids: 53.83

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	1.48	%	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
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CS02-4-112221

21K0379-05 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/22/2021 13:50

Instrument: BAL2 Analyst: DOE — Analyzed: 11/24/2021 10:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21K0379-05

Preparation Batch: BJK0652 — Sample Size: 5 g (wet) — Dry Weight:2.69 g

Prepared: 11/24/2021 — Final Volume: 5 g — % Solids: 53.83

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	53.83	%	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
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Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-4-112221

21K0379-05RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 13:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 19:02

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-05RE1 A 01
	Preparation Batch: BJK0689	Sample Size: 16.83 g (wet)	Dry Weight:10.01 g
	Prepared: 11/30/2021	Final Volume: 1 mL	% Solids: 59.48
Sample Cleanup:	Cleanup Method: GPC		Extract ID:21K0379-05RE1 A 01
	Cleanup Batch: CJL0018	Initial Volume: 1 uL	
	Cleaned: 01-Dec-2021	Final Volume: 1 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	3	13.2	59.9	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	3	57.8	150	ND	ug/kg	U
2-Chlorophenol	95-57-8	3	41.5	59.9	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	3	9.4	59.9	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	3	9.4	59.9	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	3	7.1	59.9	ND	ug/kg	U
Benzyl Alcohol	100-51-6	3	48.7	59.9	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	3	10.1	59.9	ND	ug/kg	U
2-Methylphenol	95-48-7	3	20.0	59.9	ND	ug/kg	U
Hexachloroethane	67-72-1	3	10.3	59.9	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	3	22.3	59.9	ND	ug/kg	U
4-Methylphenol	106-44-5	3	22.1	59.9	ND	ug/kg	U
Nitrobenzene	98-95-3	3	21.7	59.9	ND	ug/kg	U
Isophorone	78-59-1	3	11.8	59.9	ND	ug/kg	U
2-Nitrophenol	88-75-5	3	14.6	59.9	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	3	11.3	300	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	3	12.9	59.9	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	3	45.9	300	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	3	10.7	59.9	ND	ug/kg	U
Naphthalene	91-20-3	3	12.7	59.9	25.4	ug/kg	J, D
Benzoic acid	65-85-0	3	117	599	ND	ug/kg	U
4-Chloroaniline	106-47-8	3	25.1	300	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	3	14.4	59.9	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	3	37.2	300	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	3	13.5	59.9	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	3	73.3	300	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	3	26.9	300	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	3	77.2	300	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	3	23.9	59.9	ND	ug/kg	U
2-Nitroaniline	88-74-4	3	49.2	300	ND	ug/kg	U
Acenaphthylene	208-96-8	3	18.7	59.9	ND	ug/kg	U

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
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CS02-4-112221

21K0379-05RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 13:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 19:02

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dimethylphthalate	131-11-3	3	13.2	59.9	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	3	61.4	300	ND	ug/kg	U
Acenaphthene	83-32-9	3	15.6	59.9	19.5	ug/kg	J, D
3-Nitroaniline	99-09-2	3	66.7	300	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	3	101	599	ND	ug/kg	U
Dibenzofuran	132-64-9	3	42.3	59.9	ND	ug/kg	U
4-Nitrophenol	100-02-7	3	97.8	300	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	3	48.6	300	ND	ug/kg	U
Fluorene	86-73-7	3	43.7	59.9	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	3	57.4	150	ND	ug/kg	U
Diethyl phthalate	84-66-2	3	59.1	150	ND	ug/kg	U
4-Nitroaniline	100-01-6	3	88.1	300	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	3	114	599	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	3	15.9	59.9	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	3	51.0	59.9	ND	ug/kg	U
Hexachlorobenzene	118-74-1	3	40.4	59.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	3	93.7	300	ND	ug/kg	U
Phenanthrene	85-01-8	3	26.1	59.9	89.1	ug/kg	D
Anthracene	120-12-7	3	21.5	59.9	24.8	ug/kg	J, D
Carbazole	86-74-8	3	12.9	59.9	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	3	16.8	59.9	30.0	ug/kg	J, D
Fluoranthene	206-44-0	3	18.3	59.9	148	ug/kg	D
Pyrene	129-00-0	3	17.0	59.9	146	ug/kg	D
Butylbenzylphthalate	85-68-7	3	28.2	59.9	31.1	ug/kg	J, D
Benzo(a)anthracene	56-55-3	3	17.9	59.9	43.2	ug/kg	J, D
3,3'-Dichlorobenzidine	91-94-1	3	21.2	300	ND	ug/kg	U
Chrysene	218-01-9	3	18.2	59.9	88.7	ug/kg	D
bis(2-Ethylhexyl)phthalate	117-81-7	3	16.4	150	183	ug/kg	D
Di-n-Octylphthalate	117-84-0	3	13.2	59.9	ND	ug/kg	U
Benzofluoranthenes, Total		3	30.0	120	102	ug/kg	J, D
Benzo(a)pyrene	50-32-8	3	12.7	59.9	32.5	ug/kg	J, D
Indeno(1,2,3-cd)pyrene	193-39-5	3	43.9	59.9	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	3	51.6	59.9	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	3	40.7	59.9	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	3	15.8	59.9	ND	ug/kg	U
Surrogate: 2-Fluorophenol				*27-120 %*	*69.8*	*%*	
Surrogate: Phenol-d5				*29-120 %*	*66.2*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-4-112221

21K0379-05RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 13:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 19:02

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2-Chlorophenol-d4		*31-120 %*	*79.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*32-120 %*	*76.1*	*%*	
Surrogate: Nitrobenzene-d5		*30-120 %*	*79.2*	*%*	
Surrogate: 2-Fluorobiphenyl		*35-120 %*	*83.5*	*%*	
Surrogate: 2,4,6-Tribromophenol		*24-134 %*	*94.6*	*%*	
Surrogate: p-Terphenyl-d14		*37-120 %*	*93.8*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-5-112221

21K0379-06 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 14:20

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 17:14

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-06 A 01
	Preparation Batch: BJK0689	Sample Size: 19.09 g (wet)	Dry Weight:10.01 g
	Prepared: 11/30/2021	Final Volume: 1 mL	% Solids: 52.42
Sample Cleanup:	Cleanup Method: GPC		Extract ID:21K0379-06 A 01
	Cleanup Batch: CJL0018	Initial Volume: 1 uL	
	Cleaned: 01-Dec-2021	Final Volume: 1 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	4.4	20.0	14.3	ug/kg	J
bis(2-chloroethyl) ether	111-44-4	1	19.3	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	13.8	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	3.1	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	3.1	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.4	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	16.2	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	3.4	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	6.7	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	3.4	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	7.4	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	7.4	20.0	19.7	ug/kg	J
Nitrobenzene	98-95-3	1	7.2	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	3.9	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	4.9	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	3.8	99.9	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	4.3	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	15.3	99.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	3.6	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	4.2	20.0	15.7	ug/kg	J
Benzoic acid	65-85-0	1	39.0	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	8.4	99.9	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	4.8	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	12.4	99.9	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	4.5	20.0	7.2	ug/kg	J
Hexachlorocyclopentadiene	77-47-4	1	24.4	99.9	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	9.0	99.9	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	25.7	99.9	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	8.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	16.4	99.9	ND	ug/kg	U
Acenaphthylene	208-96-8	1	6.2	20.0	7.1	ug/kg	J

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-5-112221

21K0379-06 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 14:20

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 17:14

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dimethylphthalate	131-11-3	1	4.4	20.0	11.4	ug/kg	J
2,6-Dinitrotoluene	606-20-2	1	20.5	99.9	ND	ug/kg	U
Acenaphthene	83-32-9	1	5.2	20.0	6.5	ug/kg	J
3-Nitroaniline	99-09-2	1	22.2	99.9	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	1	33.8	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	14.1	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	32.6	99.9	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	16.2	99.9	ND	ug/kg	U
Fluorene	86-73-7	1	14.6	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	19.1	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	19.7	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	29.4	99.9	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	38.0	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	5.3	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	17.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	13.5	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	31.2	99.9	ND	ug/kg	U
Phenanthrene	85-01-8	1	8.7	20.0	49.7	ug/kg	
Anthracene	120-12-7	1	7.2	20.0	17.8	ug/kg	J
Carbazole	86-74-8	1	4.3	20.0	7.3	ug/kg	J
Di-n-Butylphthalate	84-74-2	1	5.6	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	6.1	20.0	139	ug/kg	Q
Pyrene	129-00-0	1	5.7	20.0	126	ug/kg	Q
Butylbenzylphthalate	85-68-7	1	9.4	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	6.0	20.0	39.7	ug/kg	
3,3'-Dichlorobenzidine	91-94-1	1	7.1	99.9	ND	ug/kg	U
Chrysene	218-01-9	1	6.1	20.0	71.6	ug/kg	
bis(2-Ethylhexyl)phthalate	117-81-7	1	5.5	50.0	217	ug/kg	
Di-n-Octylphthalate	117-84-0	1	4.4	20.0	ND	ug/kg	U
Benzofluoranthenes, Total		1	10.0	40.0	89.0	ug/kg	
Benzo(a)pyrene	50-32-8	1	4.2	20.0	36.8	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	14.6	20.0	19.4	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	17.2	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	13.6	20.0	23.9	ug/kg	
1-Methylnaphthalene	90-12-0	1	5.3	20.0	5.8	ug/kg	J
Surrogate: 2-Fluorophenol				*27-120 %*	*47.4*	*%*	
Surrogate: Phenol-d5				*29-120 %*	*55.5*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-5-112221

21K0379-06 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 14:20

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 17:14

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2-Chlorophenol-d4		*31-120 %*	*70.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*32-120 %*	*70.2*	*%*	
Surrogate: Nitrobenzene-d5		*30-120 %*	*70.9*	*%*	
Surrogate: 2-Fluorobiphenyl		*35-120 %*	*86.7*	*%*	
Surrogate: 2,4,6-Tribromophenol		*24-134 %*	*101*	*%*	
Surrogate: p-Terphenyl-d14		*37-120 %*	*89.9*	*%*	Q

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-5-112221

21K0379-06 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/22/2021 14:20
Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2021 20:45

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-06 A 02
	Preparation Batch: BJK0721	Sample Size: 23.86 g (wet)	Dry Weight:12.51 g
	Prepared: 11/30/2021	Final Volume: 2.5 mL	% Solids: 52.42
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21K0379-06 A 02
	Cleanup Batch: CJL0024	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21K0379-06 A 02
	Cleanup Batch: CJL0022	Initial Volume: 2.5 uL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21K0379-06 A 02
	Cleanup Batch: CJL0023	Initial Volume: 2.5 uL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	3.8	ug/kg	J
Aroclor 1254	11097-69-1	1	1.6	4.0	5.3	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	3.6	ug/kg	J
Aroclor 1262	37324-23-5	1	0.6	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*77.2*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*64.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*71.8*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*64.5*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-5-112221

21K0379-06 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 14:20

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 05:58

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 21K0379-06 B 01
	Preparation Batch: BJL0178	Sample Size: 19.09 g (wet)	Dry Weight:10.01 g
	Prepared: 11/07/2021	Final Volume: 20 uL	% Solids: 52.42
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21K0379-06 B 01
	Cleanup Batch: CKA0061	Initial Volume: 20 mL	
	Cleaned: 11-Jan-2022	Final Volume: 20 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21K0379-06 B 01
	Cleanup Batch: CKA0060	Initial Volume: 20 uL	
	Cleaned: 10-Jan-2022	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:21K0379-06 B 01
	Cleanup Batch: CKA0062	Initial Volume: 20 uL	
	Cleaned: 11-Jan-2021	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF		0.776	0.655-0.886	0.266	0.999	**1.98**	ng/kg	X
2,3,7,8-TCDD		0.419	0.655-0.886	0.254	0.999	**0.589**	ng/kg	EMPC, J
1,2,3,7,8-PeCDF		1.650	1.318-1.783	0.442	0.999	**0.802**	ng/kg	J
2,3,4,7,8-PeCDF		1.659	1.318-1.783	0.413	0.999	**0.918**	ng/kg	J
1,2,3,7,8-PeCDD		1.511	1.318-1.783	0.516	0.999	**3.47**	ng/kg	
1,2,3,4,7,8-HxCDF		1.224	1.054-1.426	0.233	0.999	**2.74**	ng/kg	
1,2,3,6,7,8-HxCDF		1.230	1.054-1.426	0.246	0.999	**2.64**	ng/kg	
2,3,4,6,7,8-HxCDF		1.321	1.054-1.426	0.239	0.999	**3.74**	ng/kg	
1,2,3,7,8,9-HxCDF		0.967	1.054-1.426	0.272	0.999	**0.940**	ng/kg	EMPC, J
1,2,3,4,7,8-HxCDD		1.206	1.054-1.426	0.261	0.999	**5.36**	ng/kg	
1,2,3,6,7,8-HxCDD		1.285	1.054-1.426	0.269	0.999	**12.4**	ng/kg	
1,2,3,7,8,9-HxCDD		1.255	1.054-1.426	0.288	0.999	**12.1**	ng/kg	
1,2,3,4,6,7,8-HpCDF		1.046	0.893-1.208	0.255	0.999	**75.3**	ng/kg	
1,2,3,4,7,8,9-HpCDF		1.116	0.893-1.208	0.372	0.999	**4.12**	ng/kg	
1,2,3,4,6,7,8-HpCDD		1.070	0.893-1.208	0.859	2.50	**322**	ng/kg	B
OCDF		0.901	0.757-1.024	0.649	2.50	**214**	ng/kg	B
OCDD		0.894	0.757-1.024	0.851	9.99	**2390**	ng/kg	B
Homologue groups								
Total TCDF					0.999	**12.3**	ng/kg	
Total TCDD					0.999	**10.9**	ng/kg	
Total PeCDF					0.999	**13.5**	ng/kg	
Total PeCDD					0.999	**13.9**	ng/kg	
Total HxCDF					0.999	**74.7**	ng/kg	
Total HxCDD					0.999	**62.9**	ng/kg	
Total HpCDF					0.999	**204**	ng/kg	
Total HpCDD					0.999	**652**	ng/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-5-112221

21K0379-06 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 14:20

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 05:58

Analysis by: Analytical Resources, LLC

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):					13.34		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):					13.34		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):					13.00		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):					12.66		

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-5-112221

21K0379-06 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 14:20

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 05:58

Analysis by: Analytical Resources, LLC

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.798*	*0.655-0.886*	*24-169 %*	*80.0*	*%*	
13C12-2,3,7,8-TCDD		*0.784*	*0.655-0.886*	*25-164 %*	*80.8*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.553*	*1.318-1.783*	*24-185 %*	*93.4*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.583*	*1.318-1.783*	*21-178 %*	*92.8*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.641*	*1.318-1.783*	*25-181 %*	*89.5*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.508*	*0.434-0.587*	*26-152 %*	*78.5*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.499*	*0.434-0.587*	*26-123 %*	*71.9*	*%*	
13C12-2,3,4,6,7,8-HxCDF		*0.510*	*0.434-0.587*	*28-136 %*	*78.1*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.507*	*0.434-0.587*	*29-147 %*	*78.5*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.249*	*1.054-1.426*	*32-141 %*	*79.9*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.231*	*1.054-1.426*	*28-130 %*	*71.9*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.451*	*0.374-0.506*	*28-143 %*	*72.5*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.446*	*0.374-0.506*	*26-138 %*	*73.6*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.061*	*0.893-1.208*	*23-140 %*	*77.4*	*%*	
13C12-OCDD		*0.920*	*0.757-1.024*	*17-157 %*	*67.6*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*90.6*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-5-112221

21K0379-06 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 11/22/2021 14:20

Instrument: ICPMS2 Analyst: SKD — Analyzed: 12/03/2021 19:07

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21K0379-06 C 01

Preparation Batch: BJK0697 — Sample Size: 1.052 g (wet) — Dry Weight:0.51 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 48.37

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.51	0.98	48.5	mg/kg	
Lead	7439-92-1	20	0.10	0.20	15.0	mg/kg	
Silver	7440-22-4	20	0.04	0.39	0.18	mg/kg	J

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-5-112221

21K0379-06 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 11/22/2021 14:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/01/2021 05:23

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21K0379-06 C 01

Preparation Batch: BJK0697 — Sample Size: 1.052 g (wet) — Dry Weight:0.51 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 48.37

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.07	0.39	11.7	mg/kg	
Cadmium	7440-43-9	20	0.06	0.20	0.51	mg/kg	
Copper	7440-50-8	20	0.34	0.98	64.7	mg/kg	
Zinc	7440-66-6	20	5.7	11.8	143	mg/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-5-112221

21K0379-06 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/22/2021 14:20

Instrument: HYDRA Analyst: ML — Analyzed: 12/01/2021 11:29

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21K0379-06 C

Preparation Batch: BJK0698 — Sample Size: 0.265 g (wet) — Dry Weight:0.13 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 48.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00814	0.0388	0.0876	mg/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-5-112221

21K0379-06 (Solid)

Wet Chemistry

Method: Plumb 1981, Combustion IR — Sampled: 11/22/2021 14:20

Instrument: TOC Cube Analyst: DOE — Analyzed: 11/30/2021 18:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: PSEP 1986 — Extract ID: 21K0379-06 C

Preparation Batch: BJK0703 — Sample Size: 0.4 g (wet) — Dry Weight:0.19 g

Prepared: 11/29/2021 — Final Volume: 0.4 mL — % Solids: 48.37

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	2.37	%	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-5-112221

21K0379-06 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/22/2021 14:20

Instrument: BAL2 Analyst: DOE — Analyzed: 11/24/2021 10:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21K0379-06

Preparation Batch: BJK0652 — Sample Size: 5 g (wet) — Dry Weight:2.42 g

Prepared: 11/24/2021 — Final Volume: 5 g — % Solids: 48.37

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	48.37	%	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-5-112221

21K0379-06RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 14:20

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 19:39

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-06RE1 A 01
	Preparation Batch: BJK0689	Sample Size: 19.09 g (wet)	Dry Weight:10.01 g
	Prepared: 11/30/2021	Final Volume: 1 mL	% Solids: 52.42
Sample Cleanup:	Cleanup Method: GPC		Extract ID:21K0379-06RE1 A 01
	Cleanup Batch: CJL0018	Initial Volume: 1 uL	
	Cleaned: 01-Dec-2021	Final Volume: 1 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	3	13.2	60.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	3	57.8	150	ND	ug/kg	U
2-Chlorophenol	95-57-8	3	41.5	60.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	3	9.4	60.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	3	9.4	60.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	3	7.1	60.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	3	48.7	60.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	3	10.1	60.0	ND	ug/kg	U
2-Methylphenol	95-48-7	3	20.0	60.0	ND	ug/kg	U
Hexachloroethane	67-72-1	3	10.3	60.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	3	22.3	60.0	ND	ug/kg	U
4-Methylphenol	106-44-5	3	22.2	60.0	ND	ug/kg	U
Nitrobenzene	98-95-3	3	21.7	60.0	ND	ug/kg	U
Isophorone	78-59-1	3	11.8	60.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	3	14.6	60.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	3	11.3	300	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	3	12.9	60.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	3	45.9	300	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	3	10.7	60.0	ND	ug/kg	U
Naphthalene	91-20-3	3	12.7	60.0	18.7	ug/kg	J, D
Benzoic acid	65-85-0	3	117	600	ND	ug/kg	U
4-Chloroaniline	106-47-8	3	25.1	300	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	3	14.4	60.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	3	37.2	300	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	3	13.5	60.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	3	73.3	300	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	3	26.9	300	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	3	77.2	300	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	3	23.9	60.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	3	49.2	300	ND	ug/kg	U
Acenaphthylene	208-96-8	3	18.7	60.0	ND	ug/kg	U

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-5-112221

21K0379-06RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 14:20

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 19:39

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dimethylphthalate	131-11-3	3	13.2	60.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	3	61.4	300	ND	ug/kg	U
Acenaphthene	83-32-9	3	15.6	60.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	3	66.7	300	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	3	101	600	ND	ug/kg	U
Dibenzofuran	132-64-9	3	42.3	60.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	3	97.9	300	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	3	48.6	300	ND	ug/kg	U
Fluorene	86-73-7	3	43.7	60.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	3	57.4	150	ND	ug/kg	U
Diethyl phthalate	84-66-2	3	59.1	150	ND	ug/kg	U
4-Nitroaniline	100-01-6	3	88.2	300	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	3	114	600	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	3	15.9	60.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	3	51.0	60.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	3	40.4	60.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	3	93.7	300	ND	ug/kg	U
Phenanthrene	85-01-8	3	26.1	60.0	59.1	ug/kg	J, D
Anthracene	120-12-7	3	21.6	60.0	22.8	ug/kg	J, D
Carbazole	86-74-8	3	12.9	60.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	3	16.8	60.0	ND	ug/kg	U
Fluoranthene	206-44-0	3	18.3	60.0	131	ug/kg	D
Pyrene	129-00-0	3	17.0	60.0	151	ug/kg	D
Butylbenzylphthalate	85-68-7	3	28.2	60.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	3	17.9	60.0	49.8	ug/kg	J, D
3,3'-Dichlorobenzidine	91-94-1	3	21.3	300	ND	ug/kg	U
Chrysene	218-01-9	3	18.2	60.0	99.2	ug/kg	D
bis(2-Ethylhexyl)phthalate	117-81-7	3	16.4	150	216	ug/kg	D
Di-n-Octylphthalate	117-84-0	3	13.2	60.0	ND	ug/kg	U
Benzofluoranthenes, Total		3	30.0	120	123	ug/kg	D
Benzo(a)pyrene	50-32-8	3	12.7	60.0	51.9	ug/kg	J, D
Indeno(1,2,3-cd)pyrene	193-39-5	3	43.9	60.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	3	51.7	60.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	3	40.7	60.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	3	15.8	60.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				*27-120 %*	*72.5*	*%*	
Surrogate: Phenol-d5				*29-120 %*	*66.8*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-5-112221

21K0379-06RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 14:20

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 19:39

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2-Chlorophenol-d4		*31-120 %*	*81.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*32-120 %*	*72.7*	*%*	
Surrogate: Nitrobenzene-d5		*30-120 %*	*78.6*	*%*	
Surrogate: 2-Fluorobiphenyl		*35-120 %*	*85.0*	*%*	
Surrogate: 2,4,6-Tribromophenol		*24-134 %*	*97.3*	*%*	
Surrogate: p-Terphenyl-d14		*37-120 %*	*103*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-6-112221

21K0379-07 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 14:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 17:51

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-07 A 01
	Preparation Batch: BJK0689	Sample Size: 17.32 g (wet)	Dry Weight:10.00 g
	Prepared: 11/30/2021	Final Volume: 1 mL	% Solids: 57.75
Sample Cleanup:	Cleanup Method: GPC		Extract ID:21K0379-07 A 01
	Cleanup Batch: CJL0018	Initial Volume: 1 uL	
	Cleaned: 01-Dec-2021	Final Volume: 1 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	4.4	20.0	11.3	ug/kg	J
bis(2-chloroethyl) ether	111-44-4	1	19.3	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	13.8	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	3.1	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	3.1	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.4	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	16.3	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	3.4	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	6.7	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	3.4	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	7.4	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	7.4	20.0	34.7	ug/kg	
Nitrobenzene	98-95-3	1	7.2	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	3.9	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	4.9	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	3.8	100	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	4.3	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	15.3	100	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	3.6	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	4.2	20.0	25.1	ug/kg	
Benzoic acid	65-85-0	1	39.0	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	8.4	100	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	4.8	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	12.4	100	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	4.5	20.0	12.8	ug/kg	J
Hexachlorocyclopentadiene	77-47-4	1	24.5	100	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	9.0	100	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	25.7	100	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	8.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	16.4	100	ND	ug/kg	U
Acenaphthylene	208-96-8	1	6.2	20.0	8.9	ug/kg	J

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-6-112221

21K0379-07 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 14:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 17:51

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dimethylphthalate	131-11-3	1	4.4	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	20.5	100	ND	ug/kg	U
Acenaphthene	83-32-9	1	5.2	20.0	12.6	ug/kg	J
3-Nitroaniline	99-09-2	1	22.3	100	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	1	33.8	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	14.1	20.0	14.2	ug/kg	J
4-Nitrophenol	100-02-7	1	32.6	100	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	16.2	100	ND	ug/kg	U
Fluorene	86-73-7	1	14.6	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	19.1	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	19.7	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	29.4	100	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	38.0	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	5.3	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	17.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	13.5	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	31.2	100	ND	ug/kg	U
Phenanthrene	85-01-8	1	8.7	20.0	55.3	ug/kg	
Anthracene	120-12-7	1	7.2	20.0	22.9	ug/kg	
Carbazole	86-74-8	1	4.3	20.0	7.0	ug/kg	J
Di-n-Butylphthalate	84-74-2	1	5.6	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	6.1	20.0	132	ug/kg	Q
Pyrene	129-00-0	1	5.7	20.0	132	ug/kg	Q
Butylbenzylphthalate	85-68-7	1	9.4	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	6.0	20.0	44.4	ug/kg	
3,3'-Dichlorobenzidine	91-94-1	1	7.1	100	ND	ug/kg	U
Chrysene	218-01-9	1	6.1	20.0	91.0	ug/kg	
bis(2-Ethylhexyl)phthalate	117-81-7	1	5.5	50.0	241	ug/kg	
Di-n-Octylphthalate	117-84-0	1	4.4	20.0	ND	ug/kg	U
Benzofluoranthenes, Total		1	10.0	40.0	111	ug/kg	
Benzo(a)pyrene	50-32-8	1	4.2	20.0	41.0	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	14.6	20.0	20.5	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	17.2	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	13.6	20.0	27.4	ug/kg	
1-Methylnaphthalene	90-12-0	1	5.3	20.0	7.0	ug/kg	J
Surrogate: 2-Fluorophenol				*27-120 %*	*46.0*	*%*	
Surrogate: Phenol-d5				*29-120 %*	*53.6*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-6-112221

21K0379-07 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 14:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/02/2021 17:51

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2-Chlorophenol-d4		*31-120 %*	*68.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*32-120 %*	*68.4*	*%*	
Surrogate: Nitrobenzene-d5		*30-120 %*	*68.3*	*%*	
Surrogate: 2-Fluorobiphenyl		*35-120 %*	*84.5*	*%*	
Surrogate: 2,4,6-Tribromophenol		*24-134 %*	*95.5*	*%*	
Surrogate: p-Terphenyl-d14		*37-120 %*	*80.7*	*%*	Q

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-6-112221

21K0379-07 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/22/2021 14:50

Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2021 21:06

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-07 A 02
	Preparation Batch: BJK0721	Sample Size: 21.65 g (wet)	Dry Weight:12.50 g
	Prepared: 11/30/2021	Final Volume: 2.5 mL	% Solids: 57.75
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21K0379-07 A 02
	Cleanup Batch: CJL0024	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21K0379-07 A 02
	Cleanup Batch: CJL0022	Initial Volume: 2.5 uL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21K0379-07 A 02
	Cleanup Batch: CJL0023	Initial Volume: 2.5 uL	
	Cleaned: 02-Dec-2021	Final Volume: 2.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	3.3	ug/kg	J
Aroclor 1254	11097-69-1	1	1.6	4.0	6.1	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	3.5	ug/kg	J
Aroclor 1262	37324-23-5	1	0.6	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*79.6*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*71.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*76.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*73.5*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-6-112221

21K0379-07 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 14:50

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 06:48

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 21K0379-07 B 01
	Preparation Batch: BJL0178	Sample Size: 17.32 g (wet)	Dry Weight:10.00 g
	Prepared: 11/07/2021	Final Volume: 20 uL	% Solids: 57.75
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21K0379-07 B 01
	Cleanup Batch: CKA0061	Initial Volume: 20 mL	
	Cleaned: 11-Jan-2022	Final Volume: 20 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21K0379-07 B 01
	Cleanup Batch: CKA0060	Initial Volume: 20 uL	
	Cleaned: 10-Jan-2022	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:21K0379-07 B 01
	Cleanup Batch: CKA0062	Initial Volume: 20 uL	
	Cleaned: 11-Jan-2021	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF		0.696	0.655-0.886	0.188	1.00	**1.30**	ng/kg	X
2,3,7,8-TCDD		0.629	0.655-0.886	0.152	1.00	**0.387**	ng/kg	EMPC, J
1,2,3,7,8-PeCDF		1.464	1.318-1.783	0.312	1.00	**0.548**	ng/kg	J
2,3,4,7,8-PeCDF		1.094	1.318-1.783	0.297	1.00	**0.526**	ng/kg	EMPC, J
1,2,3,7,8-PeCDD		1.486	1.318-1.783	0.240	1.00	**2.12**	ng/kg	
1,2,3,4,7,8-HxCDF		1.388	1.054-1.426	0.271	1.00	**1.50**	ng/kg	
1,2,3,6,7,8-HxCDF		1.186	1.054-1.426	0.283	1.00	**1.31**	ng/kg	
2,3,4,6,7,8-HxCDF		1.192	1.054-1.426	0.286	1.00	**2.03**	ng/kg	
1,2,3,7,8,9-HxCDF			1.054-1.426	0.326	1.00	ND	ng/kg	U
1,2,3,4,7,8-HxCDD		1.126	1.054-1.426	0.313	1.00	**2.36**	ng/kg	
1,2,3,6,7,8-HxCDD		1.083	1.054-1.426	0.301	1.00	**7.11**	ng/kg	
1,2,3,7,8,9-HxCDD		1.189	1.054-1.426	0.333	1.00	**5.58**	ng/kg	
1,2,3,4,6,7,8-HpCDF		1.026	0.893-1.208	0.211	1.00	**34.4**	ng/kg	
1,2,3,4,7,8,9-HpCDF		0.835	0.893-1.208	0.291	1.00	**1.97**	ng/kg	EMPC
1,2,3,4,6,7,8-HpCDD		1.055	0.893-1.208	0.588	2.50	**184**	ng/kg	B
OCDF		0.929	0.757-1.024	0.343	2.50	**98.7**	ng/kg	B
OCDD		0.883	0.757-1.024	0.788	10.0	**1500**	ng/kg	B
Homologue groups								
Total TCDF					1.00	**5.62**	ng/kg	
Total TCDD					1.00	**9.74**	ng/kg	
Total PeCDF					1.00	**10.0**	ng/kg	
Total PeCDD					1.00	**8.35**	ng/kg	
Total HxCDF					1.00	**37.0**	ng/kg	
Total HxCDD					1.00	**59.4**	ng/kg	
Total HpCDF					1.00	**94.6**	ng/kg	
Total HpCDD					1.00	**419**	ng/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-6-112221

21K0379-07 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 14:50

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 06:48

Analysis by: Analytical Resources, LLC

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):					7.50		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):					7.48		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):					7.22		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):					6.92		

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-6-112221

21K0379-07 (Solid)

Dioxins/Furans

Method: EPA 1613B — Sampled: 11/22/2021 14:50

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 01/14/2022 06:48

Analysis by: Analytical Resources, LLC

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.800*	*0.655-0.886*	*24-169 %*	*91.0*	*%*	
13C12-2,3,7,8-TCDD		*0.786*	*0.655-0.886*	*25-164 %*	*91.4*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.600*	*1.318-1.783*	*24-185 %*	*110*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.577*	*1.318-1.783*	*21-178 %*	*108*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.585*	*1.318-1.783*	*25-181 %*	*104*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.512*	*0.434-0.587*	*26-152 %*	*86.6*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.519*	*0.434-0.587*	*26-123 %*	*79.0*	*%*	
13C12-2,3,4,6,7,8-HxCDF		*0.509*	*0.434-0.587*	*28-136 %*	*84.6*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.504*	*0.434-0.587*	*29-147 %*	*86.9*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.263*	*1.054-1.426*	*32-141 %*	*90.1*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.266*	*1.054-1.426*	*28-130 %*	*79.7*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.452*	*0.374-0.506*	*28-143 %*	*80.1*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.457*	*0.374-0.506*	*26-138 %*	*83.9*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.098*	*0.893-1.208*	*23-140 %*	*89.0*	*%*	
13C12-OCDD		*0.905*	*0.757-1.024*	*17-157 %*	*81.1*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*96.7*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-6-112221

21K0379-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 11/22/2021 14:50

Instrument: ICPMS2 Analyst: SKD — Analyzed: 12/03/2021 19:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21K0379-07 C 01

Preparation Batch: BJK0697 — Sample Size: 1.022 g (wet) — Dry Weight:0.54 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 53.12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	20	0.48	0.92	39.3	mg/kg	
Lead	7439-92-1	20	0.10	0.18	10.3	mg/kg	
Silver	7440-22-4	20	0.04	0.37	0.13	mg/kg	J

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-6-112221

21K0379-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 11/22/2021 14:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/01/2021 05:27

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21K0379-07 C 01

Preparation Batch: BJK0697 — Sample Size: 1.022 g (wet) — Dry Weight:0.54 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 53.12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.07	0.37	9.06	mg/kg	
Cadmium	7440-43-9	20	0.06	0.18	0.39	mg/kg	
Copper	7440-50-8	20	0.32	0.92	48.7	mg/kg	
Zinc	7440-66-6	20	5.4	11.1	99.4	mg/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
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Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-6-112221

21K0379-07 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/22/2021 14:50

Instrument: HYDRA Analyst: ML — Analyzed: 12/01/2021 11:32

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21K0379-07 C

Preparation Batch: BJK0698 — Sample Size: 0.292 g (wet) — Dry Weight:0.16 g

Prepared: 11/29/2021 — Final Volume: 50 mL — % Solids: 54.95

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00654	0.0312	0.0816	mg/kg	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-6-112221

21K0379-07 (Solid)

Wet Chemistry

Method: Plumb 1981, Combustion IR — Sampled: 11/22/2021 14:50

Instrument: TOC Cube Analyst: DOE — Analyzed: 11/30/2021 19:05

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: PSEP 1986 — Extract ID: 21K0379-07 C

Preparation Batch: BJK0703 — Sample Size: 0.4179 g (wet) — Dry Weight:0.22 g

Prepared: 11/29/2021 — Final Volume: 0.4179 mL — % Solids: 53.12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	1.67	%	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-6-112221

21K0379-07 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/22/2021 14:50

Instrument: BAL2 Analyst: DOE — Analyzed: 11/24/2021 10:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21K0379-07

Preparation Batch: BJK0652 — Sample Size: 5 g (wet) — Dry Weight:2.66 g

Prepared: 11/24/2021 — Final Volume: 5 g — % Solids: 53.12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	53.12	%	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-6-112221

21K0379-07RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 14:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 20:17

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21K0379-07RE1 A 01
	Preparation Batch: BJK0689	Sample Size: 17.32 g (wet)	Dry Weight:10.00 g
	Prepared: 11/30/2021	Final Volume: 1 mL	% Solids: 57.75
Sample Cleanup:	Cleanup Method: GPC		Extract ID:21K0379-07RE1 A 01
	Cleanup Batch: CJL0018	Initial Volume: 1 uL	
	Cleaned: 01-Dec-2021	Final Volume: 1 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	3	13.2	60.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	3	57.9	150	ND	ug/kg	U
2-Chlorophenol	95-57-8	3	41.5	60.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	3	9.4	60.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	3	9.4	60.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	3	7.1	60.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	3	48.8	60.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	3	10.1	60.0	ND	ug/kg	U
2-Methylphenol	95-48-7	3	20.0	60.0	ND	ug/kg	U
Hexachloroethane	67-72-1	3	10.3	60.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	3	22.3	60.0	ND	ug/kg	U
4-Methylphenol	106-44-5	3	22.2	60.0	27.2	ug/kg	J, D
Nitrobenzene	98-95-3	3	21.7	60.0	ND	ug/kg	U
Isophorone	78-59-1	3	11.8	60.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	3	14.6	60.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	3	11.3	300	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	3	12.9	60.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	3	45.9	300	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	3	10.7	60.0	ND	ug/kg	U
Naphthalene	91-20-3	3	12.7	60.0	27.4	ug/kg	J, D
Benzoic acid	65-85-0	3	117	600	ND	ug/kg	U
4-Chloroaniline	106-47-8	3	25.1	300	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	3	14.4	60.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	3	37.2	300	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	3	13.5	60.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	3	73.4	300	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	3	26.9	300	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	3	77.2	300	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	3	23.9	60.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	3	49.2	300	ND	ug/kg	U
Acenaphthylene	208-96-8	3	18.7	60.0	ND	ug/kg	U

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-6-112221

21K0379-07RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 14:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 20:17

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Dimethylphthalate	131-11-3	3	13.2	60.0	21.2	ug/kg	J, D
2,6-Dinitrotoluene	606-20-2	3	61.4	300	ND	ug/kg	U
Acenaphthene	83-32-9	3	15.7	60.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	3	66.8	300	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	3	101	600	ND	ug/kg	U
Dibenzofuran	132-64-9	3	42.4	60.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	3	97.9	300	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	3	48.6	300	ND	ug/kg	U
Fluorene	86-73-7	3	43.7	60.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	3	57.4	150	ND	ug/kg	U
Diethyl phthalate	84-66-2	3	59.1	150	ND	ug/kg	U
4-Nitroaniline	100-01-6	3	88.2	300	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	3	114	600	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	3	16.0	60.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	3	51.0	60.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	3	40.4	60.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	3	93.7	300	ND	ug/kg	U
Phenanthrene	85-01-8	3	26.2	60.0	63.4	ug/kg	D
Anthracene	120-12-7	3	21.6	60.0	26.1	ug/kg	J, D
Carbazole	86-74-8	3	12.9	60.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	3	16.8	60.0	ND	ug/kg	U
Fluoranthene	206-44-0	3	18.3	60.0	126	ug/kg	D
Pyrene	129-00-0	3	17.0	60.0	147	ug/kg	D
Butylbenzylphthalate	85-68-7	3	28.2	60.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	3	17.9	60.0	54.9	ug/kg	J, D
3,3'-Dichlorobenzidine	91-94-1	3	21.3	300	ND	ug/kg	U
Chrysene	218-01-9	3	18.2	60.0	105	ug/kg	D
bis(2-Ethylhexyl)phthalate	117-81-7	3	16.4	150	240	ug/kg	D
Di-n-Octylphthalate	117-84-0	3	13.2	60.0	ND	ug/kg	U
Benzofluoranthenes, Total		3	30.0	120	130	ug/kg	D
Benzo(a)pyrene	50-32-8	3	12.7	60.0	51.9	ug/kg	J, D
Indeno(1,2,3-cd)pyrene	193-39-5	3	43.9	60.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	3	51.7	60.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	3	40.8	60.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	3	15.8	60.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				*27-120 %*	*64.3*	*%*	
Surrogate: Phenol-d5				*29-120 %*	*60.9*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

CS02-6-112221

21K0379-07RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 11/22/2021 14:50

Instrument: NT10 Analyst: VTS — Analyzed: 12/06/2021 20:17

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2-Chlorophenol-d4		*31-120 %*	*74.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*32-120 %*	*71.1*	*%*	
Surrogate: Nitrobenzene-d5		*30-120 %*	*73.4*	*%*	
Surrogate: 2-Fluorobiphenyl		*35-120 %*	*80.9*	*%*	
Surrogate: 2,4,6-Tribromophenol		*24-134 %*	*82.5*	*%*	
Surrogate: p-Terphenyl-d14		*37-120 %*	*89.3*	*%*	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BJK0689 - EPA 3546 (Microwave)

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJK0689-BLK1)				Prepared: 30-Nov-2021 Analyzed: 02-Dec-2021 12:50							
Phenol	ND	4.4	20.0	ug/kg							U
bis(2-chloroethyl) ether	ND	19.3	50.0	ug/kg							U
2-Chlorophenol	ND	13.9	20.0	ug/kg							U
1,3-Dichlorobenzene	ND	3.1	20.0	ug/kg							U
1,4-Dichlorobenzene	ND	3.1	20.0	ug/kg							U
1,2-Dichlorobenzene	ND	2.4	20.0	ug/kg							U
Benzyl Alcohol	ND	16.3	20.0	ug/kg							U
2,2'-Oxybis(1-chloropropane)	ND	3.4	20.0	ug/kg							U
2-Methylphenol	ND	6.7	20.0	ug/kg							U
Hexachloroethane	ND	3.5	20.0	ug/kg							U
N-Nitroso-di-n-Propylamine	ND	7.5	20.0	ug/kg							U
4-Methylphenol	ND	7.4	20.0	ug/kg							U
Nitrobenzene	ND	7.2	20.0	ug/kg							U
Isophorone	ND	3.9	20.0	ug/kg							U
2-Nitrophenol	ND	4.9	20.0	ug/kg							U
2,4-Dimethylphenol	ND	3.8	100	ug/kg							U
Bis(2-Chloroethoxy)methane	ND	4.3	20.0	ug/kg							U
2,4-Dichlorophenol	ND	15.3	100	ug/kg							U
1,2,4-Trichlorobenzene	ND	3.6	20.0	ug/kg							U
Naphthalene	ND	4.2	20.0	ug/kg							U
Benzoic acid	ND	39.0	200	ug/kg							U
4-Chloroaniline	ND	8.4	100	ug/kg							U
Hexachlorobutadiene	ND	4.8	20.0	ug/kg							U
4-Chloro-3-Methylphenol	ND	12.4	100	ug/kg							U
2-Methylnaphthalene	ND	4.5	20.0	ug/kg							U
Hexachlorocyclopentadiene	ND	24.5	100	ug/kg							U
2,4,6-Trichlorophenol	ND	9.0	100	ug/kg							U
2,4,5-Trichlorophenol	ND	25.8	100	ug/kg							U
2-Chloronaphthalene	ND	8.0	20.0	ug/kg							U
2-Nitroaniline	ND	16.4	100	ug/kg							U
Acenaphthylene	ND	6.2	20.0	ug/kg							U
Dimethylphthalate	ND	4.4	20.0	ug/kg							U
2,6-Dinitrotoluene	ND	20.5	100	ug/kg							U
Acenaphthene	ND	5.2	20.0	ug/kg							U
3-Nitroaniline	ND	22.3	100	ug/kg							U

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BJK0689 - EPA 3546 (Microwave)

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJK0689-BLK1)				Prepared: 30-Nov-2021 Analyzed: 02-Dec-2021 12:50							
2,4-Dinitrophenol	ND	33.8	200	ug/kg							U
Dibenzofuran	ND	14.1	20.0	ug/kg							U
4-Nitrophenol	ND	32.6	100	ug/kg							U
2,4-Dinitrotoluene	ND	16.2	100	ug/kg							U
Fluorene	ND	14.6	20.0	ug/kg							U
4-Chlorophenylphenyl ether	ND	19.2	50.0	ug/kg							U
Diethyl phthalate	ND	19.7	50.0	ug/kg							U
4-Nitroaniline	ND	29.4	100	ug/kg							U
4,6-Dinitro-2-methylphenol	ND	38.0	200	ug/kg							U
N-Nitrosodiphenylamine	ND	5.3	20.0	ug/kg							U
4-Bromophenyl phenyl ether	ND	17.0	20.0	ug/kg							U
Hexachlorobenzene	ND	13.5	20.0	ug/kg							U
Pentachlorophenol	ND	31.3	100	ug/kg							U
Phenanthrene	ND	8.7	20.0	ug/kg							U
Anthracene	ND	7.2	20.0	ug/kg							U
Carbazole	ND	4.3	20.0	ug/kg							U
Di-n-Butylphthalate	ND	5.6	20.0	ug/kg							U
Fluoranthene	ND	6.1	20.0	ug/kg							U
Pyrene	ND	5.7	20.0	ug/kg							U
Butylbenzylphthalate	ND	9.4	20.0	ug/kg							U
Benzo(a)anthracene	ND	6.0	20.0	ug/kg							U
3,3'-Dichlorobenzidine	ND	7.1	100	ug/kg							U
Chrysene	ND	6.1	20.0	ug/kg							U
bis(2-Ethylhexyl)phthalate	ND	5.5	50.0	ug/kg							U
Di-n-Octylphthalate	ND	4.4	20.0	ug/kg							U
Benzofluoranthenes, Total	ND	10.0	40.0	ug/kg							U
Benzo(a)pyrene	ND	4.2	20.0	ug/kg							U
Indeno(1,2,3-cd)pyrene	ND	14.7	20.0	ug/kg							U
Dibenzo(a,h)anthracene	ND	17.2	20.0	ug/kg							U
Benzo(g,h,i)perylene	ND	13.6	20.0	ug/kg							U
1-Methylnaphthalene	ND	5.3	20.0	ug/kg							U
Surrogate: 2-Fluorophenol	349			ug/kg	*750*		*46.5*	*27-120*			
Surrogate: Phenol-d5	392			ug/kg	*750*		*52.3*	*29-120*			
Surrogate: 2-Chlorophenol-d4	518			ug/kg	*750*		*69.0*	*31-120*			

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BJK0689 - EPA 3546 (Microwave)

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJK0689-BLK1)				Prepared: 30-Nov-2021 Analyzed: 02-Dec-2021 12:50							
Surrogate: 1,2-Dichlorobenzene-d4	352			ug/kg	*500*		*70.4*	*32-120*			
Surrogate: Nitrobenzene-d5	337			ug/kg	*500*		*67.3*	*30-120*			
Surrogate: 2-Fluorobiphenyl	388			ug/kg	*500*		*77.6*	*35-120*			
Surrogate: 2,4,6-Tribromophenol	584			ug/kg	*750*		*77.8*	*24-134*			
Surrogate: p-Terphenyl-d14	414			ug/kg	*500*		*82.8*	*37-120*			*Q*
LCS (BJK0689-BS1)				Prepared: 30-Nov-2021 Analyzed: 02-Dec-2021 13:28							
Phenol	317	4.4	20.0	ug/kg	500		63.4	34-120			
bis(2-chloroethyl) ether	349	19.3	50.0	ug/kg	500		69.9	36-120			
2-Chlorophenol	306	13.9	20.0	ug/kg	500		61.3	39-120			
1,3-Dichlorobenzene	308	3.1	20.0	ug/kg	500		61.6	40-120			
1,4-Dichlorobenzene	367	3.1	20.0	ug/kg	500		73.4	39-120			
1,2-Dichlorobenzene	334	2.4	20.0	ug/kg	500		66.7	40-120			
Benzyl Alcohol	349	16.3	20.0	ug/kg	500		69.7	19-120			
2,2'-Oxybis(1-chloropropane)	377	3.4	20.0	ug/kg	500		75.4	32-120			Q
2-Methylphenol	340	6.7	20.0	ug/kg	500		67.9	28-120			
Hexachloroethane	380	3.5	20.0	ug/kg	500		76.1	38-120			
N-Nitroso-di-n-Propylamine	347	7.5	20.0	ug/kg	500		69.3	34-120			
4-Methylphenol	333	7.4	20.0	ug/kg	500		66.6	29-120			
Nitrobenzene	350	7.2	20.0	ug/kg	500		69.9	36-120			
Isophorone	471	3.9	20.0	ug/kg	500		94.2	37-120			
2-Nitrophenol	400	4.9	20.0	ug/kg	500		80.1	30-120			Q
2,4-Dimethylphenol	855	3.8	100	ug/kg	1300		65.8	10-120			
Bis(2-Chloroethoxy)methane	438	4.3	20.0	ug/kg	500		87.6	39-120			
2,4-Dichlorophenol	1140	15.3	100	ug/kg	1300		87.3	28-120			
1,2,4-Trichlorobenzene	312	3.6	20.0	ug/kg	500		62.4	35-120			
Naphthalene	322	4.2	20.0	ug/kg	500		64.5	43-120			
Benzoic acid	1310	39.0	200	ug/kg	2300		57.1	10-120			
4-Chloroaniline	992	8.4	100	ug/kg	1300		76.3	11-120			
Hexachlorobutadiene	316	4.8	20.0	ug/kg	500		63.2	37-120			
4-Chloro-3-Methylphenol	1200	12.4	100	ug/kg	1300		92.0	32-120			
2-Methylnaphthalene	351	4.5	20.0	ug/kg	500		70.2	43-120			
Hexachlorocyclopentadiene	489	24.5	100	ug/kg	1300		37.6	10-120			Q
2,4,6-Trichlorophenol	1120	9.0	100	ug/kg	1300		85.9	44.6-132			
2,4,5-Trichlorophenol	1110	25.8	100	ug/kg	1300		85.1	51.5-129			

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BJK0689 - EPA 3546 (Microwave)

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJK0689-BS1)				Prepared: 30-Nov-2021 Analyzed: 02-Dec-2021 13:28							
2-Chloronaphthalene	362	8.0	20.0	ug/kg	500		72.3	40-120			
2-Nitroaniline	1260	16.4	100	ug/kg	1300		97.2	40-152			
Acenaphthylene	290	6.2	20.0	ug/kg	500		57.9	42-120			
Dimethylphthalate	360	4.4	20.0	ug/kg	500		72.0	43-120			
2,6-Dinitrotoluene	1330	20.5	100	ug/kg	1300		102	31-156			
Acenaphthene	322	5.2	20.0	ug/kg	500		64.5	45-120			
3-Nitroaniline	1030	22.3	100	ug/kg	1300		78.9	22-120			
2,4-Dinitrophenol	1630	33.8	200	ug/kg	2300		70.8	10-120			
Dibenzofuran	358	14.1	20.0	ug/kg	500		71.5	43-120			
4-Nitrophenol	812	32.6	100	ug/kg	1300		62.4	15-138			Q
2,4-Dinitrotoluene	1330	16.2	100	ug/kg	1300		102	44-150			Q
Fluorene	244	14.6	20.0	ug/kg	500		48.9	45-120			
4-Chlorophenylphenyl ether	225	19.2	50.0	ug/kg	500		45.1	36-141			Q
Diethyl phthalate	360	19.7	50.0	ug/kg	500		71.9	50-120			
4-Nitroaniline	1080	29.4	100	ug/kg	1300		83.3	24-168			
4,6-Dinitro-2-methylphenol	2130	38.0	200	ug/kg	2300		92.7	33-144			
N-Nitrosodiphenylamine	371	5.3	20.0	ug/kg	500		74.2	70-154			
4-Bromophenyl phenyl ether	398	17.0	20.0	ug/kg	500		79.6	39-120			
Hexachlorobenzene	354	13.5	20.0	ug/kg	500		70.9	33-120			
Pentachlorophenol	556	31.3	100	ug/kg	1300		42.8	16-120			Q
Phenanthrene	343	8.7	20.0	ug/kg	500		68.6	49-120			
Anthracene	330	7.2	20.0	ug/kg	500		65.9	45-120			
Carbazole	373	4.3	20.0	ug/kg	500		74.7	43-135			
Di-n-Butylphthalate	422	5.6	20.0	ug/kg	500		84.5	48-126			
Fluoranthene	441	6.1	20.0	ug/kg	500		88.2	53-145			Q
Pyrene	446	5.7	20.0	ug/kg	500		89.3	52-134			Q
Butylbenzylphthalate	436	9.4	20.0	ug/kg	500		87.2	45-132			Q
Benzo(a)anthracene	397	6.0	20.0	ug/kg	500		79.5	49-120			
3,3'-Dichlorobenzidine	1030	7.1	100	ug/kg	1300		79.5	10-120			
Chrysene	374	6.1	20.0	ug/kg	500		74.8	47-120			
bis(2-Ethylhexyl)phthalate	398	5.5	50.0	ug/kg	500		79.6	34-130			
Di-n-Octylphthalate	392	4.4	20.0	ug/kg	500		78.4	28-124			
Benzofluoranthenes, Total	803	10.0	40.0	ug/kg	1000		80.3	30-160			
Benzo(a)pyrene	387	4.2	20.0	ug/kg	500		77.4	42-120			
Indeno(1,2,3-cd)pyrene	384	14.7	20.0	ug/kg	500		76.7	42-163			

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BJK0689 - EPA 3546 (Microwave)

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJK0689-BS1)				Prepared: 30-Nov-2021 Analyzed: 02-Dec-2021 13:28							
Dibenzo(a,h)anthracene	369	17.2	20.0	ug/kg	500		73.7	30-133			
Benzo(g,h,i)perylene	369	13.6	20.0	ug/kg	500		73.8	46-148			
1-Methylnaphthalene	379	5.3	20.0	ug/kg	500		75.8	42-120			
Surrogate: 2-Fluorophenol	452			ug/kg	*750*		*60.2*	*27-120*			
Surrogate: Phenol-d5	500			ug/kg	*750*		*66.7*	*29-120*			
Surrogate: 2-Chlorophenol-d4	556			ug/kg	*750*		*74.1*	*31-120*			
Surrogate: 1,2-Dichlorobenzene-d4	379			ug/kg	*500*		*75.8*	*32-120*			
Surrogate: Nitrobenzene-d5	373			ug/kg	*500*		*74.5*	*30-120*			
Surrogate: 2-Fluorobiphenyl	394			ug/kg	*500*		*78.8*	*35-120*			
Surrogate: 2,4,6-Tribromophenol	642			ug/kg	*750*		*85.6*	*24-134*			
Surrogate: p-Terphenyl-d14	488			ug/kg	*500*		*97.6*	*37-120*			*Q*

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BJK0721 - EPA 3546 (Microwave)

Instrument: ECD7 Analyst: JGR/TWC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJK0721-BLK1)				Prepared: 30-Nov-2021 Analyzed: 03-Dec-2021 17:14							
Aroclor 1016	ND	1.6	4.0	ug/kg							U
Aroclor 1221	ND	1.6	4.0	ug/kg							U
Aroclor 1232	ND	1.6	4.0	ug/kg							U
Aroclor 1242	ND	1.6	4.0	ug/kg							U
Aroclor 1248	ND	1.6	4.0	ug/kg							U
Aroclor 1254	ND	1.6	4.0	ug/kg							U
Aroclor 1260	ND	0.6	4.0	ug/kg							U
Aroclor 1262	ND	0.6	4.0	ug/kg							U
Aroclor 1268	ND	0.6	4.0	ug/kg							U
Surrogate: Decachlorobiphenyl	7.37			ug/kg	*8.00*		*92.1*	*40-126*			
Surrogate: Tetrachlorometaxylene	6.60			ug/kg	*8.00*		*82.5*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	7.39			ug/kg	*8.00*		*92.3*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	6.52			ug/kg	*8.00*		*81.5*	*44-120*			
LCS (BJK0721-BS1)				Prepared: 30-Nov-2021 Analyzed: 03-Dec-2021 17:35							
Aroclor 1016 [2C]	77.7	1.6	4.0	ug/kg	101		77.1	56-120			
Aroclor 1260	73.9	0.6	4.0	ug/kg	101		73.3	58-120			
Surrogate: Decachlorobiphenyl	7.39			ug/kg	*8.00*		*92.4*	*40-126*			
Surrogate: Tetrachlorometaxylene	6.40			ug/kg	*8.00*		*80.0*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	7.40			ug/kg	*8.00*		*92.5*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	6.25			ug/kg	*8.00*		*78.2*	*44-120*			
LCS Dup (BJK0721-BSD1)				Prepared: 30-Nov-2021 Analyzed: 03-Dec-2021 17:56							
Aroclor 1016 [2C]	77.9	1.6	4.0	ug/kg	101		77.3	56-120	0.26	30	
Aroclor 1260	72.6	0.6	4.0	ug/kg	101		72.0	58-120	1.76	30	
Surrogate: Decachlorobiphenyl	6.91			ug/kg	*8.00*		*86.4*	*40-126*			
Surrogate: Tetrachlorometaxylene	6.21			ug/kg	*8.00*		*77.6*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	6.96			ug/kg	*8.00*		*87.0*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	6.08			ug/kg	*8.00*		*76.0*	*44-120*			

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BJL0178 - EPA 1613

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0178-BLK1)				Prepared: 07-Dec-2021	Analyzed: 13-Jan-2022 15:53						
2,3,7,8-TCDF		0.655-0.886	0.149	1.00	ND	ng/kg					U
2,3,7,8-TCDD		0.655-0.886	0.269	1.00	ND	ng/kg					U
1,2,3,7,8-PeCDF		1.318-1.783	0.212	1.00	ND	ng/kg					U
2,3,4,7,8-PeCDF		1.318-1.783	0.217	1.00	ND	ng/kg					U
1,2,3,7,8-PeCDD		1.318-1.783	0.270	1.00	ND	ng/kg					U
1,2,3,4,7,8-HxCDF		1.054-1.426	0.165	1.00	ND	ng/kg					U
1,2,3,6,7,8-HxCDF		1.054-1.426	0.173	1.00	ND	ng/kg					U
2,3,4,6,7,8-HxCDF		1.054-1.426	0.174	1.00	ND	ng/kg					U
1,2,3,7,8,9-HxCDF		1.054-1.426	0.222	1.00	ND	ng/kg					U
1,2,3,4,7,8-HxCDD		1.054-1.426	0.277	1.00	ND	ng/kg					U
1,2,3,6,7,8-HxCDD		1.054-1.426	0.267	1.00	ND	ng/kg					U
1,2,3,7,8,9-HxCDD		1.054-1.426	0.295	1.00	ND	ng/kg					U
1,2,3,4,6,7,8-HpCDF		0.893-1.208	0.194	1.00	ND	ng/kg					U
1,2,3,4,7,8,9-HpCDF		0.893-1.208	0.280	1.00	ND	ng/kg					U
1,2,3,4,6,7,8-HpCDD	1.279	0.893-1.208		2.50	0.470	ng/kg					EMPC, J
OCDF	0.619	0.757-1.024		2.50	0.656	ng/kg					EMPC, J
OCDD	0.951	0.757-1.024		10.0	4.41	ng/kg					J
Homologue group											
Total TCDF				1.00	ND	ng/kg					U
Total TCDD				1.00	ND	ng/kg					U
Total PeCDF				1.00	ND	ng/kg					U
Total PeCDD				1.00	ND	ng/kg					U
Total HxCDF				1.00	ND	ng/kg					U
Total HxCDD				1.00	ND	ng/kg					U
Total HpCDF				1.00	ND	ng/kg					U
Total HpCDD				1.00	ND	ng/kg					U

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	0.20
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.01
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC=ND):	0.20
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0 EDL, EMPC=ND):	0.00

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BJL0178 - EPA 1613

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0178-BLK1)				Prepared: 07-Dec-2021 Analyzed: 13-Jan-2022 15:53							
Labeled compounds											
13C12-2,3,7,8-TCDF	*0.798*	*0.655-0.886*			*96.6*			*24-169 %*			
13C12-2,3,7,8-TCDD	*0.773*	*0.655-0.886*			*96.0*			*25-164 %*			
13C12-1,2,3,7,8-PeCDF	*1.585*	*1.318-1.783*			*118*			*24-185 %*			
13C12-2,3,4,7,8-PeCDF	*1.599*	*1.318-1.783*			*110*			*21-178 %*			
13C12-1,2,3,7,8-PeCDD	*1.647*	*1.318-1.783*			*111*			*25-181 %*			
13C12-1,2,3,4,7,8-HxCDF	*0.516*	*0.434-0.587*			*98.6*			*26-152 %*			
13C12-1,2,3,6,7,8-HxCDF	*0.510*	*0.434-0.587*			*87.2*			*26-123 %*			
13C12-2,3,4,6,7,8-HxCDF	*0.513*	*0.434-0.587*			*91.6*			*28-136 %*			
13C12-1,2,3,7,8,9-HxCDF	*0.521*	*0.434-0.587*			*88.3*			*29-147 %*			
13C12-1,2,3,4,7,8-HxCDD	*1.251*	*1.054-1.426*			*100*			*32-141 %*			
13C12-1,2,3,6,7,8-HxCDD	*1.277*	*1.054-1.426*			*90.0*			*28-130 %*			
13C12-1,2,3,4,6,7,8-HpCDF	*0.460*	*0.374-0.506*			*88.8*			*28-143 %*			
13C12-1,2,3,4,7,8,9-HpCDF	*0.447*	*0.374-0.506*			*90.0*			*26-138 %*			
13C12-1,2,3,4,6,7,8-HpCDD	*1.106*	*0.893-1.208*			*99.0*			*23-140 %*			
13C12-OCDD	*0.906*	*0.757-1.024*			*86.0*			*17-157 %*			
37Cl4-2,3,7,8-TCDD					*94.8*			*35-197 %*			
LCS (BJL0178-BS1)				Prepared: 07-Dec-2021 Analyzed: 13-Jan-2022 16:42							
2,3,7,8-TCDF	0.809	0.655-0.886		1.00	20.4	ng/kg	102	75-158 %			
2,3,7,8-TCDD	0.787	0.655-0.886		1.00	19.1	ng/kg	95.5	67-158 %			
1,2,3,7,8-PeCDF	1.569	1.318-1.783		1.00	103	ng/kg	103	80-134 %			
2,3,4,7,8-PeCDF	1.562	1.318-1.783		1.00	100	ng/kg	100	68-160 %			
1,2,3,7,8-PeCDD	1.574	1.318-1.783		1.00	98.8	ng/kg	98.8	70-142 %			
1,2,3,4,7,8-HxCDF	1.262	1.054-1.426		1.00	92.0	ng/kg	92.0	72-134 %			
1,2,3,6,7,8-HxCDF	1.273	1.054-1.426		1.00	100	ng/kg	100	84-130 %			
2,3,4,6,7,8-HxCDF	1.254	1.054-1.426		1.00	99.0	ng/kg	99.0	70-156 %			
1,2,3,7,8,9-HxCDF	1.241	1.054-1.426		1.00	97.4	ng/kg	97.4	78-130 %			
1,2,3,4,7,8-HxCDD	1.197	1.054-1.426		1.00	93.7	ng/kg	93.7	70-164 %			
1,2,3,6,7,8-HxCDD	1.193	1.054-1.426		1.00	92.6	ng/kg	92.6	76-134 %			
1,2,3,7,8,9-HxCDD	1.222	1.054-1.426		1.00	97.9	ng/kg	97.9	64-162 %			
1,2,3,4,6,7,8-HpCDF	1.023	0.893-1.208		1.00	115	ng/kg	115	82-122 %			
1,2,3,4,7,8,9-HpCDF	1.016	0.893-1.208		1.00	97.4	ng/kg	97.4	78-138 %			
1,2,3,4,6,7,8-HpCDD	1.031	0.893-1.208		2.50	125	ng/kg	125	70-140 %			B
OCDF	0.916	0.757-1.024		2.50	219	ng/kg	110	63-170 %			B
OCDD	0.901	0.757-1.024		10.0	348	ng/kg	174	78-144 %			*, B

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BJL0178 - EPA 1613

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJL0178-BS1)				Prepared: 07-Dec-2021 Analyzed: 13-Jan-2022 16:42							
Labeled compounds											
13C12-2,3,7,8-TCDF	*0.789*	*0.655-0.886*			*90.0*			*24-169 %*			
13C12-2,3,7,8-TCDD	*0.791*	*0.655-0.886*			*87.6*			*25-164 %*			
13C12-1,2,3,7,8-PeCDF	*1.582*	*1.318-1.783*			*106*			*24-185 %*			
13C12-2,3,4,7,8-PeCDF	*1.552*	*1.318-1.783*			*102*			*21-178 %*			
13C12-1,2,3,7,8-PeCDD	*1.620*	*1.318-1.783*			*100*			*25-181 %*			
13C12-1,2,3,4,7,8-HxCDF	*0.505*	*0.434-0.587*			*89.9*			*26-152 %*			
13C12-1,2,3,6,7,8-HxCDF	*0.512*	*0.434-0.587*			*81.0*			*26-123 %*			
13C12-2,3,4,6,7,8-HxCDF	*0.504*	*0.434-0.587*			*84.4*			*28-136 %*			
13C12-1,2,3,7,8,9-HxCDF	*0.507*	*0.434-0.587*			*84.4*			*29-147 %*			
13C12-1,2,3,4,7,8-HxCDD	*1.273*	*1.054-1.426*			*92.0*			*32-141 %*			
13C12-1,2,3,6,7,8-HxCDD	*1.297*	*1.054-1.426*			*84.8*			*28-130 %*			
13C12-1,2,3,4,6,7,8-HpCDF	*0.458*	*0.374-0.506*			*83.5*			*28-143 %*			
13C12-1,2,3,4,7,8,9-HpCDF	*0.451*	*0.374-0.506*			*84.5*			*26-138 %*			
13C12-1,2,3,4,6,7,8-HpCDD	*1.072*	*0.893-1.208*			*90.6*			*23-140 %*			
13C12-OCDD	*0.921*	*0.757-1.024*			*82.6*			*17-157 %*			
37Cl4-2,3,7,8-TCDD					*90.5*			*35-197 %*			
LCS Dup (BJL0178-BSD1)				Prepared: 07-Dec-2021 Analyzed: 13-Jan-2022 17:32							
2,3,7,8-TCDF	0.823	0.655-0.886		1.00	20.2	ng/kg	101	75-158 %	0.85	25	
2,3,7,8-TCDD	0.772	0.655-0.886		1.00	17.8	ng/kg	88.9	67-158 %	7.23	25	
1,2,3,7,8-PeCDF	1.539	1.318-1.783		1.00	104	ng/kg	104	80-134 %	0.31	25	
2,3,4,7,8-PeCDF	1.615	1.318-1.783		1.00	104	ng/kg	104	68-160 %	4.20	25	
1,2,3,7,8-PeCDD	1.568	1.318-1.783		1.00	97.7	ng/kg	97.7	70-142 %	1.05	25	
1,2,3,4,7,8-HxCDF	1.261	1.054-1.426		1.00	91.1	ng/kg	91.1	72-134 %	1.00	25	
1,2,3,6,7,8-HxCDF	1.281	1.054-1.426		1.00	102	ng/kg	102	84-130 %	1.53	25	
2,3,4,6,7,8-HxCDF	1.253	1.054-1.426		1.00	102	ng/kg	102	70-156 %	2.71	25	
1,2,3,7,8,9-HxCDF	1.254	1.054-1.426		1.00	99.6	ng/kg	99.6	78-130 %	2.19	25	
1,2,3,4,7,8-HxCDD	1.248	1.054-1.426		1.00	97.3	ng/kg	97.3	70-164 %	3.80	25	
1,2,3,6,7,8-HxCDD	1.231	1.054-1.426		1.00	89.8	ng/kg	89.8	76-134 %	3.07	25	
1,2,3,7,8,9-HxCDD	1.208	1.054-1.426		1.00	98.3	ng/kg	98.3	64-162 %	0.38	25	
1,2,3,4,6,7,8-HpCDF	1.023	0.893-1.208		1.00	108	ng/kg	108	82-122 %	6.28	25	
1,2,3,4,7,8,9-HpCDF	1.046	0.893-1.208		1.00	95.9	ng/kg	95.9	78-138 %	1.53	25	
1,2,3,4,6,7,8-HpCDD	1.030	0.893-1.208		2.50	99.9	ng/kg	99.9	70-140 %	22.30	25	B
OCDF	0.927	0.757-1.024		2.50	186	ng/kg	92.9	63-170 %	16.60	25	B
OCDD	0.867	0.757-1.024		10.0	209	ng/kg	104	78-144 %	50.10	25	B

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BJL0178 - EPA 1613

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJL0178-BSD1)				Prepared: 07-Dec-2021	Analyzed: 13-Jan-2022 17:32						
Labeled compounds											
13C12-2,3,7,8-TCDF	*0.778*	*0.655-0.886*					*69.7*	*24-169 %*			
13C12-2,3,7,8-TCDD	*0.786*	*0.655-0.886*					*73.7*	*25-164 %*			
13C12-1,2,3,7,8-PeCDF	*1.591*	*1.318-1.783*					*104*	*24-185 %*			
13C12-2,3,4,7,8-PeCDF	*1.565*	*1.318-1.783*					*92.0*	*21-178 %*			
13C12-1,2,3,7,8-PeCDD	*1.661*	*1.318-1.783*					*93.2*	*25-181 %*			
13C12-1,2,3,4,7,8-HxCDF	*0.512*	*0.434-0.587*					*87.1*	*26-152 %*			
13C12-1,2,3,6,7,8-HxCDF	*0.506*	*0.434-0.587*					*78.7*	*26-123 %*			
13C12-2,3,4,6,7,8-HxCDF	*0.518*	*0.434-0.587*					*79.6*	*28-136 %*			
13C12-1,2,3,7,8,9-HxCDF	*0.512*	*0.434-0.587*					*79.7*	*29-147 %*			
13C12-1,2,3,4,7,8-HxCDD	*1.269*	*1.054-1.426*					*87.4*	*32-141 %*			
13C12-1,2,3,6,7,8-HxCDD	*1.253*	*1.054-1.426*					*81.5*	*28-130 %*			
13C12-1,2,3,4,6,7,8-HpCDF	*0.453*	*0.374-0.506*					*81.0*	*28-143 %*			
13C12-1,2,3,4,7,8,9-HpCDF	*0.434*	*0.374-0.506*					*81.6*	*26-138 %*			
13C12-1,2,3,4,6,7,8-HpCDD	*1.091*	*0.893-1.208*					*86.1*	*23-140 %*			
13C12-OCDD	*0.933*	*0.757-1.024*					*76.2*	*17-157 %*			
37Cl4-2,3,7,8-TCDD							*77.6*	*35-197 %*			

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BKA0291 - EPA 1613

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKA0291-BLK3)				Prepared: 17-Jan-2022 Analyzed: 24-Jan-2022 13:40							
2,3,7,8-TCDF		0.655-0.886	0.340	1.00	ND	ng/kg					U
2,3,7,8-TCDD		0.655-0.886	0.475	1.00	ND	ng/kg					U
1,2,3,7,8-PeCDF		1.318-1.783	0.374	1.00	ND	ng/kg					U
2,3,4,7,8-PeCDF		1.318-1.783	0.401	1.00	ND	ng/kg					U
1,2,3,7,8-PeCDD		1.318-1.783	0.382	1.00	ND	ng/kg					U
1,2,3,4,7,8-HxCDF		1.054-1.426	0.356	1.00	ND	ng/kg					U
1,2,3,6,7,8-HxCDF		1.054-1.426	0.348	1.00	ND	ng/kg					U
2,3,4,6,7,8-HxCDF		1.054-1.426	0.381	1.00	ND	ng/kg					U
1,2,3,7,8,9-HxCDF		1.054-1.426	0.480	1.00	ND	ng/kg					U
1,2,3,4,7,8-HxCDD		1.054-1.426	0.561	1.00	ND	ng/kg					U
1,2,3,6,7,8-HxCDD		1.054-1.426	0.513	1.00	ND	ng/kg					U
1,2,3,7,8,9-HxCDD		1.054-1.426	0.582	1.00	ND	ng/kg					U
1,2,3,4,6,7,8-HpCDF	0.891	0.893-1.208		1.00	2.23	ng/kg					EMPC
1,2,3,4,7,8,9-HpCDF		0.893-1.208	0.541	1.00	ND	ng/kg					U
1,2,3,4,6,7,8-HpCDD	0.800	0.893-1.208		2.50	4.98	ng/kg					EMPC
OCDF	1.070	0.757-1.024		2.50	9.37	ng/kg					EMPC
OCDD	0.883	0.757-1.024		10.0	39.9	ng/kg					
Homologue group											
Total TCDF				1.00	ND	ng/kg					U
Total TCDD				1.00	ND	ng/kg					U
Total PeCDF				1.00	ND	ng/kg					U
Total PeCDD				1.00	ND	ng/kg					U
Total HxCDF				1.00	3.06	ng/kg					
Total HxCDD				1.00	ND	ng/kg					U
Total HpCDF				1.00	7.68	ng/kg					
Total HpCDD				1.00	4.22	ng/kg					

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	0.42
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.09
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC=ND):	0.35
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0 EDL, EMPC=ND):	0.01

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BKA0291 - EPA 1613

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKA0291-BLK3)				Prepared: 17-Jan-2022 Analyzed: 24-Jan-2022 13:40							
Labeled compounds											
13C12-2,3,7,8-TCDF	*0.810*	*0.655-0.886*			*85.3*			*24-169 %*			
13C12-2,3,7,8-TCDD	*0.809*	*0.655-0.886*			*89.8*			*25-164 %*			
13C12-1,2,3,7,8-PeCDF	*1.630*	*1.318-1.783*			*114*			*24-185 %*			
13C12-2,3,4,7,8-PeCDF	*1.546*	*1.318-1.783*			*102*			*21-178 %*			
13C12-1,2,3,7,8-PeCDD	*1.645*	*1.318-1.783*			*103*			*25-181 %*			
13C12-1,2,3,4,7,8-HxCDF	*0.517*	*0.434-0.587*			*104*			*26-152 %*			
13C12-1,2,3,6,7,8-HxCDF	*0.502*	*0.434-0.587*			*98.6*			*26-123 %*			
13C12-2,3,4,6,7,8-HxCDF	*0.512*	*0.434-0.587*			*96.0*			*28-136 %*			
13C12-1,2,3,7,8,9-HxCDF	*0.510*	*0.434-0.587*			*89.7*			*29-147 %*			
13C12-1,2,3,4,7,8-HxCDD	*1.277*	*1.054-1.426*			*104*			*32-141 %*			
13C12-1,2,3,6,7,8-HxCDD	*1.279*	*1.054-1.426*			*95.9*			*28-130 %*			
13C12-1,2,3,4,6,7,8-HpCDF	*0.448*	*0.374-0.506*			*89.7*			*28-143 %*			
13C12-1,2,3,4,7,8,9-HpCDF	*0.468*	*0.374-0.506*			*84.4*			*26-138 %*			
13C12-1,2,3,4,6,7,8-HpCDD	*1.110*	*0.893-1.208*			*94.7*			*23-140 %*			
13C12-OCDD	*0.925*	*0.757-1.024*			*77.1*			*17-157 %*			
37Cl4-2,3,7,8-TCDD					*89.3*			*35-197 %*			
LCS (BKA0291-BS2)				Prepared: 17-Jan-2022 Analyzed: 24-Jan-2022 14:30							
2,3,7,8-TCDF	0.798	0.655-0.886		1.00	20.0	ng/kg	100	75-158 %			
2,3,7,8-TCDD	0.768	0.655-0.886		1.00	18.5	ng/kg	92.7	67-158 %			
1,2,3,7,8-PeCDF	1.521	1.318-1.783		1.00	103	ng/kg	103	80-134 %			
2,3,4,7,8-PeCDF	1.554	1.318-1.783		1.00	100	ng/kg	100	68-160 %			
1,2,3,7,8-PeCDD	1.541	1.318-1.783		1.00	99.9	ng/kg	99.9	70-142 %			
1,2,3,4,7,8-HxCDF	1.254	1.054-1.426		1.00	91.2	ng/kg	91.2	72-134 %			
1,2,3,6,7,8-HxCDF	1.247	1.054-1.426		1.00	98.8	ng/kg	98.8	84-130 %			
2,3,4,6,7,8-HxCDF	1.257	1.054-1.426		1.00	96.8	ng/kg	96.8	70-156 %			
1,2,3,7,8,9-HxCDF	1.219	1.054-1.426		1.00	94.3	ng/kg	94.3	78-130 %			
1,2,3,4,7,8-HxCDD	1.278	1.054-1.426		1.00	98.0	ng/kg	98.0	70-164 %			
1,2,3,6,7,8-HxCDD	1.125	1.054-1.426		1.00	91.0	ng/kg	91.0	76-134 %			
1,2,3,7,8,9-HxCDD	1.138	1.054-1.426		1.00	96.1	ng/kg	96.1	64-162 %			
1,2,3,4,6,7,8-HpCDF	1.010	0.893-1.208		1.00	102	ng/kg	102	82-122 %			B
1,2,3,4,7,8,9-HpCDF	1.085	0.893-1.208		1.00	98.9	ng/kg	98.9	78-138 %			
1,2,3,4,6,7,8-HpCDD	1.045	0.893-1.208		2.50	94.2	ng/kg	94.2	70-140 %			B
OCDF	0.938	0.757-1.024		2.50	170	ng/kg	85.0	63-170 %			B
OCDD	0.916	0.757-1.024		10.0	195	ng/kg	97.6	78-144 %			B

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BKA0291 - EPA 1613

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKA0291-BS2)				Prepared: 17-Jan-2022 Analyzed: 24-Jan-2022 14:30							
Labeled compounds											
13C12-2,3,7,8-TCDF	*0.796*	*0.655-0.886*			*81.8*			*24-169 %*			
13C12-2,3,7,8-TCDD	*0.777*	*0.655-0.886*			*82.9*			*25-164 %*			
13C12-1,2,3,7,8-PeCDF	*1.595*	*1.318-1.783*			*106*			*24-185 %*			
13C12-2,3,4,7,8-PeCDF	*1.582*	*1.318-1.783*			*97.3*			*21-178 %*			
13C12-1,2,3,7,8-PeCDD	*1.685*	*1.318-1.783*			*95.2*			*25-181 %*			
13C12-1,2,3,4,7,8-HxCDF	*0.509*	*0.434-0.587*			*102*			*26-152 %*			
13C12-1,2,3,6,7,8-HxCDF	*0.498*	*0.434-0.587*			*93.5*			*26-123 %*			
13C12-2,3,4,6,7,8-HxCDF	*0.512*	*0.434-0.587*			*91.8*			*28-136 %*			
13C12-1,2,3,7,8,9-HxCDF	*0.505*	*0.434-0.587*			*87.8*			*29-147 %*			
13C12-1,2,3,4,7,8-HxCDD	*1.253*	*1.054-1.426*			*98.6*			*32-141 %*			
13C12-1,2,3,6,7,8-HxCDD	*1.203*	*1.054-1.426*			*91.8*			*28-130 %*			
13C12-1,2,3,4,6,7,8-HpCDF	*0.437*	*0.374-0.506*			*88.1*			*28-143 %*			
13C12-1,2,3,4,7,8,9-HpCDF	*0.451*	*0.374-0.506*			*79.1*			*26-138 %*			
13C12-1,2,3,4,6,7,8-HpCDD	*1.090*	*0.893-1.208*			*91.2*			*23-140 %*			
13C12-OCDD	*0.906*	*0.757-1.024*			*74.6*			*17-157 %*			
37Cl4-2,3,7,8-TCDD					*81.9*			*35-197 %*			

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BJK0697 - 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
Blank (BJK0697-BLK1)					Prepared: 29-Nov-2021 Analyzed: 30-Nov-2021 16:29							
Chromium	52	ND	0.26	0.50	mg/kg							U
Chromium	53	ND	0.24	0.50	mg/kg							U
Lead	208	ND	0.05	0.10	mg/kg							U
Silver	107	ND	0.02	0.20	mg/kg							U
Arsenic	75a	ND	0.04	0.20	mg/kg							U
Cadmium	111	0.04	0.03	0.10	mg/kg							J
Cadmium	114	ND	0.04	0.10	mg/kg							U
Copper	63	ND	0.17	0.50	mg/kg							U
Copper	65	ND	0.35	0.50	mg/kg							U
Zinc	66	ND	2.9	6.0	mg/kg							U
Zinc	67	ND	0.9	6.0	mg/kg							U
LCS (BJK0697-BS1)					Prepared: 29-Nov-2021 Analyzed: 30-Nov-2021 16:34							
Chromium	52	24.9	0.26	0.50	mg/kg	25.0		99.7	80-120			
Chromium	53	24.9	0.24	0.50	mg/kg	25.0		99.5	80-120			
Lead	208	26.6	0.05	0.10	mg/kg	25.0		106	80-120			
Silver	107	27.1	0.02	0.20	mg/kg	25.0		108	80-120			
Arsenic	75a	24.3	0.04	0.20	mg/kg	25.0		97.4	80-120			
Cadmium	111	25.4	0.03	0.10	mg/kg	25.0		101	80-120			
Cadmium	114	26.3	0.04	0.10	mg/kg	25.0		105	80-120			
Copper	63	26.1	0.17	0.50	mg/kg	25.0		104	80-120			
Copper	65	26.4	0.35	0.50	mg/kg	25.0		106	80-120			
Zinc	66	83.5	2.9	6.0	mg/kg	80.0		104	80-120			
Zinc	67	79.9	0.9	6.0	mg/kg	80.0		99.9	80-120			

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BJK0698 - SMM EPA 7471B

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJK0698-BLK1)				Prepared: 29-Nov-2021 Analyzed: 01-Dec-2021 10:31							
Mercury	ND	0.00525	0.0250	mg/kg							U
LCS (BJK0698-BS1)				Prepared: 29-Nov-2021 Analyzed: 01-Dec-2021 10:33							
Mercury	0.435	0.00525	0.0250	mg/kg	0.500		87.1	80-120			

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BJK0652 - No Prep Wet Chem

Instrument: BAL2 Analyst: DOE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJK0652-BLK1)				Prepared: 24-Nov-2021 Analyzed: 24-Nov-2021 10:40							
Total Solids	ND	0.04	0.04	%							U
Duplicate (BJK0652-DUP1)		**Source: 21K0379-01**		Prepared: 24-Nov-2021 Analyzed: 24-Nov-2021 10:40							
Total Solids	36.69	0.04	0.04	%		36.08			1.69	20	
Duplicate (BJK0652-DUP2)		**Source: 21K0379-01**		Prepared: 24-Nov-2021 Analyzed: 24-Nov-2021 10:40							
Total Solids	36.30	0.04	0.04	%		36.08			0.62	20	

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BJK0703 - PSEP 1986

Instrument: TOC Cube Analyst: DOE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJK0703-BLK1)				Prepared: 29-Nov-2021 Analyzed: 30-Nov-2021 13:06							
Total Organic Carbon	ND	0.02	0.02	%							U
LCS (BJK0703-BS1)				Prepared: 29-Nov-2021 Analyzed: 30-Nov-2021 13:36							
Total Organic Carbon	45.5	0.02	0.02	%	44.4		102	80-120			
Duplicate (BJK0703-DUP1)		**Source: 21K0379-01**		Prepared: 29-Nov-2021 Analyzed: 30-Nov-2021 14:35							
Total Organic Carbon	2.16	0.02	0.02	%		2.12			1.94	20	
Matrix Spike (BJK0703-MS1)		**Source: 21K0379-01**		Prepared: 29-Nov-2021 Analyzed: 30-Nov-2021 15:05							
Total Organic Carbon	4.76	0.02	0.02	%	2.44	2.12	108	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
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Certified Analyses included in this Report

Analyte	Certifications
EPA 1613B in Solid	
2,3,7,8-TCDF	DoD-ELAP,NELAP,WADOE
2,3,7,8-TCDD	DoD-ELAP,NELAP,WADOE
1,2,3,7,8-PeCDF	DoD-ELAP,NELAP,WADOE
2,3,4,7,8-PeCDF	DoD-ELAP,NELAP,WADOE
1,2,3,7,8-PeCDD	DoD-ELAP,NELAP,WADOE
1,2,3,4,7,8-HxCDF	DoD-ELAP,NELAP,WADOE
1,2,3,6,7,8-HxCDF	DoD-ELAP,NELAP,WADOE
2,3,4,6,7,8-HxCDF	DoD-ELAP,NELAP,WADOE
1,2,3,7,8,9-HxCDF	DoD-ELAP,NELAP,WADOE
1,2,3,4,7,8-HxCDD	DoD-ELAP,NELAP,WADOE
1,2,3,6,7,8-HxCDD	DoD-ELAP,NELAP,WADOE
1,2,3,7,8,9-HxCDD	DoD-ELAP,NELAP,WADOE
1,2,3,4,6,7,8-HpCDF	DoD-ELAP,NELAP,WADOE
1,2,3,4,7,8,9-HpCDF	DoD-ELAP,NELAP,WADOE
1,2,3,4,6,7,8-HpCDD	DoD-ELAP,NELAP,WADOE
OCDF	DoD-ELAP,NELAP,WADOE
OCDD	DoD-ELAP,NELAP,WADOE
Total TCDF	DoD-ELAP,NELAP,WADOE
Total TCDD	DoD-ELAP,NELAP,WADOE
Total PeCDF	DoD-ELAP,NELAP,WADOE
Total PeCDD	DoD-ELAP,NELAP,WADOE
Total HxCDF	DoD-ELAP,NELAP,WADOE
Total HxCDD	DoD-ELAP,NELAP,WADOE
Total HpCDF	DoD-ELAP,NELAP,WADOE
Total HpCDD	DoD-ELAP,NELAP,WADOE
13C12-2,3,7,8-TCDF	DoD-ELAP
13C12-2,3,7,8-TCDD	DoD-ELAP
13C12-1,2,3,7,8-PeCDF	DoD-ELAP
13C12-2,3,4,7,8-PeCDF	DoD-ELAP
13C12-1,2,3,7,8-PeCDD	DoD-ELAP
13C12-1,2,3,4,7,8-HxCDF	DoD-ELAP
13C12-1,2,3,6,7,8-HxCDF	DoD-ELAP
13C12-2,3,4,6,7,8-HxCDF	DoD-ELAP
13C12-1,2,3,7,8,9-HxCDF	DoD-ELAP
13C12-1,2,3,4,7,8-HxCDD	DoD-ELAP

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
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13C12-1,2,3,6,7,8-HxCDD	DoD-ELAP
13C12-1,2,3,4,6,7,8-HpCDF	DoD-ELAP
13C12-1,2,3,4,7,8,9-HpCDF	DoD-ELAP
13C12-1,2,3,4,6,7,8-HpCDD	DoD-ELAP
13C12-OCDD	DoD-ELAP
37Cl4-2,3,7,8-TCDD	DoD-ELAP
EPA 6020B in Solid	
Silver-107	NELAP,DoD-ELAP,WADOE
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
EPA 6020B UCT-KED in Solid	
Arsenic-75a	NELAP,DoD-ELAP,WADOE,ADEC
Cadmium-111	NELAP,DoD-ELAP,WADOE,ADEC
Cadmium-114	NELAP,DoD-ELAP,WADOE,ADEC
Copper-63	NELAP,DoD-ELAP,WADOE
Copper-65	NELAP,DoD-ELAP,WADOE
Zinc-66	NELAP,DoD-ELAP,WADOE
Zinc-67	NELAP,DoD-ELAP,WADOE
EPA 7471B in Solid	
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8082A in Solid	
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

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Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

EPA 8270E in Solid

Phenol	DoD-ELAP,NELAP,WADOE
bis(2-chloroethyl) ether	DoD-ELAP,NELAP,WADOE
2-Chlorophenol	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
Benzyl Alcohol	DoD-ELAP,NELAP,WADOE
2,2'-Oxybis(1-chloropropane)	DoD-ELAP,NELAP
2-Methylphenol	DoD-ELAP,NELAP,WADOE
Hexachloroethane	DoD-ELAP,NELAP,WADOE
N-Nitroso-di-n-Propylamine	DoD-ELAP,NELAP,WADOE
4-Methylphenol	DoD-ELAP,NELAP,WADOE
Nitrobenzene	DoD-ELAP,NELAP,WADOE
Isophorone	DoD-ELAP,NELAP,WADOE
2-Nitrophenol	DoD-ELAP,NELAP,WADOE
2,4-Dimethylphenol	DoD-ELAP,NELAP,WADOE
Bis(2-Chloroethoxy)methane	DoD-ELAP,NELAP,WADOE
2,4-Dichlorophenol	DoD-ELAP,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,NELAP,WADOE
Naphthalene	DoD-ELAP,NELAP,WADOE,ADEC
Benzoic acid	DoD-ELAP,NELAP,WADOE
4-Chloroaniline	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene	DoD-ELAP,NELAP,WADOE
4-Chloro-3-Methylphenol	DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	DoD-ELAP,NELAP,WADOE,ADEC
Hexachlorocyclopentadiene	DoD-ELAP,NELAP,WADOE
2,4,6-Trichlorophenol	DoD-ELAP,NELAP,WADOE
2,4,5-Trichlorophenol	DoD-ELAP,NELAP,WADOE
2-Chloronaphthalene	DoD-ELAP,NELAP,WADOE
2-Nitroaniline	DoD-ELAP,NELAP,WADOE
Acenaphthylene	DoD-ELAP,NELAP,WADOE,ADEC
Dimethylphthalate	DoD-ELAP,NELAP,WADOE
2,6-Dinitrotoluene	DoD-ELAP,NELAP,WADOE
Acenaphthene	DoD-ELAP,NELAP,WADOE,ADEC
3-Nitroaniline	DoD-ELAP,NELAP,WADOE
2,4-Dinitrophenol	DoD-ELAP,NELAP,WADOE

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
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Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

Dibenzofuran	DoD-ELAP,NELAP,WADOE,ADEC
4-Nitrophenol	DoD-ELAP,NELAP,WADOE
2,4-Dinitrotoluene	DoD-ELAP,NELAP,WADOE
Fluorene	DoD-ELAP,NELAP,WADOE,ADEC
4-Chlorophenylphenyl ether	DoD-ELAP,NELAP
Diethyl phthalate	DoD-ELAP,NELAP,WADOE
4-Nitroaniline	DoD-ELAP,NELAP,WADOE
4,6-Dinitro-2-methylphenol	DoD-ELAP,NELAP,WADOE
N-Nitrosodiphenylamine	DoD-ELAP,NELAP,WADOE
4-Bromophenyl phenyl ether	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene	DoD-ELAP,NELAP,WADOE
Pentachlorophenol	DoD-ELAP,NELAP,WADOE
Phenanthrene	DoD-ELAP,NELAP,WADOE,ADEC
Anthracene	DoD-ELAP,NELAP,WADOE,ADEC
Carbazole	DoD-ELAP,NELAP,WADOE,ADEC
Di-n-Butylphthalate	DoD-ELAP,NELAP,WADOE
Fluoranthene	DoD-ELAP,NELAP,WADOE,ADEC
Pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Butylbenzylphthalate	DoD-ELAP,NELAP,WADOE
Benzo(a)anthracene	DoD-ELAP,NELAP,WADOE,ADEC
3,3'-Dichlorobenzidine	DoD-ELAP,NELAP,WADOE
Chrysene	DoD-ELAP,NELAP,WADOE,ADEC
bis(2-Ethylhexyl)phthalate	DoD-ELAP,NELAP,WADOE
Di-n-Octylphthalate	DoD-ELAP,NELAP,WADOE
Benzo(b)fluoranthene	DoD-ELAP,NELAP,WADOE,ADEC
Benzo(k)fluoranthene	DoD-ELAP,NELAP,WADOE,ADEC
Benzofluoranthenes, Total	WADOE,ADEC
Benzo(a)pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Indeno(1,2,3-cd)pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Dibenzo(a,h)anthracene	DoD-ELAP,NELAP,WADOE,ADEC
Benzo(g,h,i)perylene	DoD-ELAP,NELAP,WADOE,ADEC
N-Nitrosodimethylamine	DoD-ELAP,NELAP,WADOE
Aniline	DoD-ELAP,NELAP,WADOE
Retene	DoD-ELAP,NELAP,WADOE
Pyridine	DoD-ELAP,NELAP,WADOE
1-Methylnaphthalene	DoD-ELAP,NELAP,WADOE,ADEC
Azobenzene (1,2-DP-Hydrazine)	NELAP,WADOE
2,3,4,6-Tetrachlorophenol	DoD-ELAP,WADOE
Benzidine	DoD-ELAP,NELAP

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
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Tetrachloroguaiacol	DoD-ELAP,WADOE
3,4,5-Trichloroguaiacol	WADOE
3,4,6-Trichloroguaiacol	WADOE
4,5,6-Trichloroguaiacol	WADOE
Guaiacol	WADOE

Plumb 1981, Combustion IR in Solid

Total Organic Carbon	DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Landau Associates, Inc.	Project: Everett Shipyard 2021 Nov	
130 2nd Avenue S.	Project Number: Everett Shipyard 2021 Nov	**Reported:**
Edmonds WA, 98020	Project Manager: Danille Jorgensen	14-Feb-2022 16:28

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
EMPC	Estimated Maximum Possible Concentration qualifier for HRGCMS Dioxin
J	Estimated concentration value detected below the reporting limit.
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
X	Indicates possible CDPE interference.
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.

APPENDIX C

Photographic Log

1. October 29, 2022 Aerial Photograph 1

2. October 29, 2022 Aerial Photograph 2

LANDAU ASSOCIATES

Everett Shipyard Site Everett, Washington	**Selected Site Photographs**	Figure C-1

3. CSO2-3 Sampling Location

LANDAU ASSOCIATES

Everett Shipyard Site Everett, Washington	**Selected Site Photographs**	Figure C-2