# LIMITED SUBSURFACE INVESTIGATION REPORT

## Cumberland Property

Prepared for: Segale Properties, LLC

Project No. 220395 • April 4, 2023 FINAL

Aspect CONSULTING

earth + water

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# Acronyms

| | |
|---|---|
| AESI | Associated Earth Sciences, Inc. |
| ARI | Analytical Resources, LLC |
| Aspect | Aspect Consulting, LLC |
| CFR | Code of Federal Regulations |
| Client | Segale Properties, LLC |
| COC | contaminant of concern |
| CUL | Cleanup level |
| Ecology | Washington Department of Ecology |
| EPA | Environmental Protection Agency |
| GPS | Global Positioning System |
| LiDAR | Light Detection and Ranging |
| MCL | maximum contaminant level |
| mg/kg | milligrams per kilogram |
| mg/L | milligrams per liter |
| µg/L | micrograms per liter |
| MTCA | Model Toxics Control Act |
| Plant Area | former Plant and Processing Area |
| RCRA | Resource Conservation and Recovery Act |
| RCRA-8 Metals | arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver |
| RL | laboratory reporting limits |
| SCLP | Synthetic Precipitation Leach Procedure |
| TCLP | Toxicity Characteristic Leaching Procedure |
| USCS | Unified Soil Classification System |
| XRF | x-ray fluorescence |

# 1 Introduction

This Limited Subsurface Investigation Report (Report) was prepared by Aspect Consulting, LLC (Aspect) on behalf of Segale Properties, LLC (Segale) to present subsurface investigation results from investigations conducted to date from the Cumberland Property located at King County tax parcel number 172107-9001 in Cumberland, Washington (Figure 1). The subsurface investigation was conducted to investigate potential contamination at the former Plant and Processing Area (Plant Area) used to stockpile and process ore from the former Royal Reward metal mine (U.S Bureau of Mines, 1965; Dillhoff and Dillhoff, 1991).

The environmental investigation was conducted in two phases, performed on August 30 and November 15, 2022. This Report includes the laboratory analytical results from samples of unprocessed ore and processed material collected from stockpiles remaining from Plant Area operations, soil underlying or adjacent to unprocessed ore stockpiles, and drummed processed material. The former Plant Area features and sample locations are shown on Figures 2 and 3.

The investigation results indicate that drum contents, unprocessed ore, processed material and adjacent soils contain elevated metals concentrations which exceed Model Toxics Control Act (MTCA) Method A screening levels. Site-specific natural background concentrations for relevant hazardous substances in soil have not been determined. There is no current indication of impacts to surface water at the surface water and seep monitoring locations or to groundwater from the existing monitoring well network. The results warrant reporting to the Washington State Department of Ecology (Ecology) that a release occurred at the Plant Area, and this Report is submitted to Ecology as release notification.

## 1.1 Background

The Cumberland Property owned by Segale encompasses 990 acres of land that lies on a glaciated bedrock terrane in incorporated King County (Figure 1). The Cumberland Property lies north of the city of Cumberland and south and east of the Green River. State-owned lands (Kanaskat-Palmer State Park) occur between the Cumberland Property and the Green River (Figure 1). The Plant Area is on a bedrock knob approximately 1,400 feet east and 1,700 feet south of the Green River in the northwest portion of the Cumberland Property (Figure 2).

Segale is planning and permitting the development of the Cumberland Property for sand and gravel extraction. Because of the Plant Area position on the bedrock knob, there will be no mining operations at the Plant Area. Further, mine development plans do not include any mining activities below the groundwater table.

Associated Earth Sciences, Inc. (AESI) has conducted significant studies of the Cumberland Property to document existing soils, geology, geologic hazards, groundwater, water users, and water quality conditions at Cumberland Property. Those

studies and their findings are reported in the Existing Conditions Hydrogeologic Report for development and land use permitting (AESI, 2022).

## Mining History

Metals mining operations in the Cumberland Property area were developed to extract specific metals from mineral deposits associated with faults and igneous intrusions within the Puget Group bedrock near the Green River. The primary metal of interest was mercury from cinnabar deposits. Other deposits associated with the cinnabar include realgar and orpiment, which contain arsenic, and stibnite, which contains antimony. Peak mining activity was related to the Royal Reward and Cardinal Reward mines between 1957 and 1960 before these mines were abandoned due to the arsenic content and spotty distribution of the ore. Both the Royal Reward (located north of the Cumberland Property) and Cardinal Reward (located west of the Cumberland Property) mine portals were on the bank of the Green River (Figure 2).

Ore from the Royal Reward mine was reportedly stockpiled on a terrace next to the Green River and processed using a small retort producing a “few flasks of mercury” (The Seattle Times, 1958). Shortly before Royal Reward operations ceased, approximately 500 tons of ore were stockpiled at the Plant Area (U.S. Bureau of Mines, 1965). A multiple hearth furnace was located at the Plant Area, which consisted of stacked kilns (hearths) with mechanical arms. It is reported that the flues of the furnace quickly became clogged with arsenic (Dillihoff and Dillihoff, 1991).

Remnants of the hearth furnace remain at the Plant Area. It is assumed the Plant Area was selected to stockpile ore because the topography facilitated loading ore and processing through the sequential kiln (hearth) equipment.

## Water Quality

Resource monitoring, which included monthly surface water and groundwater monitoring to establish background conditions for the proposed sand and gravel mining development, was conducted over a period of 6 months in 2022 (AESI, 2022). This evaluation included an assessment of area beneficial water users.

Surface water from springs and seeps near the Plant Area were monitored and there were no exceedances of surface water cleanup levels based on protection of drinking water (AESI, 2022). Dissolved arsenic concentrations were at or below the reporting limit of 0.2 micrograms per liter (µg/L), with one surface location exhibiting a dissolved arsenic concentration up to 1.55 µg/L. All surface water and seep locations were significantly below the drinking water maximum contaminant level (MCL) of 10 µg/L.

Six groundwater monitoring wells were sampled by AESI during the resource monitoring program throughout the entire 990-acre Cumberland Property. Drinking water MCL exceedances occurred with the constituents pH, arsenic, iron, and manganese; these exceedances are all common background water quality issues in eastern King County (Turney et al., 1995; Ficklin et. al., 1989). All dissolved arsenic concentrations were less than 2 µg/L and consistent with surface water and seep sampling results, with the exception of monitoring wells EB-5W and B-3. Importantly, there was no physical indication of mining or other human activity in these areas. The ground had not been disturbed and was covered with native vegetation.

The dissolved arsenic concentration at EB-5W has ranged from 0.774 to 15.3 µg/L over the six monitoring events conducted in 2022 (AESI, 2022). The range in dissolved arsenic concentration at EB-5W indicates temporal and/or sample variability potentially due to suspended solids. The EB-5W dissolved arsenic concentrations are within the published range of background arsenic concentrations in groundwater of 4.9 to 15.4 µg/L (Ecology, 2022).

The dissolved arsenic concentration at B-3 has ranged from 74.2 to 87.4 µg/L over the six monitoring events conducted in 2022 (AESI, 2022). This dissolved arsenic concentration is located in a bedrock structural feature known as the Lawson Anticline and the naturally occurring arsenic-bearing deposits that were mined at the Royal Reward mine also positioned on the Lawson Anticline. Additionally, B-3 is partially screened within the bedrock which was believed to be contributing to the elevated arsenic concentration in groundwater. To verify the B-3 analytical results and the connection with the Lawson Anticline, an additional monitoring well EB-12W was installed approximately 100 feet south of B-3 and screened at the base of the overburdening bedrock. The initial dissolved arsenic concentration in groundwater at EB-12W was 75.9 µg/L, confirming the B-3 result and the high background arsenic in groundwater associated with the Lawson Anticline. This natural background condition associated with the Lawson Anticline is described in the Existing Conditions Hydrogeologic Report (AESI, 2022).

At monitoring well locations B-3 and EB-12W, the background arsenic concentrations range from 74.2 to 87.4 µg/L, five times the maximum background concentration published in Ecology's recent study (Ecology, 2022). This background arsenic concentration in groundwater is likely associated with the deposits containing realgar and orpiment minerals and naturally occurring high arsenic concentrations and is corroborated by the arsenic encountered in historical mining operations from the same bedrock materials. The erosional effect of the Lawson Anticline has likely enhanced dissolution of arsenic from its mineral form, contributing to these high background arsenic concentrations in groundwater.

These natural geological features creates a natural background groundwater condition that is not associated with the discrete releases from the stockpile placement and limited production waste at the Plant Area described in this Report. As mentioned previously, the proposed development will not mine bedrock and will not mine below the groundwater table, thereby avoiding the naturally-occurring high arsenic background groundwater condition. Additional investigation is necessary to establish the natural background at the Plant Area site(s) and to finalize the conceptual site model(s).

## 1.2 Limited Subsurface Investigation Scope

The purpose of the limited subsurface investigation was to investigate the environmental conditions of the Plant Area and any potential releases of hazardous substances. This work was conducted in two phases:

**Phase 1**- Included a reconnaissance site visit to assess the former Plant operations and identify the remaining materials to be assessed. The Plant Area stockpile locations were verified, mapped, dimensioned, visually assessed, and sampled. Samples from each of the stockpiles were collected to determine:

1) The total concentrations of contaminants of concern (COCs) using RCRA-8 metals[1] with focus on arsenic and mercury. Antimony was also analyzed due to its reported content in ore.

2) The leaching potential of metals using Toxicity Characteristic Leaching Procedure (TCLP)[2] analysis.

3) The potential of contaminants present in the stockpiles to leach into groundwater at the Site using Synthetic Precipitation Leaching Procedure (SPLP)[3] analysis.

The methods and results of work completed in Phase 1 are discussed in Sections 2.1 and 3.1, respectively. The results of Phase 1 warranted further investigation completed in Phase 2.

**Phase 2** - Included a subsurface investigation using test pits to evaluate the vertical extent of the stockpiles, and characterize the soil underlying the stockpiles and in the vicinity of the former hearth furnace. Total metals and SPLP analysis were conducted on soil samples collected from test pits to further analyze the potential for soil contamination, and for contaminants to leach into groundwater.

The methods and results of work completed in Phase 2 are discussed in detail in Sections 2.2 and 3.2, respectively.

[1] Resource Conservation and Recovery Act (RCRA) provides a structure for the proper management of hazardous and non-hazardous solid wastes. Included in these solid wastes is a list of eight metals (RCRA-8) which include arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver.
[2] Toxicity Characteristic Leaching Procedure (TCLP) is used to evaluate the leaching potential of analytes in a sample by stimulating the leaching process of a waste landfill. This analysis is used to determine hazardous waste classification.
[3] Synthetic Precipitation Leaching Procedure (SPLP) is used to determine the potential of contaminants present in soil to leach into groundwater. SPLP is often used in evaluating the risk of groundwater contamination from leached waste materials in soil.

# 2 Methods

The phased limited subsurface investigation work completed is described in detail in this section. All samples collected by Aspect were submitted to Analytical Resources, LLC (ARI) in Tukwila, Washington, for analysis.

## 2.1 Stockpile Mapping and Sampling

On August 30, 2022, Aspect performed an initial reconnaissance visit and investigation at the Site. Prior to the reconnaissance visit, potential stockpile locations were identified based on areas of topographic relief observed on a Light Detection and Ranging (LiDAR) image from King County dated March 2016 and aerial photographs on Google Earth Pro (Figure 3). The methods used to locate and investigate stockpiles should not be considered absolute. Topographic relief, such as what was observed on the LiDAR image used to identify potential stockpile locations, can change with time, weathering, and physical disturbance. Additionally, physical barriers such as steep slopes and dense vegetation may conceal additional stockpiles. Aspect was accompanied by AESI during the reconnaissance. AESI walked the site with Aspect and identified the remnant Plant Area features and the stockpile locations.

Once a stockpile was located, Aspect used hand tools to observe the general characteristics of the materials, such as composition, color, and the presence of raw or processed ore mineralogy (realgar, orpiment, or cinnabar). Based on our observations, we determined if the soil mound was a stockpile of unprocessed ore (native rock mined and stockpiled for potential processing), processed material, or a natural or other anthropogenic feature comprised of glacial sands and gravel. Bulk samples of ore characteristic of each suspected stockpile were collected in 1-gallon, disposable, zip-lock bags and labeled with the date, time, and a unique sample identification number. The samples were then placed in a chilled cooler and transported to Aspect's laboratory for further processing. All reusable hand tools were decontaminated with an Alconox® solution followed by a rinse with distilled water, and disposable tools and PPE were replaced between collecting or handling each sample. Each waste rock stockpile was photographed then georeferenced using Global Positioning System (GPS). The approximate locations of the four waste rock stockpiles are shown on Figure 3.

The stockpile materials were oversized, ranging from gravel to boulder in size. Once back at Aspect's laboratory, each stockpile sample was prepared for analytical testing by manually crushing the collected rock in a sealed bag using a 5-pound hammer to produce a sample which passes a standard 3/8-inch sieve necessary for laboratory analysis. The crushed samples were then collected in clean, laboratory-supplied glassware. All reusable hand tools were decontaminated with an Alconox® solution followed by a rinse with distilled water, and disposable tools and PPE were replaced between handling each sample. Each sample was labeled with the date, time, a unique sample identification, and the sampler's name and company then placed in a chilled cooler for transport to ARI following standard chain-of-custody procedures. A total of seven samples were submitted for laboratory analysis from the four stockpiles.

## 2.2 Soil Sampling

On November 15, 2022, Aspect completed a second phase of limited subsurface investigation to assess the vertical extent of the stockpiles, and to characterize the soil underlying the rock stockpiles and the drums discovered near the furnace. At least one test pit was excavated at each of the stockpiles that were identified. Aspect was accompanied by a Segale representative, who operated the Deere 50G mini excavator used to dig the test pits. Aspect selected the number of test pits to excavate at each stockpile based on the relative size of the stockpile and other prior observations. The locations of the test pits were based on stockpile characteristics, accessibility, and spatial distribution.

The test pits were logged using by Aspect in general accordance with the Unified Soil Classification System (USCS). Additionally, Aspect used a handheld Olympus Vanta x-ray fluorescence (XRF) analyzer to field screen the approximate concentrations of metals in the soil at regular intervals during the excavation of each test pit. Soil was collected from the desired depth in the test pit using the excavator bucket. Aspect then collected the soil from the excavator bucket in a 1-gallon zip-lock bag for XRF analysis. Each XRF measurement was completed following the manufacturer's instructions. The test pit was terminated once the excavation had advanced into native soil or to the maximum reach of the excavator.

Samples were also collected from two of the open drums near the former hearth furnace and from a hand dug shallow test pit near the drums.

Soil samples were selected based on field XRF screening and visual observations. Each soil sample was collected in clean, laboratory-supplied glassware using a stainless-steel sampling spoon. All reusable hand tools were decontaminated with an Alconox® solution followed by a rinse with distilled water and disposable tools and PPE were replaced between handling each sample. Each sample was labeled with the date, time, a unique sample identification, and the sampler's name and company then placed in a chilled cooler for transport to ARI following standard chain-of-custody procedures. A total of 11 soil samples were submitted for laboratory analysis from the six test pits.

# 3 Results and Discussion

This section summarizes the surface and subsurface conditions at the Plant Area and the waste rock and soil sample analytical results.

## 3.1 Stockpile Assessment and Drum Results

Four stockpiles were identified during the reconnaissance on August 30, 2022. Each stockpile differed in size and characteristics.

*Photograph 1. Stockpile 1*

*Photograph 2. Stockpile 1 waste rock mineralogy*

- **Stockpile 1** was observed to contain gravel- to boulder-size fragments of angular to subangular unprocessed ore. Many of the ore fragments in this stockpile contained vibrant red, orange, and yellow crystals of sulfide minerals (realgar, orpiment, or cinnabar). This stockpile appears to have been staged for processing at the top of the bedrock knob but does not appear to have gone through a furnace. Stockpile 1 is the largest of the observed stockpiles.
- **Stockpile 2** was observed approximately 25 feet northeast of Stockpile 1. Stockpile 2 was observed to be mostly composed of loamy sand with gravel with occasional brick-red, subangular sandstone that was gravel to cobble in size.

Stockpile 2 is significantly smaller and contains much less unprocessed ore than Stockpile 1.

- **Stockpile 3** was observed to be rocky (subangular gravel and cobble) in a loamy sand matrix. This stockpile was observed to be shallow, and native soil was observed as shallow as 18-inches below the stockpile surface in some locations. This stockpile is located about 40 feet west of Stockpile 1 and is characteristically similar to Stockpile 2.
- **Stockpile 4** was observed to be mostly comprised of fragmented gravel and appears to be material processed through the furnace. This stockpile is located downhill from other three stockpiles, approximately 30 feet southeast of the former hearth furnace location.

Additionally, Aspect observed at least four 55-gallon drums near the southeast corner of the former hearth furnace. None of the drums had lids and several of the drums were tipped on their sides. The drum contents appear to be a fine fraction of processed material.

The approximate locations of the stockpiles and the drums are illustrated on Figure 2. Pictures from the reconnaissance visit are included in the Photograph Log in Appendix A. Appendix B includes the laboratory analytical reports.

## *Analytical Results*

A total of seven samples from four stockpiles and two samples from drums near the former hearth furnace were analyzed for the following:

- RCRA-8 metals and antimony using Environmental Protection Agency (EPA) Method 6010D and
- Total mercury by EPA Method 7471B.

Additionally, each of the seven stockpile samples were analyzed for:

- TCLP by EPA Method 1311 with digestion by EPA Methods 7470A (for mercury) and 6010D (for other RCRA-8 metals) and
- SPLP by EPA Method 1312 with digestion by EPA Methods 7471B (for mercury) and 6020B (for other RCRA-8 metals).

The stockpile analytical results for total metals, TCLP, and SPLP can be found in Tables 1, 3 and 4, respectively. The total metals results from the drum samples are presented in Table 2. The key findings are summarized below.

**Total Metals Results**

For the initial screening level assessment, totals metals analyses were screened against MTCA Method A CULs for unrestricted land use (or Method B CULs for soil if a Method A CUL is not established). Site natural background concentrations and cleanup levels have not been determined. Analytical testing indicated the stockpile and drum samples contained the following metals exceedances:

- **Antimony –** Four stockpile samples and both drum samples exceed the MTCA Method B CUL of 32 milligrams per kilogram (mg/kg) for antimony in soil. Antimony concentrations in exceedance of the CUL in stockpile samples ranged between 45.1 mg/kg in SP4-S1 and 1,700 mg/kg in SP1-S1-C. Concentrations of antimony in the drum samples were 4,020 mg/kg in Drum-02 and 6,860 mg/kg in Drum-01.

- **Arsenic –** All seven stockpile samples and both drum samples exceed the MTCA Method A CUL of 20 mg/kg for arsenic in soil. Arsenic concentrations in the stockpile samples ranged between 42.1 mg/kg in SP2-S1 and 66,200 mg/kg (6.6 percent arsenic by weight) in SP1-S1-C. Concentrations of arsenic in the drum samples was 202,000 mg/kg (20.2 percent arsenic by weight) in Drum-01 and 545,000 mg/kg (54.5 percent arsenic by weight) in Drum-02.

- **Cadmium –** Three stockpile samples exceed the MTCA Method A CUL of 2 mg/kg for cadmium in soil. Cadmium concentrations in exceedance of the CUL in stockpile samples ranged between 29.8 mg/kg in SP1-S2 and 68.2 mg/kg in SP1-S1-C.

- **Mercury –** Four stockpile samples and both drum samples exceed the MTCA Method A CUL of 2 mg/kg for mercury in soil. Mercury concentrations in stockpile samples ranged between 2.86 mg/kg in SP4-S1 and 760 mg/kg in SP1-S4-C. Concentrations of mercury in the drum samples ranged between 18,100 mg/kg in Drum-01 and 20,300 mg/kg in Drum-02.

The stockpile total metal results are in Table 1 and the drum sample total metal results are in Table 2.

**Toxicity Characteristic Leaching Procedure (TCLP) Results**

The leaching of RCRA-8 metals of seven stockpile samples was analyzed using TCLP methods. The analytical results were screened against the EPA's regulatory levels for hazardous waste designation (40 CFR Section 261.24). None of the samples exceeded the TCLP hazardous waste designations, indicating the stockpiles would not be designated as hazardous waste. The TCLP results are summarized in Table 3.

**Synthetic Precipitation Leach Procedure (SPLP) Results**

The leaching of RCRA-8 metals of seven stockpile samples was also analyzed using SPLP methods. For initial assessment, the SPLP results were screened against MTCA Method A CULs for groundwater.

- Arsenic SPLP results exceeded the screening level of 5 µg/L in six of the six samples analyzed. The arsenic SPLP concentrations in exceedance of the screening level ranged from 11.3 µg/L in SP3-S1 to 5,130 µg/L in SP1-S4-C.

- Mercury SPLP results exceeded the screening level of 2 µg/L in two of the seven samples analyzed. The mercury SPLP concentrations in exceedance of the screening level ranged from 114 µg/L in SP1-S4-C to 523 µg/L in SP1-S1-C.

- Lead SPLP results exceeded the screening level of 15 µg/L in one of the seven samples analyzed. The lead SPLP concentration in exceedance of the screening level was 15.6 µg/L in SP1-S4-C.

The SPLP method is intended to simulate the natural leaching process that occurs to wastes on or in the ground as a result of precipitation and is used to determine the potential a material left on the ground has to impact groundwater (or surface water). Since the material was crushed to allow laboratory analysis increasing the surface area by orders of magnitude, the SPLP concentrations exaggerate the leaching potential of stockpiles in the Plant Area. Regardless, the total metals concentrations confirm that arsenic, mercury, and lead can leach from stockpiles and contaminate underlying soils. The soil sample SPLP results discussed in the next section are used to assess potential risk of soil leaching to impact groundwater.

## 3.2 Soil Sample Results

Aspect oversaw the excavation of six test pits on November 15, 2022. The test pits ranged from approximately 0.75 to 14 feet deep. A summary of the test pit observations is included on Figure 4 through 9.

The unprocessed ore in Stockpile 1 was observed to be approximately 9.8 feet thick at Test Pit 1 and 10.5 feet thick at Test Pit 2. Test Pit 3 (Stockpile 2) and Test Pit 4 (Stockpile 3) were observed to be mostly comprised of native soils with occasional gravel and cobble sized unprocessed ore fragments. At Stockpile 4 next to the former hearth furnace, Test Pit 5 was at least 11 feet deep and was comprised of compacted gravel and processed material, which the excavator reported was very tough to dig through, especially as the depth increased.

Native soil was observed underlying the stockpiles in all test pits except at Stockpile 4 due to refusal and maximum excavator reach. Test Pit 6, located near the drums at the southeast corner of the former hearth furnace, was not accessible by the excavator and was hand-dug using a shovel. Forest duff was observed over a light-colored compact material that was impenetrable by the shovel; it was unclear if this compact material was bedrock or if it was related to the former mining operations.

### *Analytical Results*

A total of 11 soil samples were collected from the native soil underlying the stockpiles or the deepest extent of the stockpile reached, and submitted for analytical testing of the following:

- RCRA-8 metals and antimony using Environmental Protection Agency (EPA) Method 6010D and
- Total mercury by EPA Method 7470/7471.

Additionally, three select soil samples were analyzed for:

- SPLP by EPA Method 1312 with digestion by EPA Methods 7471B (for mercury) and 6020B (for other RCRA-8 metals).

**Total Metals Results**

Analytical test results indicate the soil samples contained the following metals in exceedance of MTCA Method A CULs for unrestricted land use (or Method B CULs for soil were used if a Method A CUL is not established):

- **Antimony –** Four samples from Test Pits 5 and 6 exceed the MTCA Method B CUL of 32 mg/kg for antimony in soil, ranging from 32.2 mg/kg in TP5-11 and 126 mg/kg in TP6-0-0.75. Neither of these samples were of native soil from beneath a stockpile, but rather the deepest extents reached in Test Pits 5 and shallow native soil near the former hearth furnace in Test Pit 6.
- **Arsenic –** All 11 samples exceed the MTCA Method A CUL of 20 mg/kg for arsenic in soil. Arsenic concentrations in the soil samples ranged between 34.0 mg/kg in TP3-0-0.5 to 15,500 mg/kg at TP6-0-0.75.
- **Mercury –** Six samples exceed the MTCA Method A CUL of 2 mg/kg for mercury in soil. Mercury concentrations in exceedance of the CUL in soil samples ranged between 3.34 mg/kg in TP4-0-0.5 to 2,410 mg/kg in TP6-0-0.75.

Furthermore, the generic natural background concentrations of metals in soil in the Puget Sound were included in Table 5 for comparison (Ecology, 1994). Because Test Pit 6 was adjacent to drums, the Test Pit 6 sample results are included in Table 2 with the drum sample results.

Based on the mining history and the known naturally occurring arsenic and mercury concentrations in bedrock, additional work would be necessary to establish the natural background soil concentration for each release in accordance with MTCA for the Plant Area.

**Synthetic Precipitation Leach Procedure Results**

The potential leaching of RCRA-8 metals of three soil samples from Test Pits 1, 4, and 5 was analyzed using SPLP methods. The SPLP analytical results were screened against MTCA Method A CULs for groundwater (see Table 6).

- Arsenic SPLP results exceeded the screening level of 5 µg/L in two of the three samples analyzed. The arsenic SPLP concentrations in exceedance of the screening level ranged from 156 µg/L in TP1-1 (Stockpile 1) to 608 µg/L in TP5-5 (Stockpile 4). In TP4-0-0.5 (Stockpile 3), arsenic was not detected above the laboratory RL; however, the RL was above the screening level.

Based on these findings, the SPLP results suggest there is potential for arsenic to leach from the native soil into groundwater.

# 4 Conclusions

The limited subsurface investigation determined there is one primary stockpile of whole rock, with unprocessed ore, (Stockpile 1) that is significantly larger than other stockpiles. Stockpiles 2 and 3 also contain unprocessed ore mixed with soils and much lower metals concentrations. Stockpile 4 contains processed material with elevated concentrations of antimony, arsenic, cadmium, and mercury in stockpile materials, consistent with the mining history records. Stockpiles 1 and 4 contain the highest metals concentrations, with the total arsenic content of Stockpile 1 ranging from 4.0 to 6.6 percent by weight. The leaching tests conducted on stockpile samples, crushed to less than 3/8-inch diameter (9.5 mm sieve), did not exceed TCLP standard for hazardous waste designation.

There is processed material contained within and next to drums remaining next to the former hearth furnace – the arsenic concentration in this drum material is 20.2 and 54.5 percent by weight. Based on the total arsenic concentration, the processed material sampled in drums would likely be designated federal hazardous waste and/or state dangerous waste.

As expected based on total arsenic concentrations, the soil sample SPLP results do exceed arsenic groundwater cleanup level of 5 µg/L indicating soils present a potential to leach to groundwater. The stockpiles are likely discrete sites with separate releases to the soil. Additional remedial investigation will result in complete conceptual site model(s) for the area. However, as discussed above, there is no evidence the stockpiles and associated soils leaching to groundwater are the source of the B-3 and EB-12W groundwater arsenic concentrations. The occurrence of arsenic in B-3 and EB-12W groundwater is likely natural background and associated with the naturally-occurring enhanced dissolution of arsenic-bearing minerals due to the erosion of the Lawson Anticline. The B-3 and EB-13W arsenic concentrations in groundwater are separate from the releases discussed in this Report.

The soil analytical results from test pits underlying and adjacent to stockpiles indicate that antimony, arsenic, and mercury exceed applicable MTCA soil screening levels. Plant Area natural background concentrations for antimony, arsenic, and mercury in soil would be developed prior to conducting any cleanup action.

The results warrant reporting to Ecology that a release occurred at the Plant Area, and this Report is submitted to Ecology as release notification.

# 5 References

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# 6 Limitations

Work for this project was performed for Segale Properties, LLC (Client), and this report was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

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**Please refer to Appendix C titled "Report Limitations and Guidelines for Use" for additional information governing the use of this report.**

# TABLES

# Table 1. Stockpiles - Total Metals Analytical Results

Project No. 220395, Cumberland Property, Cumberland, Washington

| | | | Metals Analytical Results (mg/kg)[1, 2] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Analyte | Antimony | Arsenic | Barium | Cadmium | Chromium | Lead | Mercury | Selenium | Silver |
| | | MTCA Method A CUL[3] | 32[4] | 20 | 16,000[4] | 2 | NE | 250 | 2 | 400[4] | 400[4] |
| Sample | Sample ID | Date | | | | | | | | | |
| Stockpile 1 | SP1-S1-C | 08/30/2022 | **1,700** | **66,200** | < 28.3 U | **68.2** | < 42.5 U | **15.0 J** | **148 J** | < 236 U | < 14.2 U |
| | SP1-S2 | 08/30/2022 | **62.6 J** | **28,400** | **305** | **29.8** | < 22.8 U | < 50.8 U | **40.2** | < 127 U | < 7.61 U |
| | SP1-S4-C | 08/30/2022 | **802** | **40,300** | **9.55 J** | **44.5** | < 23.7 U | **11.5 J** | **790** | < 132 U | < 7.91 U |
| Stockpile 2 | SP2-S1 | 08/30/2022 | < 12.8 U | **42.1** | **157** | < 0.511 U | **12.8** | **7.53** | **0.334** | < 12.8 U | < 0.766 U |
| Stockpile 3 | SP3-S1 | 08/30/2022 | **3.61 J** | **114** | **64.1** | < 0.498 U | **16.4** | **5.72** | **0.229** | < 12.4 U | < 0.746 U |
| Stockpile 4 | SP4-S1 | 08/30/2022 | **45.1** | **2,290** | **256** | **0.995** | **31** | **10.2** | **2.86** | < 24.2 U | < 1.45 U |
| | SP4-S2 | 08/30/2022 | **27.9** | **1,500** | **178** | **0.545 J** | **37.2** | **5.44 J** | **0.849** | < 24.3 U | < 1.46 U |

**Legend:**

**Bold** - Analyte detected above laboratory reporting limit (RL).

**Blue Shaded** - Analyte detected above the applicable cleanup level or was non-detected and laboratory RL exceeds screening level.

J - Estimated concentration value detected below the reporting limit.

U - This analyte is not detected above the RL or if noted, not detected above the limit of detection.

**Notes and Abbreviations:**

(1) Samples collected by Aspect were analyzed by Analytical Resources, LLC of Tukwila, Washington.

(2) Samples were analyzed for total metals by EPA Method 6010D and total mercury by EPA Method 7471.

(3) MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1, Method A Soil Cleanup Levels for Unrestricted Land Use (unless noted otherwise).

(4) MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, CLARC, Soil, Method B, Non-cancer.

CLARC - Cleanup Levels and Risk Calculation
CUL - cleanup level
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
NE - Not Established
RL - Laboratory reporting limit
WAC - Washington Administrative Code

# Table 2. Processed Material - Total Metals Analytical Results

Project No. 220395, Cumberland Property, Cumberland, Washington

| | | | Metals Analytical Results (mg/kg)[1, 2] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Analyte | Antimony | Arsenic | Barium | Cadmium | Chromium | Lead | Mercury | Selenium | Silver |
| | | MTCA Method A CUL[3] | 32[4] | 20 | 16,000[4] | 2 | NE | 250 | 2 | 400[4] | 400[4] |
| Sample | Sample ID | Date | | | | | | | | | |
| Drum Area | Drum-01 | 11/15/2022 | **6,860** | **202,000** | **839** | < 16.0 U | < 72.1 U | **57.7 J** | **18,100** | < 400 U | < 24.0 U |
| | Drum-02 | 11/15/2022 | **4,020** | **545,000** | **254** | < 60.6 U | **482** | < 606 U | **20,300** | < 1,510 U | < 90.9 U |
| | Test Pit 6 | 11/15/2022 | **126** | **15,500** | **153** | < 1.43 U | **20.8** | **22** | **2,410** | < 35.7 U | **0.643 J** |

**Legend:**

**Bold** - Analyte detected above laboratory reporting limit (RL).

**Blue Shaded** - Analyte detected above the applicable cleanup level or was non-detected and laboratory RL exceeds screening level.

J - Estimated concentration value detected below the reporting limit.

U - This analyte is not detected above the RL or if noted, not detected above the limit of detection.

**Notes and Abbreviations:**

(1) Samples collected by Aspect were analyzed by Analytical Resources, LLC of Tukwila, Washington.

(2) Samples were analyzed for total metals by EPA Method 6010D and total mercury by EPA Method 7471.

(3) MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1, Method A Soil Cleanup Levels for Unrestricted Land Use (unless noted otherwise).

(4) MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, CLARC, Soil, Method B, Non-cancer.

CLARC - Cleanup Levels and Risk Calculation
CUL - cleanup level
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
NE - Not Established
RL - Laboratory reporting limit
WAC - Washington Administrative Code

# Table 3. Stockpiles - Toxicity Characteristic Leaching Procedure (TCLP) Results

Project No. 220395, Cumberland Property, Cumberland, Washington

| | | | RCRA-8 Metals TCLP Results (mg/L)[1, 2] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Analyte | Arsenic | Barium | Cadmium | Chromium | Lead | Mercury | Selenium | Silver |
| | | TCLP Hazardous Waste Designation (40 CFR 261.24) | 5 | 100 | 1 | 5 | 5 | 0.2 | 1 | 5 |
| Sample | Sample ID | Date | | | | | | | | |
| Stockpile 1 | SP1-S1-C | 08/30/2022 | **1.41** | **0.0207 J** | 0.01 U | 0.025 U | **0.0117 J** | **0.00612** | 0.25 U | 0.015 U |
| | SP1-S2 | 08/30/2022 | **1.52** | **0.253 J** | 0.01 U | **0.0177 J** | **0.0079 J** | **0.000185** | 0.25 U | 0.015 U |
| | SP1-S4-C | 08/30/2022 | **2.31** | **0.0675 J** | **0.0051 J** | **0.0185 J** | **0.022 J** | **0.000862** | 0.25 U | 0.015 U |
| Stockpile 2 | SP2-S1 | 08/30/2022 | 0.25 U | **0.267 J** | 0.01 U | 0.025 U | **0.0122 J** | **0.000028 J** | 0.25 U | 0.015 U |
| Stockpile 3 | SP3-S1 | 08/30/2022 | 0.25 U | **0.215 J** | **0.0018 J** | **0.003 J** | **0.0156 J** | **0.000029 J** | 0.25 U | 0.015 U |
| Stockpile 4 | SP4-S1 | 08/30/2022 | **0.369** | **0.6 J** | **0.0028 J** | **0.0092 J** | **0.011 J** | **0.000009 J** | 0.25 U | 0.015 U |
| | SP4-S2 | 08/30/2022 | **0.14 J** | **0.589 J** | **0.0032 J** | **0.0267** | 0.1 U | **0.000017 J** | 0.25 U | 0.015 U |

**Legend:**

**Bold** - Analyte detected above laboratory reporting limit (RL).

**Blue Shaded** - Analyte detected above the applicable TCLP Hazardous Waste Designation (none in data set).

J - Estimated concentration value detected below the reporting limit.

U - This analyte is not detected above the RL or if noted, not detected above the limit of detection.

**Notes and Abbreviations:**

(1) Samples collected by Aspect were analyzed by Analytical Resources, LLC of Tukwila, Washington.

(2) Samples were analyzed for TCLP by EPA Method 1311 with digestion by EPA Methods 7470A (for mercury) and 6010D (for other RCRA-8 metals).

CFR - Code of Federal Regulations

mg/L - milligrams per liter

RL - reporting limit

TCLP - Toxicity Characteristic Leaching Procedure

# Table 4. Stockpiles - Synthetic Precipitation Leach Procedure (SPLP) Results

Project No. 220395, Cumberland Property, Cumberland, Washington

| | | | RCRA-8 Metals SPLP Results (ug/L)[1, 2] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Analyte | Arsenic | Barium | Cadmium | Chromium | Lead | Mercury | Selenium | Silver |
| | | MTCA Method A CULs[3] | 5 | -- | 5 | 50 | 15 | 2 | -- | -- |
| Sample | Sample ID | Date | | | | | | | | |
| Stockpile 1 | SP1-S1-C | 08/30/2022 | **3,010** | **5 J** | 0.2 U | **0.6 J** | **3.39** | **523** | 4 U | 0.4 U |
| | SP1-S2 | 08/30/2022 | **1,980** | **20 J** | 0.2 U | **0.4 J** | **0.19 J** | **1.93** | 4 U | 0.4 U |
| | SP1-S4-C | 08/30/2022 | **5,130** | **20 J** | 0.2 U | **4** | **15.6** | **144** | 4 U | **0.03 J** |
| Stockpile 2 | SP2-S1 | 08/30/2022 | -- | **10 J** | 0.2 U | **2** | **0.87** | **0.278** | 4 U | 0.4 U |
| Stockpile 3 | SP3-S1 | 08/30/2022 | **11.3** | **20 J** | 0.2 U | **3** | **0.8** | **0.157** | 4 U | 0.4 U |
| Stockpile 4 | SP4-S1 | 08/30/2022 | **137** | **7 J** | 0.2 U | 1 U | 0.2 U | **0.103** | 4 U | 0.4 U |
| | SP4-S2 | 08/30/2022 | **115** | **6 J** | 0.2 U | **0.6 J** | **0.15 J** | **0.062 J** | 4 U | 0.4 U |

**Legend:**

**Bold** - Analyte detected above laboratory reporting limit (RL).

**Blue Shaded** - Analyte detected above the applicable cleanup level

J - Estimated concentration value detected below the reporting limit.

U - This analyte is not detected above the RL or if noted, not detected above the limit of detection.

**Notes and Abbreviations:**

(1) Samples collected by Aspect were analyzed by Analytical Resources, LLC of Tukwila, Washington.

(2) Soil samples were analyzed for SPLP by EPA Method 1312 with digestion by EPA Methods 7471B (for mercury) and 6020B (for other RCRA-8 metals).

(3) MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1, Method A Cleanup Levels for Groundwater.

-- analyte not tested

CUL - Cleanup level

ug/L - micrograms per liter

RL - reporting limit

SPLP - Synthetic Precipitation Leach Procedure

# Table 5. Soil -Total Metals Analytical Results

Project No. 220395, Cumberland Property, Cumberland, Washington

| | | | | | Metals Analytical Results (mg/kg)[1, 2] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Analyte | Antimony | Arsenic | Barium | Cadmium | Chromium | Lead | Mercury | Selenium | Silver |
| | | | | Natural Background Concentrations of Metals in Soil[3] | NE | 7 | NE | 1 | 48 | 24 | 0.07 | NE | NE |
| | | | | MTCA Method A CUL[4] | 32[5] | 20 | 16,000[5] | 2 | NE | 250 | 2 | 400[5] | 400[5] |
| Sample Location | | Sample ID | Date | Depth (feet bgs) | | | | | | | | | |
| Stockpile 1 | Test Pit 1 | TP1-1 | 11/15/22 | 10.8 | **7.69 J** | **3,570** | **113** | < 0.574 U | **13.6** | **8.47** | **48.1** | < 14.4 U | < 0.861 U |
| | | TP1-3 | 11/15/22 | 12.8 | **31.5** | **3,760** | **76.1** | < 0.522 U | **14.7** | **8.51** | **5.65** | < 13.1 U | < 0.783 U |
| | Test Pit 2 | TP2-0-0.5 | 11/15/22 | 10.5 | < 6.07 U | **1,290** | **158** | < 0.243 U | **18.5** | **9.99** | **0.889** | < 6.07 U | **0.158 J** |
| | | TP2-1.5 | 11/15/22 | 12 | < 5.68 U | **58.0** | **34.7** | < 0.227 U | **10.1** | **6.93** | **1.37** | < 5.68 U | < 0.341 U |
| Stockpile 2 | Test Pit 3 | TP3-0-0.5 | 11/15/22 | 0 - 0.5 | < 5.97 U | **34.0** | **108** | < 0.239 U | **15.1** | **9.33** | **0.765** | < 5.97 U | < 0.358 U |
| Stockpile 3 | Test Pit 4 | TP4-0-0.5 | 11/15/22 | 0 - 0.5 | < 5.86 U | **44.4** | **134** | < 0.234 U | **16.1** | **10.8** | **3.34** | < 5.86 U | < 0.352 U |
| | | TP4-2.5 | 11/15/22 | 2.25 | < 5.62 U | **34.7** | **154** | < 0.225 U | **17.7** | **10.5** | **7.51** | < 5.62 U | < 0.337 U |
| Stockpile 4 | Test Pit 5 | TP5-1 | 11/15/22 | 1 | **36.2** | **2,320** | **184** | < 0.536 U | **27.3** | **7.21** | **1.97** | < 13.4 U | < 0.804 U |
| | | TP5-5 | 11/15/22 | 5 | **122** | **2,300** | **755** | < 0.497 U | **24.6** | **9.02** | **1.21** | < 12.4 U | < 0.745 U |
| | | TP5-11 | 11/15/22 | 11 | **32.2** | **1,320** | **137** | < 0.514 U | **20.5** | **9.86** | **4.15** | < 12.8 U | < 0.770 U |

**Legend:**

**Bold** - Analyte detected above laboratory reporting limit (RL).

**Blue Shaded** - Analyte detected above the applicable cleanup level or was non-detected and laboratory RL exceeds screening level

J - Estimated concentration value detected below the reporting limit.

U - This analyte is not detected above the RL or if noted, not detected above the limit of detection.

**Notes and Abbreviations:**

[1] Samples collected by Aspect were analyzed by Analytical Resources, LLC of Tukwila, Washington.

[2] Soil samples were analyzed for total metals by EPA Method 6010D and total mercury by EPA Method 7470/7471.

[3] Natural Background Soil Metals Concentrations: Puget Sound - Washington Dept. of Ecology, 1994, Table 1.

[4] MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1, Method A Soil Cleanup Levels for Unrestricted Land Use (unless noted otherwise).

[5] MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, CLARC, Soil, Method B, Non-cancer.

bgs - below ground surface (top of test pit or stockpile)
CLARC - Cleanup Levels and Risk Calculation
CUL - cleanup level
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
NE - Not Established
RL - Laboratory reporting limit
WAC - Washington Administrative Code

# Table 6. Soil - Synthetic Precipitation Leach Procedure (SPLP) Results

Project No. 220395, Cumberland Property, Cumberland, Washington

| | | | | RCRA-8 Metals SPLP Results (ug/L)[1, 2] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Analyte | Arsenic | Barium | Cadmium | Chromium | Lead | Mercury | Selenium | Silver |
| | | | MTCA Method A CULs[3] | 5 | NE | 5 | 50 | 15 | 2 | NE | NE |
| Sample Location | | Sample ID | Date | | | | | | | | |
| Stockpile 1 | Test Pit 1 | TP1-1 | 11/15/2022 | **156 J** | **115** | < 10 U | < 25 U | < 100 U | < 0.1 U | < 250 U | < 15 U |
| Stockpile 3 | Test Pit 4 | TP4-0-0.5 | 11/15/2022 | < 250 U | **15** | < 10 U | < 25 U | < 100 U | **0.039 J** | < 250 U | < 15 U |
| Stockpile 4 | Test Pit 5 | TP5-5 | 11/15/2022 | **608** | **169** | < 10 U | < 25 U | < 100 U | < 0.1 U | < 250 U | < 15 U |

**Legend:**

**Bold** - Analyte detected above laboratory reporting limit (RL).

**Blue Shaded** - Analyte detected above the applicable cleanup level.

J - Estimated concentration value detected below the reporting limit.

U - This analyte is not detected above the RL or if noted, not detected above the limit of detection.

**Notes and Abbreviations:**

(1) Samples collected by Aspect were analyzed by Analytical Resources, LLC of Tukwila, Washington.

(2) Soil samples were analyzed for SPLP by EPA Method 1312 with digestion by EPA Methods 7471B (for mercury) and 6020B (for other RCRA-8 metals).

(3) MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1, Method A Cleanup Levels for Groundwater.

CUL - Cleanup level

ug/L - micrograms per liter

NE - not established

RL - reporting limit

SPLP - Synthetic Precipitation Leach Procedure

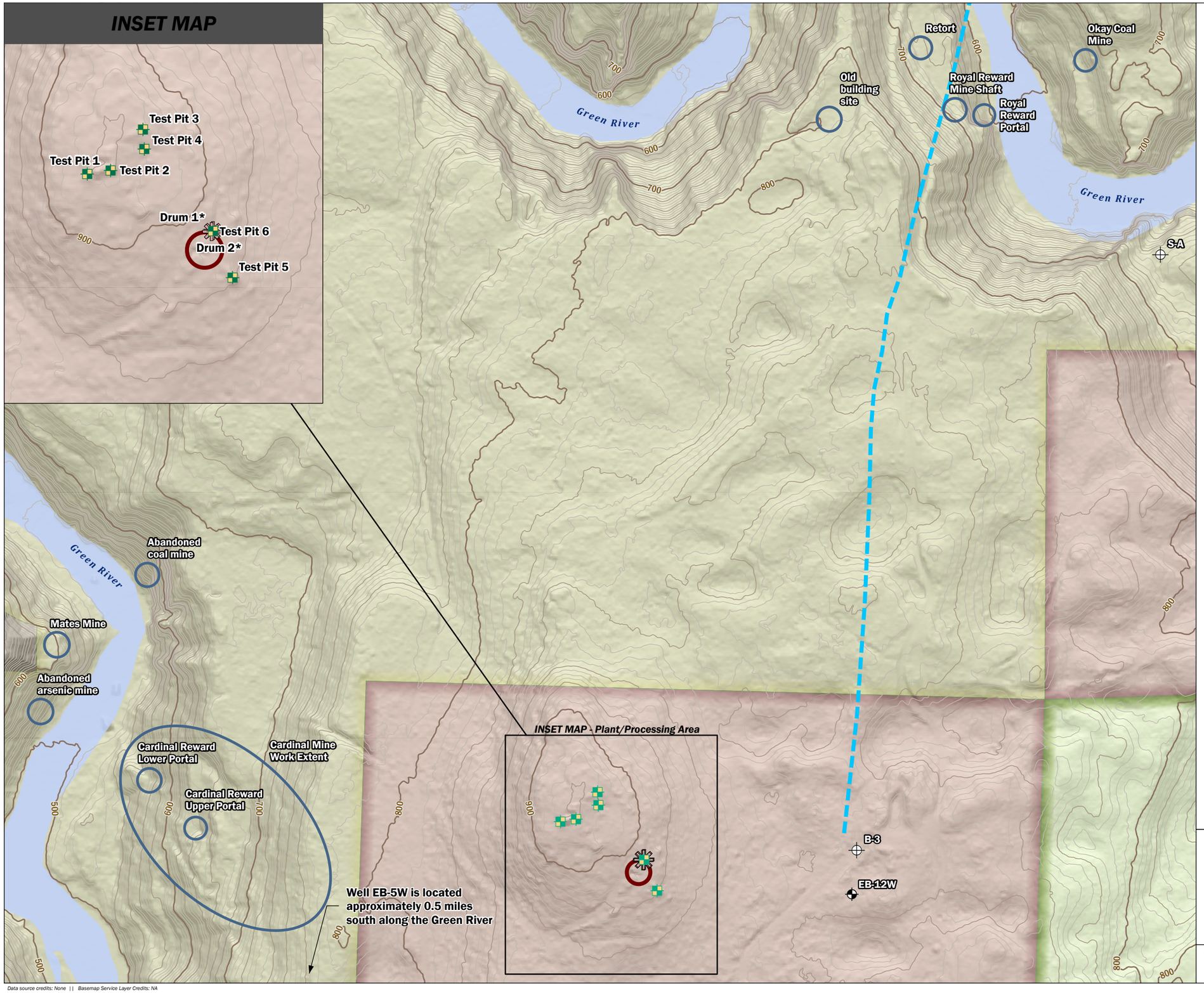
# FIGURES


# Vicinity Map

Site Investigation Report
Cumberland Property
Cumberland Washington

| | | | |
|---|---|---|---|
| Aspect CONSULTING | FEB-2023 | BY: KLPW / NLK | FIGURE NO. 1 |
| | PROJECT NO. 220395 | REVISED BY: ---/--- | |

*Data source credits: None || Basemap Service Layer Credits: Esri, NASA, NGA, USGS, FEMA, Esri, CGIAR, USGS, King County, WA State Parks GIS, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, King County, WA State Parks GIS, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, Esri, HERE, Garmin, USGS, EPA, NPS*




Test Pit
Soil Sample
AESI Exploration
AESI Well
Furnace
Historical Mine Feature
Lawson Anitcline
Cumberland Property
Park, Open Space, Natural Area
WADNR Managed Property
100-ft Contour
20-ft Contour
5-ft Contour

N

0 250 500 Feet

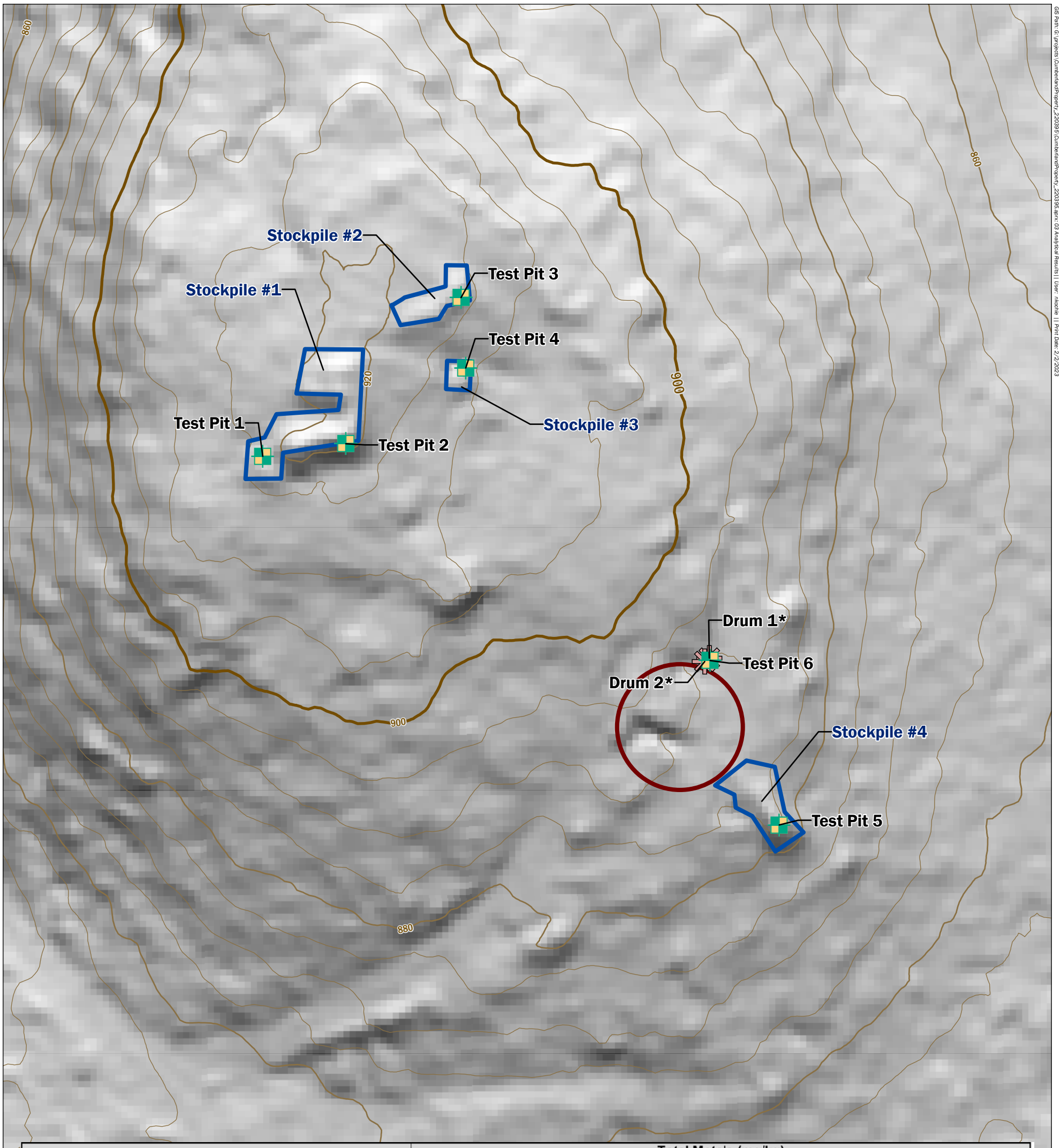
# Historical Features and Exploration Map

Site Investigation Report
Cumberland Property
Cumberland Washington

| | | | |
|---|---|---|---|
| Aspect Consulting | FEB-2023 | BY: KLPW / NLK | FIGURE NO. 2 |
| | PROJECT NO. 220395 | REVISED BY: ---/--- | |

Data source credits: None | | Basemap Service Layer Credits: NA

GIS Path: G:\projects\CumberlandProperty_220395\CumberlandProperty_220395.aprx | Layout: 02 Historical Features and Exploration Map | | User: nkoehe | | Print Date: 2/2/2023




| | | | | | Total Metals (mg/kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Analyte | *Antimony* | *Arsenic* | *Barium* | *Cadmium* | *Chromium* | *Lead* | *Mercury* | *Selenium* | *Silver* |
| | | | | Natural Background Concentrations of Metals in Soil | NE | 7 | NE | 1 | 48 | 24 | 0.07 | NE | NE |
| | | | | MTCA Method A or B CUL | 32 [B] | 20 [A] | 16,000 [B] | 2 [A] | NE | 250 [A] | 2 [A] | 400 [B] | 400 [B] |
| Sample Location | | Sample ID | Date | Depth (ft) | | | | | | | | | |
| Stockpile 1 | Test Pit 1 | TP1-1 | 11/15/22 | 10.8 | **7.69 J** | 3,570 | 113 | < 0.574 U | 13.6 | 8.47 | 48.1 | < 14.4 U | < 0.861 U |
| | | TP1-3 | 11/15/22 | 12.8 | **31.5** | 3,760 | 76.1 | < 0.522 U | 14.7 | 8.51 | 5.65 | < 13.1 U | < 0.783 U |
| | Test Pit 2 | TP2-0-0.5 | 11/15/22 | 10.5 | < 6.07 U | 1,290 | 158 | < 0.243 U | 18.5 | 9.99 | 0.889 | < 6.07 U | **0.158 J** |
| | | TP2-1.5 | 11/15/22 | 12 | < 5.68 U | 58.0 | 34.7 | < 0.227 U | 10.1 | 6.93 | 1.37 | < 5.68 U | < 0.341 U |
| Stockpile 2 | Test Pit 3 | TP3-0-0.5 | 11/15/22 | 0 - 0.5 | < 5.97 U | 34.0 | 108 | < 0.239 U | 15.1 | 9.33 | 0.765 | < 5.97 U | < 0.358 U |
| Stockpile 3 | Test Pit 4 | TP4-0-0.5 | 11/15/22 | 0 - 0.5 | < 5.86 U | 44.4 | 134 | < 0.234 U | 16.1 | 10.8 | 3.34 | < 5.86 U | < 0.352 U |
| | | TP4-2.5 | 11/15/22 | 2.25 | < 5.62 U | 34.7 | 154 | < 0.225 U | 17.7 | 10.5 | 7.51 | < 5.62 U | < 0.337 U |
| Stockpile 4 | Test Pit 5 | TP5-1 | 11/15/22 | 1 | 36.2 | 2,320 | 184 | < 0.536 U | 27.3 | 7.21 | 1.97 | < 13.4 U | < 0.804 U |
| | | TP5-5 | 11/15/22 | 5 | 122 | 2,300 | 755 | < 0.497 U | 24.6 | 9.02 | 1.21 | < 12.4 U | < 0.745 U |
| | | TP5-11 | 11/15/22 | 11 | 32.2 | 1,320 | 137 | < 0.514 U | 20.5 | 9.86 | 4.15 | < 12.8 U | < 0.770 U |
| Drums / Drum Area | Test Pit 6 | TP6-0-0.75 | 11/15/22 | 0 - 0.75 | 126 | 15,500 | 153 | < 1.43 U | 20.8 | 22 | 2,410 | < 35.7 U | **0.643 J** |
| | Drum 1 | DRUM-01 | 11/15/22 | - | 6,860 | 202,000 | 839 | < 16.0 U | < 72.1 U | 57.7 J | 18,100 | < 400 U | < 24.0 U |
| | Drum 2 | DRUM-02 | 11/15/22 | - | 4,020 | 545,000 | 254 | < 60.6 U | 482 | < 606 U | 20,300 | < 1,510 U | < 90.9 U |

Test Pit
Soil Sample
Stockpile
Furnace
100-ft Contour
20-ft Contour
5-ft Contour

N

0 25 50 Feet

# Plant Area Investigation Summary

Site Investigation Report
Cumberland Property
Cumberland Washington

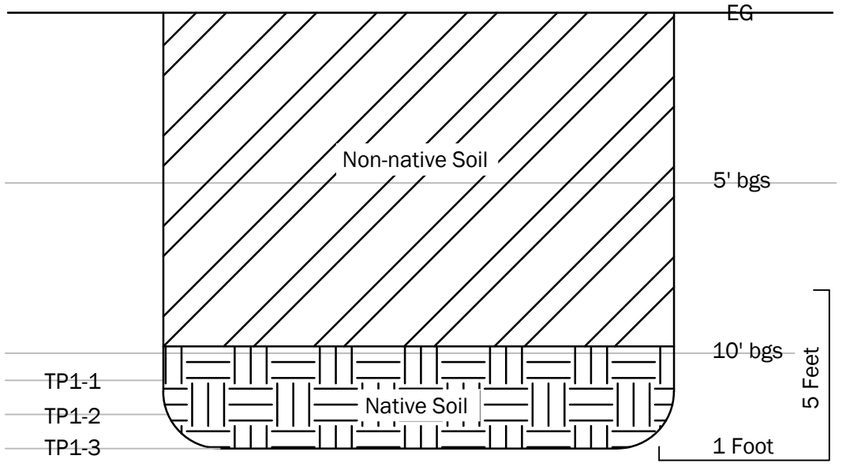
| | | | |
|---|---|---|---|
| Aspect CONSULTING | FEB-2023 | BY: KLPW / NLK | FIGURE NO. 3 |
| | PROJECT NO. 220213 | REVISED BY: ---/--- | |

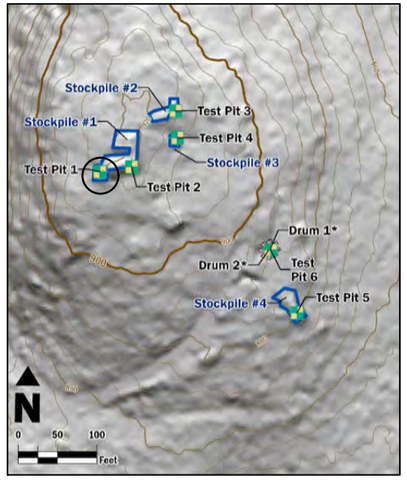
Data source credits: None || Basemap Service Layer Credits: NA

GIS Path: G:\projects\CumberlandProperty_220395\CumberlandProperty_220395.aprx; 03 Analytical Results || User: nkohle || Print Date: 2/2/2023

# Test Pit #1

| Stockpile Number | Test Pit Number | Depth (ft bgs) | Sample ID | XRF Reading (ppm) | | Soil Properties | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Arsenic | Mercury | Type | Description | USCS |
| SP1 | TP1 | 0-1 | | 19,538 | 733 | Non-native | Course to medium sand with silt and ore (gravel and cobble with bright orange-red crystals). | SW |
| | | 1-1.5 | | 15,909 | 956 | | | |
| | | 1.5-2 | | 26,913 | 1,689 | | | |
| | | 2-2.5 | | 20,004 | 847 | | | |
| | | 2.5-3 | | 27,593 | 1,386 | | | |
| | | 3-3.5 | | 21,929 | 838 | | | |
| | | 3.5-3.8 | | 24,042 | 753 | | | |
| | | 4 | | 30,456 | 2,297 | | | |
| | | 5 | | 26,654 | 1,464 | | | |
| | | 6 | | 34,965 | 1,197 | | | |
| | | 6.5 | | 25,124 | 965 | | | |
| | | 8 | | 17,330 | 865 | | | |
| | | 8.8 | | 20,114 | 833 | | | |
| | | 9.8 | | 63 | ND | Native | Moist, red-brown, silty fine sand, trace gravel. | SM |
| | | 10.3 | | 14,154 | 471 | | | |
| | | 10.8 | TP1-1 | 544 | 7 | | | |
| | | 11 | | 55 | ND | | | |
| | | 11.8 | TP1-2 | – | – | | | |
| | | 12 | | 74 | 5 | | | |
| | | 12.8 | TP1-3 | – | – | | | |



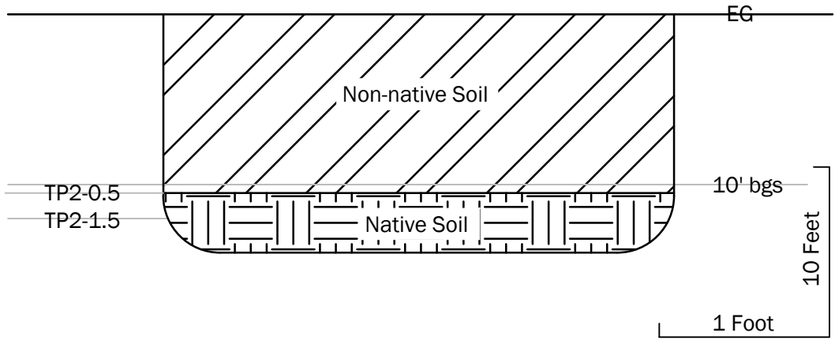

**Test Pit #1**
**Limited Subsurface Investigation**

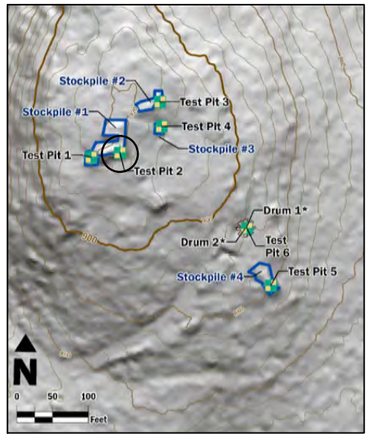
Cumberland Property
Cumberland, Washington

| Aspect Consulting | | | |
|---|---|---|---|
| | Feb-2023 | BY: KLPW/JPR | FIGURE NO. 4 |
| | PROJECT NO. 220395 | REVISED BY: - | |

# Test Pit #2

| Stockpile Number | Test Pit Number | Depth (ft bgs) | Sample ID | XRF Reading (ppm) | | Soil Properties | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Arsenic | Mercury | Type | Description | USCS |
| SP1 | TP2 | 3 | | 27,365 | 1,699 | Non-native | Course to medium sand with silt and ore (gravel and cobble with bright orange-red crystals). | SW |
| | | 6 | | 19,115 | 1,410 | | | |
| | | 9.8 | | 15,361 | 765 | | | |
| | | 10.5 | TP2-0-0.5 | 834 | ND | Native | Moist, yellow-brown, silty fine to medium sand, trace subrounded gravels. | SM |
| | | 11 | | 57 | ND | | | |
| | | 12 | TP2-1.5 | 40 | ND | | | |
| | | 13 | | 379 | 7 | | Sandstone and siltstone, horizontal bedding planes. | – |
| | | 14 | | 355 | 13 | | | |



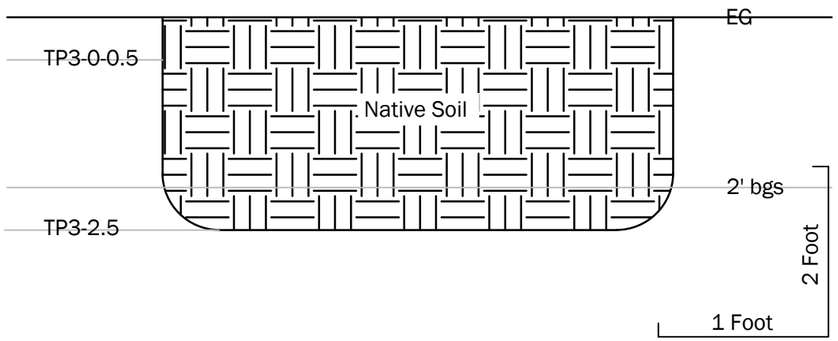

**Test Pit #2**
**Limited Subsurface Investigation**

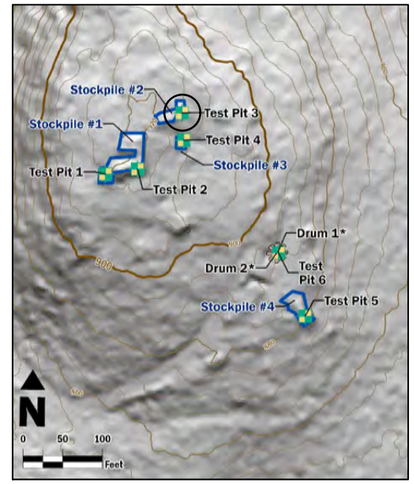
Cumberland Property
Cumberland, Washington

| Aspect Consulting | Feb-2023 | BY: KLPW/JPR | FIGURE NO. 5 |
|---|---|---|---|
| | PROJECT NO. 220395 | REVISED BY: - | |

# Test Pit #3

| Stockpile Number | Test Pit Number | Depth (ft bgs) | Sample ID | XRF Reading (ppm) | | Soil Properties | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Arsenic | Mercury | Type | Description | USCS |
| SP2 | TP3 | 0-0.5 | TP3-0-0.5 | 35 | ND | Native | Moist, red-brown, silty fine sand, trace fine subrounded gravel. | SM |
| | | 1.25 | | 31 | 5 | | | |
| | | 2.25 | | 31 | ND | | | |
| | | 2.5 | TP3-2.5 | 30 | ND | | | |



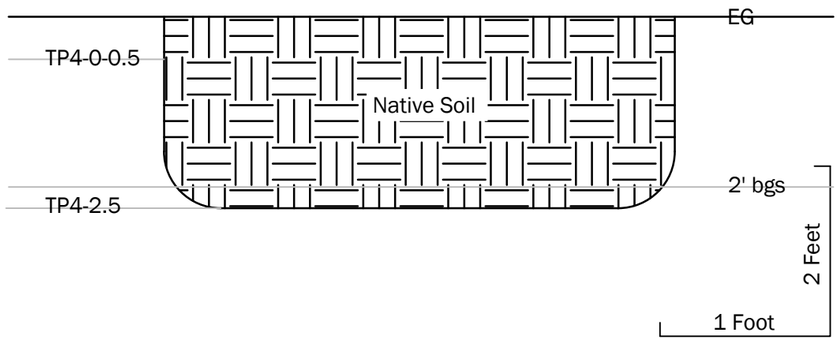



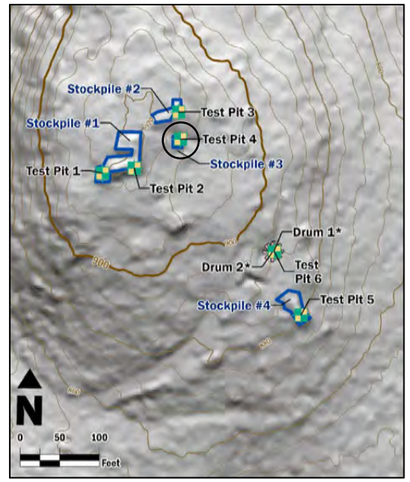

**Test Pit #3**
**Limited Subsurface Investigation**
Cumberland Property
Cumberland, Washington

| | | | |
|---|---|---|---|
| Aspect CONSULTING | Feb-2023 | BY: KLPW/JPR | FIGURE NO. 6 |
| | PROJECT NO. 220395 | REVISED BY: - | |

# Test Pit #4

| Stockpile Number | Test Pit Number | Depth (ft bgs) | Sample ID | XRF Reading (ppm) | | Soil Properties | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Arsenic | Mercury | Type | Description | USCS |
| SP3 | TP4 | 0-0.5 | TP4-0-0.5 | 153 | ND | Native | Moist, red-brown, silty fine sand, trace fine subrounded gravel. | SM |
| | | 1 | | 37 | ND | | | |
| | | 1.5 | | 40 | ND | | | |
| | | 2.25 | TP4-2.5 | 30 | ND | | | |



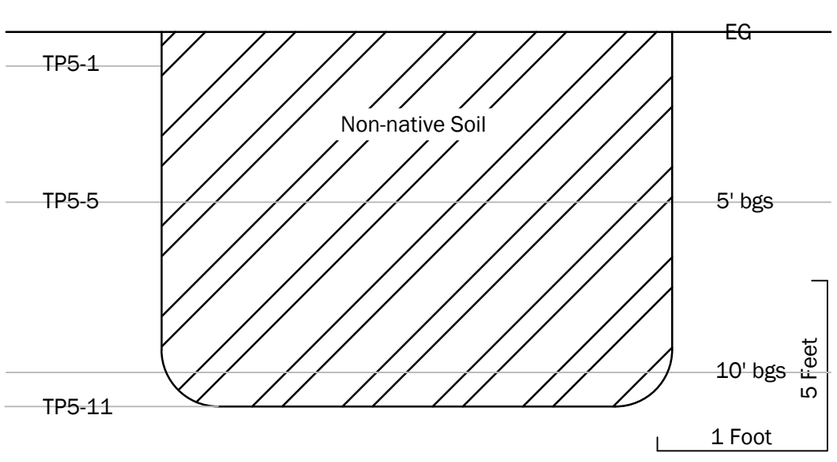

**Test Pit #4**
**Limited Subsurface Investigation**

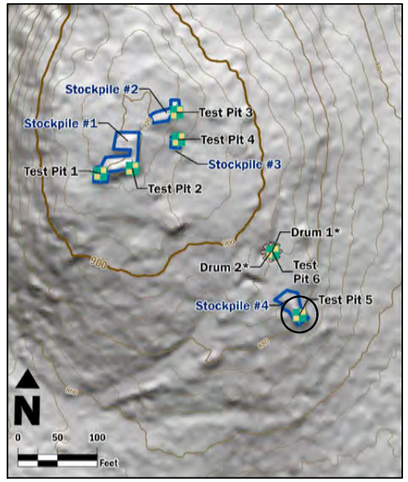
Cumberland Property
Cumberland, Washington

| Aspect Consulting | | | |
|---|---|---|---|
| | Feb-2023 | BY: KLPW/JPR | FIGURE NO. 7 |
| | PROJECT NO. 220395 | REVISED BY: - | |

# Test Pit #5

| Stockpile Number | Test Pit Number | Depth (ft bgs) | Sample ID | XRF Reading (ppm) | | Soil Properties | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Arsenic | Mercury | Type | Description | USCS |
| SP4 | TP5 | 1 | TP5-1 | – | – | Non-native | Distinct layering of multiple different soil types (compacted gravel and cobble with varying amounts of fines content) and colors (ranging from dark gray to tan/buff). Each layer is approximately 0.5 to 1 foot thick. | GW |
| | | 1.8 | | 2.374 | 15 | | | |
| | | 3.8 | | 2.270 | 12 | | | |
| | | 5 | TP5-5 | – | – | | | |
| | | 5.8 | | 3.030 | 12 | | | |
| | | 7.8 | | 1.868 | 9 | | | |
| | | 9.5 | | 2.615 | 9 | | | |
| | | 11 | TP5-11 | 1.419 | 10 | | | |



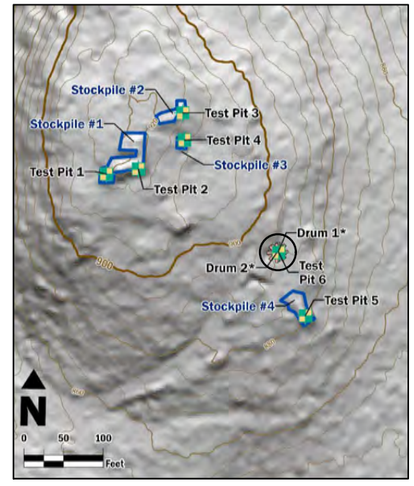

**Test Pit #5**
**Limited Subsurface Investigation**

Cumberland Property
Cumberland, Washington

| Aspect Consulting | Feb-2023 | BY: KLPW/JPR | FIGURE NO. 8 |
|---|---|---|---|
| | PROJECT NO. 220395 | REVISED BY: - | |

# Test Pit #6

| Stockpile Number | Test Pit Number | Depth (ft bgs) | Sample ID | XRF Reading (ppm) | | Soil Properties | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Arsenic | Mercury | Type | Description | USCS |
| Near Drums/ Furnace | TP6 | 0 | TP6-0-0.75 | 14,716 | 2,141 | Topsoil | dark brown, orga | Topsoil |
| | | 0.75 | | 9,620 | 3,260 | -- | Yellow-white, silty sand, very difficult to break with shovel. | -- |




**Test Pit #6**
**Limited Subsurface Investigation**

Cumberland Property
Cumberland, Washington

| Aspect CONSULTING | Feb-2023 | BY: KLPW/JPR | FIGURE NO. 9 |
|---|---|---|---|
| | PROJECT NO. 220395 | REVISED BY: - | |

# APPENDIX A

# Photograph Log

Photograph 1. Example of site conditions. Service roads, trails, and ground surface are overgrown with vegetation with fallen trees in various spots.

Photograph 2. The Site was densely vegetated with ferns, blackberry bushes, and other native plants. This concealed some surface features and made exploration challenging in some areas.

Photograph 3. Foundation and remnants of the former hearth furnace. The furnace was in line with Stockpile 1 and a metal structure (possibly a hopper) to the northwest and Stockpile 4 to the southeast.

Photograph 4. Former mining infrastructure is visible across the Site.

Photograph 5. Several 55-gallon drums and small (< 0.5 gallon) plastic motor oil containers were observed on the south side of the former hearth furnace. The drums were not sealed with lids and appeared to be weathered.

Photograph 6. At least four 55-gallon drums containing solid granular material were observed near the southeast corner of the former hearth furnace. The drums were in poor condition, were not sealed with lids, and were overgrown with native vegetation.

Photograph 7. Stockpile 1 exploration. Several samples were taken from different locations around this stockpile. This stockpile was uphill from the former hearth furnace and Stockpile 4. The ore in Stockpile 1 appears to be "raw" and unprocessed (i.e., the ore does not appear to have gone through the furnace and vibrant crystals of sulfide minerals were visible on many of the pieces of ore observed).

Photograph 8. Example of typical waste rock found at Stockpile 1. Some of the ore had vibrant red, orange, or yellow crystals, characteristic of various sulfide minerals such as realgar, cinnabar, and orpiment.

Photograph 9. Example of typical waste rock observed at Stockpile 1. Some of the ore had vibrant red, orange, or yellow crystals, characteristic of various sulfide minerals such as realgar, cinnabar, and orpiment.

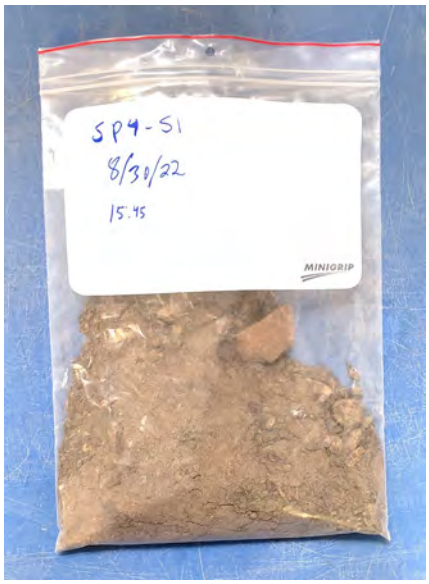
Photograph 10. Stockpile 2 exploration. This stockpile was located approximately 25 feet northeast of Stockpile 1. Stockpile 2 was much smaller and contained much less waste rock than Stockpile 1 and was mostly comprised of loamy sand with gravel with occasional brick-red sandstone that was subangular and gravel to cobble in size.

Photograph 11. Stockpile 3 exploration. This stockpile was located about 40 feet west of Stockpile 1 and is characteristically similar to Stockpile 2.

Photograph 12. Stockpile 4 exploration. This stockpile was downhill and in line with Stockpile 1 and the furnace. This Stockpile had a flat horizontal metal bar protruding from it that was approximately 4 inches wide and 2 feet long. This stockpile is located about 250 feet southeast of Stockpile 1 and about 30 feet southeast of the furnace. Waste rock in this stockpile appeared dark and dull.

Photograph 13. Metal bar protruding from Stockpile 4 (geologic hammer for scale).


Photograph 14. Samples taken on August 30, 2022, were collected in zip-block bags as shown. Some of these samples were too large to be analyzed by the laboratory (similar to photo above) so Aspect crushed and sieved the rocks to an acceptable size.




Photograph 15. Example of samples being crushed in collection bags for particle size reduction.

Photograph 16. Example of samples before being sieved through a 3/8-inch sieve to obtain appropriate size for TCLP and SPLP analysis.

Photograph 17. Example of samples being sieved through a 3/8-inch sieve.


Photograph 18. Example of sample after completing crushing and sieving process to obtain appropriate size.

# APPENDIX B

# Analytical Laboratory Reports

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

13 October 2022

Adam Griffin
Aspect Consulting, LLC.
710 2nd Avenue, Suite 550
Seattle, WA 98104

RE: Cumberland Solids 2022

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) |
|---|---|
| 22I0087 | N/A |

Susan Dunnihoo

Digitally signed by Susan Dunnihoo
Date: 2022.10.13 10:38:25 -07'00'

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

Susan Dunnihoo, Director, Client Services

*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

## Chain of Custody Record & Laboratory Analysis Request

| | | | |
|---|---|---|---|
| ARI Assigned Number: | Turn-around Requested: Standard | Date: 8/30/2022 | |
| ARI Client Company: Aspect Consulting | Phone: (206) 328-7443 | Page: 1 of 1 | |
| Client Contact: Adam Griffin | | No. of Coolers: | Cooler Temps: 16.6 |
| Client Project Name: Cumberland | | | |
| Client Project #: 220395 | Samplers: Kendra P. | | |

22I0087

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

| Sample ID | Date | Time | Matrix | No. Containers | Analysis Requested: RCRA Metals | TCLP RCRA | SPLP RCRA | Antimony | | | | | Notes/Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SP1-S1-C | 08/30/22 | 13:34 | soil | 1 | ✓ | ✓ | ✓ | ✓ | | | | | composite of SP1-S1, -S3, and -S6 |
| SP1-S2 | 08/30/22 | 13:46 | soil | 1 | ✓ | ✓ | ✓ | ✓ | | | | | |
| SP1-S4-C | 08/30/22 | 13:47 | soil | 1 | ✓ | ✓ | ✓ | ✓ | | | | | composite of SP1-S4 and -S5 |
| SP2-S1 | 08/30/22 | 11:40 | soil | 1 | ✓ | ✓ | ✓ | ✓ | | | | | |
| SP3-S1 | 08/30/22 | 13:00 | soil | 1 | ✓ | ✓ | ✓ | ✓ | | | | | |
| SP4-S1 | 08/30/22 | 15:45 | soil | 1 | ✓ | ✓ | ✓ | ✓ | | | | | |
| SP4-S2 | 08/30/22 | 15:47 | soil | 1 | ✓ | ✓ | ✓ | ✓ | | | | | |
| EB-12W-93 | 08/30/22 | 16:42 | soil | 1 | ✓ | ✓ | ✓ | ✓ | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

31 AUG 2022

| Comments/Special Instructions | Relinquished by: (Signature) | Received by: (Signature) | Relinquished by: (Signature) | Received by: (Signature) |
|---|---|---|---|---|
| All samples were crushed to pass thru a standard 3/8" sieve. | Printed Name: Kendra Pivnroff-Ward | Printed Name: Orlo Amos | Printed Name: | Printed Name: |
| | Company: Aspect Consulting | Company: ARI | Company: | Company: |
| | Date & Time: 09/01/22 1055 | Date & Time: 9/1/22 1055 | Date & Time: | Date & Time: |

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

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

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| SP1-S1-C | 22I0087-01 | Solid | 30-Aug-2022 13:34 | 01-Sep-2022 10:55 |
| SP1-S2 | 22I0087-02 | Solid | 30-Aug-2022 13:46 | 01-Sep-2022 10:55 |
| SP1-S4-C | 22I0087-03 | Solid | 30-Aug-2022 13:47 | 01-Sep-2022 10:55 |
| SP2-S1 | 22I0087-04 | Solid | 30-Aug-2022 11:40 | 01-Sep-2022 10:55 |
| SP3-S1 | 22I0087-05 | Solid | 30-Aug-2022 13:00 | 01-Sep-2022 10:55 |
| SP4-S1 | 22I0087-06 | Solid | 30-Aug-2022 15:45 | 01-Sep-2022 10:55 |
| SP4-S2 | 22I0087-07 | Solid | 30-Aug-2022 15:47 | 01-Sep-2022 10:55 |
| EB-12W-93 | 22I0087-08 | Solid | 30-Aug-2022 16:42 | 01-Sep-2022 10:55 |
| SP1-S1-C | 22I0087-09 | Solid | 30-Aug-2022 13:34 | 01-Sep-2022 10:55 |
| SP1-S2 | 22I0087-10 | Solid | 30-Aug-2022 13:46 | 01-Sep-2022 10:55 |
| SP1-S4-C | 22I0087-11 | Solid | 30-Aug-2022 13:47 | 01-Sep-2022 10:55 |
| SP2-S1 | 22I0087-12 | Solid | 30-Aug-2022 11:40 | 01-Sep-2022 10:55 |
| SP3-S1 | 22I0087-13 | Solid | 30-Aug-2022 13:00 | 01-Sep-2022 10:55 |
| SP4-S1 | 22I0087-14 | Solid | 30-Aug-2022 15:45 | 01-Sep-2022 10:55 |
| SP4-S2 | 22I0087-15 | Solid | 30-Aug-2022 15:47 | 01-Sep-2022 10:55 |
| EB-12W-93 | 22I0087-16 | Solid | 30-Aug-2022 16:42 | 01-Sep-2022 10:55 |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

# Work Order Case Narrative

**Client:** Aspect Consulting, LLC.
**Project:** Cumberland Solids 2022
**Work Order:** 22I0087

## Sample receipt

Samples as listed on the preceding page were received 01-Sep-2022 10:55 under ARI work order 22I0087. For details regarding sample receipt, please refer to the Cooler Receipt Form.

## Total Metals - EPA Method 6010D

The sample(s) were digested and analyzed within the recommended holding times. Digests required multiple analyses due to high concentrations and matrix issues.

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 were outside limits. The digest was rerun to confirm and outliers have been flagged on the summary sheet. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

## Total Mercury - EPA Method 7471

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

Initial and continuing calibrations were within method requirements.

The method blank(s) 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 outside advisory control limits. A post spike was performed with acceptable results.

## TCLP Metals including Mercury

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

Initial and continuing calibrations were within method requirements.

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

The method blank was clean at the reporting limits.

The matrix spike (MS) percent recoveries were within advisory control limits.

The duplicate (DUP) relative percent difference (RPD) was outside advisory control limits for mercury and have been flagged on the summary sheet.

**SPLP Metals**

The sample(s) were leached, digested and analyzed within the recommended holding times. Due to instrument issues, leachates were run by EPA 6020B, which required dilution of the samples.

Initial and continuing calibrations were within method requirements.

The method blank was clean at the reporting limits.

The matrix spike (MS) percent recovery for mercury was outside advisory control limits.

The duplicate (DUP) relative percent difference (RPD) was outside advisory control limits for barium and mercury.

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 9/8/2022 11:24:01AM

# WORK ORDER

**2210087**

Samples will be discarded 90 days after submission of a final report unless other instructions are received

**Client:** Aspect Consulting, LLC.
**Project Manager:** Susan Dunnihoo

**Project:** Cumberland Solids 2022
**Project Number:** |none|

**Report To:**
Aspect Consulting, LLC.
Adam Griffin
710 2nd Avenue, Suite 550
Seattle, WA 98104
Phone: (206) 328-7443
Fax: -

**Invoice To:**
Aspect Consulting, LLC.
Adam Griffin
710 2nd Avenue, Suite 550
Seattle, WA 98104
Phone :(206) 328-7443
Fax: -

Date Due: 16-Sep-2022 18:00 (10 day TAT)

Received By: Orlo Amos
Date Received: 01-Sep-2022 10:55

Logged In By: Orlo Amos
Date Logged In: 08-Sep-2022 10:49

Samples Received at: 16.6°C

| | | | |
|---|---|---|---|
| Intact, properly signed and dated custody seals attached to outside of cooler(s) | No | Custody papers included with the cooler | No |
| Custody papers properly filled out (ink, signed, analyses requested, etc) | No | Was a temperature blank included in the cooler | No |
| Was sufficient ice used (if appropriate) | No | All bottles sealed in individual plastic bags | Yes |
| All bottles arrived in good condition (unbroken) | Yes | All bottle labels complete and legible | Yes |
| Number of containers listed on COC match number received | Yes | Bottle labels and tags agree with COC | Yes |
| Correct bottles used for the requested analyses | Yes | All VOC vials free of air bubbles | No |
| Analyses/bottles require preservation (attach preservation sheet excluding VOC) | No | Sufficient amount of sample sent in each bottle | Yes |
| Sample split at ARI | No | | |

| Analysis | Due | TAT | Expires | Comments |
|---|---|---|---|---|

# WORK ORDER

**2210087**

Samples will be discarded 90 days after submission of a final report unless other instructions are received

**Client:** Aspect Consulting, LLC. **Project Manager:** Susan Dunnihoo

**Project:** Cumberland Solids 2022 **Project Number:** [none]

| Analysis | Due | TAT | Expires | Comments |
|---|---|---|---|---|
| **2210087-05 SP3-S1 [Solid] Sampled 30-Aug-2022 13:00 (GMT-08:00) Pacific Time (US & Canada)** | | | | |
| *1 - Glass WM, Clear, 8 oz* | | | | |
| Met 6010D - Sb | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 23:59 | |
| Metals, RCRA 6010D 7471B (Solids) | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 13:00 | |
| Metals, SPLP (RCRA) 6010D 7470 131 | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 13:00 | |
| Metals, TCLP (RCRA) 6010D 7470 131 | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 13:00 | |
| Solids, Total, Dried at 103 -105 °C, Soli | 16-Sep-2022 15:00 | 10 | 27-Sep-2022 23:59 | |
| SPLP 1312 | 16-Sep-2022 15:00 | 10 | 27-Sep-2022 23:59 | |
| **2210087-06 SP4-S1 [Solid] Sampled 30-Aug-2022 15:45 (GMT-08:00) Pacific Time (US & Canada)** | | | | |
| *1 - Glass WM, Clear, 64 oz* | | | | |
| Met 6010D - Sb | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 23:59 | |
| Metals, RCRA 6010D 7471B (Solids) | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 15:45 | |
| Metals, SPLP (RCRA) 6010D 7470 131 | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 15:45 | |
| Metals, TCLP (RCRA) 6010D 7470 131 | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 15:45 | |
| Solids, Total, Dried at 103 -105 °C, Soli | 16-Sep-2022 15:00 | 10 | 27-Sep-2022 23:59 | |
| SPLP 1312 | 16-Sep-2022 15:00 | 10 | 27-Sep-2022 23:59 | |
| **2210087-07 SP4-S2 [Solid] Sampled 30-Aug-2022 15:47 (GMT-08:00) Pacific Time (US & Canada)** | | | | |
| *1 - Glass WM, Clear, 64 oz* | | | | |
| Met 6010D - Sb | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 23:59 | |
| Metals, RCRA 6010D 7471B (Solids) | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 15:47 | |
| Metals, SPLP (RCRA) 6010D 7470 131 | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 15:47 | |
| Metals, TCLP (RCRA) 6010D 7470 131 | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 15:47 | |
| Solids, Total, Dried at 103 -105 °C, Soli | 16-Sep-2022 15:00 | 10 | 27-Sep-2022 23:59 | |
| SPLP 1312 | 16-Sep-2022 15:00 | 10 | 27-Sep-2022 23:59 | |
| **2210087-08 EB-12W-93 [Solid] Sampled 30-Aug-2022 16:42 (GMT-08:00) Pacific Time (US & Canada)** | | | | |
| *1 - Glass WM, Clear, 4 oz H2SO4* | | | | |
| Met 6010D - Sb | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 23:59 | |
| Metals, RCRA 6010D 7471B (Solids) | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 16:42 | |
| Metals, SPLP (RCRA) 6010D 7470 131 | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 16:42 | |
| Metals, TCLP (RCRA) 6010D 7470 131 | 16-Sep-2022 15:00 | 10 | 26-Feb-2023 16:42 | |
| Solids, Total, Dried at 103 -105 °C, Soli | 16-Sep-2022 15:00 | 10 | 27-Sep-2022 23:59 | |
| SPLP 1312 | 16-Sep-2022 15:00 | 10 | 27-Sep-2022 23:59 | |

Reviewed By

Date

Analytical Resources, LLC
Analytical Chemists and Consultants

# Cooler Receipt Form

ARI Client: Aspect  Project Name: _____

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

Assigned ARI Job No: 22I0087  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 1055  4.4 ___ ___ ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F  Temp Gun ID#: 7705

Cooler Accepted by: Carlo Ames  Date: 9/1/22  Time: 1055

***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: Carlo Ames  Date: 9/1/22  Time: 1106  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: _____

Analytical Resources, LLC
Analytical Chemists and Consultants

# Cooler Temperature Compliance Form

**ARI Work Order:** _____

**Cooler#:** 1 **Temperature(°C):** 11.6-6

| Sample ID | Bottle Count | Bottle Type |
|---|---|---|
| temp above | | |
| 6 degrees | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**Cooler#:** _____ **Temperature(°C):** _____

| Sample ID | Bottle Count | Bottle Type |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**Cooler#:** _____ **Temperature(°C):** _____

| Sample ID | Bottle Count | Bottle Type |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**Cooler#:** _____ **Temperature(°C):** _____

| Sample ID | Bottle Count | Bottle Type |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Completed by: [signature] Date: 9/11/22 Time: 1045

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S1-C

**22I0087-01 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 13:34
Instrument: HYDRA Analyst: ML — Analyzed: 09/16/2022 13:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22I0087-01 A
Preparation Batch: BKI0251 — Sample Size: 0.289 g (wet) — Dry Weight:0.28 g
Prepared: 09/13/2022 — Final Volume: 50 mL — % Solids: 98.56

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 10000 | 36.9 | 176 | 148 | mg/kg | J, D |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S1-C

**22I0087-01 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 13:34
Instrument: ICP2 Analyst: SKD — Analyzed: 09/21/2022 17:42

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 22I0087-01 A 02
Preparation Batch: BKI0271 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 5 | 0.0140 | 0.250 | 1.41 | mg/L | |
| Barium | 7440-39-3 | 5 | 0.0075 | 0.0150 | 0.0207 | mg/L | B |
| Cadmium | 7440-43-9 | 5 | 0.0006 | 0.0100 | ND | mg/L | U |
| Chromium | 7440-47-3 | 5 | 0.0024 | 0.0250 | ND | mg/L | U |
| Lead | 7439-92-1 | 5 | 0.0065 | 0.100 | 0.0117 | mg/L | J |
| Selenium | 7782-49-2 | 5 | 0.0408 | 0.250 | ND | mg/L | U |
| Silver | 7440-22-4 | 5 | 0.0022 | 0.0150 | ND | mg/L | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S1-C

**22I0087-01 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/30/2022 13:34
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 18:13

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEM 7470A Digestion of EPA 1311 Elutriate for Hg — Extract ID: 22I0087-01 A 01
Preparation Batch: BKI0272 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 5 | 0.000035 | 0.000500 | 0.00612 | mg/L | D |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S1-C

**22I0087-01RE1 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 13:34
Instrument: ICP2 Analyst: SKD — Analyzed: 09/26/2022 16:21

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22I0087-01RE1 A 04
Preparation Batch: BKI0527 — Sample Size: 1.075 g (wet) — Dry Weight:1.06 g
Prepared: 09/23/2022 — Final Volume: 50 mL — % Solids: 98.56

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 100 | 22.0 | 236 | 1700 | mg/kg | D |
| Arsenic | 7440-38-2 | 100 | 21.7 | 236 | 66200 | mg/kg | D |
| Barium | 7440-39-3 | 100 | 12.3 | 28.3 | ND | mg/kg | U |
| Cadmium | 7440-43-9 | 100 | 3.30 | 9.44 | 68.2 | mg/kg | D |
| Chromium | 7440-47-3 | 100 | 20.8 | 42.5 | ND | mg/kg | U |
| Lead | 7439-92-1 | 100 | 11.3 | 94.4 | 15.0 | mg/kg | J, D |
| Selenium | 7782-49-2 | 100 | 60.4 | 236 | ND | mg/kg | U |
| Silver | 7440-22-4 | 100 | 3.68 | 14.2 | ND | mg/kg | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S2

**22I0087-02 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 13:46
Instrument: HYDRA Analyst: ML — Analyzed: 09/16/2022 13:29

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22I0087-02 A
Preparation Batch: BKI0251 — Sample Size: 0.28 g (wet) — Dry Weight:0.27 g
Prepared: 09/13/2022 — Final Volume: 50 mL — % Solids: 95.91

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 100 | 0.391 | 1.86 | 40.2 | mg/kg | D |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S2

**22I0087-02 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 13:46
Instrument: ICP2 Analyst: SKD — Analyzed: 09/21/2022 18:00

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 22I0087-02 A 02
Preparation Batch: BKI0271 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 5 | 0.0140 | 0.250 | 1.52 | mg/L | |
| Barium | 7440-39-3 | 5 | 0.0075 | 0.0150 | 0.253 | mg/L | B |
| Cadmium | 7440-43-9 | 5 | 0.0006 | 0.0100 | ND | mg/L | U |
| Chromium | 7440-47-3 | 5 | 0.0024 | 0.0250 | 0.0177 | mg/L | J |
| Lead | 7439-92-1 | 5 | 0.0065 | 0.100 | 0.0079 | mg/L | J |
| Selenium | 7782-49-2 | 5 | 0.0408 | 0.250 | ND | mg/L | U |
| Silver | 7440-22-4 | 5 | 0.0022 | 0.0150 | ND | mg/L | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S2

**22I0087-02 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/30/2022 13:46
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 16:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEM 7470A Digestion of EPA 1311 Elutriate for Hg — Extract ID: 22I0087-02 A 01
Preparation Batch: BKI0272 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.000007 | 0.000100 | 0.000185 | mg/L | |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S2

**22I0087-02RE1 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 13:46
Instrument: ICP2 Analyst: SKD — Analyzed: 09/26/2022 16:13

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22I0087-02RE1 A 04
Preparation Batch: BKI0527 — Sample Size: 1.027 g (wet) — Dry Weight:0.98 g
Prepared: 09/23/2022 — Final Volume: 50 mL — % Solids: 95.91

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 50 | 11.8 | 127 | 62.6 | mg/kg | J, D |
| Arsenic | 7440-38-2 | 50 | 11.7 | 127 | 28400 | mg/kg | D |
| Barium | 7440-39-3 | 50 | 6.60 | 15.2 | 305 | mg/kg | D |
| Cadmium | 7440-43-9 | 50 | 1.78 | 5.08 | 29.8 | mg/kg | D |
| Chromium | 7440-47-3 | 50 | 11.2 | 22.8 | ND | mg/kg | U |
| Lead | 7439-92-1 | 50 | 6.09 | 50.8 | ND | mg/kg | U |
| Selenium | 7782-49-2 | 50 | 32.5 | 127 | ND | mg/kg | U |
| Silver | 7440-22-4 | 50 | 1.98 | 7.61 | ND | mg/kg | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S4-C

**22I0087-03 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 13:47
Instrument: HYDRA Analyst: ML — Analyzed: 09/16/2022 13:48

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22I0087-03 A
Preparation Batch: BKI0251 — Sample Size: 0.224 g (wet) — Dry Weight:0.21 g
Prepared: 09/13/2022 — Final Volume: 50 mL — % Solids: 92.02

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 10000 | 50.9 | 243 | 790 | mg/kg | D |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S4-C

**22I0087-03 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 13:47
Instrument: ICP2 Analyst: SKD — Analyzed: 09/21/2022 17:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 22I0087-03 A 02
Preparation Batch: BKI0271 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 5 | 0.0140 | 0.250 | 2.31 | mg/L | |
| Barium | 7440-39-3 | 5 | 0.0075 | 0.0150 | 0.0675 | mg/L | B |
| Cadmium | 7440-43-9 | 5 | 0.0006 | 0.0100 | 0.0051 | mg/L | J |
| Chromium | 7440-47-3 | 5 | 0.0024 | 0.0250 | 0.0185 | mg/L | J |
| Lead | 7439-92-1 | 5 | 0.0065 | 0.100 | 0.0220 | mg/L | J |
| Selenium | 7782-49-2 | 5 | 0.0408 | 0.250 | ND | mg/L | U |
| Silver | 7440-22-4 | 5 | 0.0022 | 0.0150 | ND | mg/L | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S4-C

**22I0087-03 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/30/2022 13:47
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 16:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEM 7470A Digestion of EPA 1311 Elutriate for Hg — Extract ID: 22I0087-03 A 01
Preparation Batch: BKI0272 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.000007 | 0.000100 | 0.000862 | mg/L | |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S4-C

**22I0087-03RE1 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 13:47
Instrument: ICP2 Analyst: SKD — Analyzed: 09/26/2022 16:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22I0087-03RE1 A 04
Preparation Batch: BKI0527 — Sample Size: 1.031 g (wet) — Dry Weight:0.95 g
Prepared: 09/23/2022 — Final Volume: 50 mL — % Solids: 92.02

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 50 | 12.3 | 132 | 802 | mg/kg | D |
| Arsenic | 7440-38-2 | 50 | 12.1 | 132 | 40300 | mg/kg | D |
| Barium | 7440-39-3 | 50 | 6.85 | 15.8 | 9.55 | mg/kg | J, D |
| Cadmium | 7440-43-9 | 50 | 1.84 | 5.27 | 44.5 | mg/kg | D |
| Chromium | 7440-47-3 | 50 | 11.6 | 23.7 | ND | mg/kg | U |
| Lead | 7439-92-1 | 50 | 6.32 | 52.7 | 11.5 | mg/kg | J, D |
| Selenium | 7782-49-2 | 50 | 33.7 | 132 | ND | mg/kg | U |
| Silver | 7440-22-4 | 50 | 2.06 | 7.91 | ND | mg/kg | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP2-S1

**22I0087-04 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 11:40
Instrument: HYDRA Analyst: ML — Analyzed: 09/16/2022 13:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22I0087-04 A
Preparation Batch: BKI0251 — Sample Size: 0.21 g (wet) — Dry Weight:0.19 g
Prepared: 09/13/2022 — Final Volume: 50 mL — % Solids: 92.05

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.00543 | 0.0259 | 0.334 | mg/kg | |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP2-S1

**22I0087-04 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 11:40
Instrument: ICP2 Analyst: SKD — Analyzed: 09/21/2022 17:48

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 22I0087-04 A 02
Preparation Batch: BKI0271 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 5 | 0.0140 | 0.250 | ND | mg/L | U |
| Barium | 7440-39-3 | 5 | 0.0075 | 0.0150 | 0.267 | mg/L | B |
| Cadmium | 7440-43-9 | 5 | 0.0006 | 0.0100 | ND | mg/L | U |
| Chromium | 7440-47-3 | 5 | 0.0024 | 0.0250 | ND | mg/L | U |
| Lead | 7439-92-1 | 5 | 0.0065 | 0.100 | 0.0122 | mg/L | J |
| Selenium | 7782-49-2 | 5 | 0.0408 | 0.250 | ND | mg/L | U |
| Silver | 7440-22-4 | 5 | 0.0022 | 0.0150 | ND | mg/L | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP2-S1

**22I0087-04 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/30/2022 11:40
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 16:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEM 7470A Digestion of EPA 1311 Elutriate for Hg — Extract ID: 22I0087-04 A 01
Preparation Batch: BKI0272 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.000007 | 0.000100 | 0.000028 | mg/L | J |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP2-S1

**22I0087-04RE1 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 11:40
Instrument: ICP2 Analyst: SKD — Analyzed: 09/26/2022 16:18

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22I0087-04RE1 A 04
Preparation Batch: BKI0527 — Sample Size: 1.063 g (wet) — Dry Weight:0.98 g
Prepared: 09/23/2022 — Final Volume: 50 mL — % Solids: 92.05

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 5 | 1.19 | 12.8 | ND | mg/kg | U |
| Arsenic | 7440-38-2 | 5 | 1.18 | 12.8 | 42.1 | mg/kg | D |
| Barium | 7440-39-3 | 5 | 0.664 | 1.53 | 157 | mg/kg | D |
| Cadmium | 7440-43-9 | 5 | 0.179 | 0.511 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 5 | 1.13 | 2.30 | 12.8 | mg/kg | D |
| Lead | 7439-92-1 | 5 | 0.613 | 5.11 | 7.53 | mg/kg | D |
| Selenium | 7782-49-2 | 5 | 3.27 | 12.8 | ND | mg/kg | U |
| Silver | 7440-22-4 | 5 | 0.199 | 0.766 | ND | mg/kg | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP3-S1

**22I0087-05 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 13:00
Instrument: HYDRA Analyst: ML — Analyzed: 09/16/2022 13:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22I0087-05 A
Preparation Batch: BKI0251 — Sample Size: 0.238 g (wet) — Dry Weight:0.23 g
Prepared: 09/13/2022 — Final Volume: 50 mL — % Solids: 95.70

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.00461 | 0.0220 | 0.229 | mg/kg | |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP3-S1

**22I0087-05 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 13:00
Instrument: ICP2 Analyst: SKD — Analyzed: 09/21/2022 17:51

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 22I0087-05 A 02
Preparation Batch: BKI0271 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 5 | 0.0140 | 0.250 | ND | mg/L | U |
| Barium | 7440-39-3 | 5 | 0.0075 | 0.0150 | 0.215 | mg/L | B |
| Cadmium | 7440-43-9 | 5 | 0.0006 | 0.0100 | 0.0018 | mg/L | J |
| Chromium | 7440-47-3 | 5 | 0.0024 | 0.0250 | 0.0030 | mg/L | J |
| Lead | 7439-92-1 | 5 | 0.0065 | 0.100 | 0.0156 | mg/L | J |
| Selenium | 7782-49-2 | 5 | 0.0408 | 0.250 | ND | mg/L | U |
| Silver | 7440-22-4 | 5 | 0.0022 | 0.0150 | ND | mg/L | U |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP3-S1

**22I0087-05 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/30/2022 13:00
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 16:54

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEM 7470A Digestion of EPA 1311 Elutriate for Hg — Extract ID: 22I0087-05 A 01
Preparation Batch: BKI0272 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.000007 | 0.000100 | 0.000029 | mg/L | J |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP3-S1

**22I0087-05RE1 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 13:00
Instrument: ICP2 Analyst: SKD — Analyzed: 09/27/2022 17:32

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22I0087-05RE1 A 04
Preparation Batch: BKI0527 — Sample Size: 1.05 g (wet) — Dry Weight:1.00 g
Prepared: 09/23/2022 — Final Volume: 50 mL — % Solids: 95.70

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 5 | 1.16 | 12.4 | 3.61 | mg/kg | J, D |
| Arsenic | 7440-38-2 | 5 | 1.14 | 12.4 | 114 | mg/kg | D |
| Barium | 7440-39-3 | 5 | 0.647 | 1.49 | 64.1 | mg/kg | D |
| Cadmium | 7440-43-9 | 5 | 0.174 | 0.498 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 5 | 1.10 | 2.24 | 16.4 | mg/kg | D |
| Lead | 7439-92-1 | 5 | 0.597 | 4.98 | 5.72 | mg/kg | D |
| Selenium | 7782-49-2 | 5 | 3.18 | 12.4 | ND | mg/kg | U |
| Silver | 7440-22-4 | 5 | 0.194 | 0.746 | ND | mg/kg | U |

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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP4-S1

**22I0087-06 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 15:45
Instrument: HYDRA Analyst: ML — Analyzed: 09/16/2022 14:02

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22I0087-06 A
Preparation Batch: BKI0251 — Sample Size: 0.209 g (wet) — Dry Weight:0.20 g
Prepared: 09/13/2022 — Final Volume: 50 mL — % Solids: 96.64

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 5 | 0.0260 | 0.124 | 2.86 | mg/kg | D |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP4-S1

**22I0087-06 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 15:45
Instrument: ICP2 Analyst: SKD — Analyzed: 09/21/2022 17:54

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 22I0087-06 A 02
Preparation Batch: BKI0271 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 5 | 0.0140 | 0.250 | 0.369 | mg/L | |
| Barium | 7440-39-3 | 5 | 0.0075 | 0.0150 | 0.600 | mg/L | B |
| Cadmium | 7440-43-9 | 5 | 0.0006 | 0.0100 | 0.0028 | mg/L | J |
| Chromium | 7440-47-3 | 5 | 0.0024 | 0.0250 | 0.0092 | mg/L | J |
| Lead | 7439-92-1 | 5 | 0.0065 | 0.100 | 0.0110 | mg/L | J |
| Selenium | 7782-49-2 | 5 | 0.0408 | 0.250 | ND | mg/L | U |
| Silver | 7440-22-4 | 5 | 0.0022 | 0.0150 | ND | mg/L | U |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP4-S1

**22I0087-06 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/30/2022 15:45
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 16:56

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEM 7470A Digestion of EPA 1311 Elutriate for Hg — Extract ID: 22I0087-06 A 01
Preparation Batch: BKI0272 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.000007 | 0.000100 | 0.000009 | mg/L | J |

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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP4-S1

**22I0087-06RE1 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 15:45
Instrument: ICP2 Analyst: SKD — Analyzed: 09/27/2022 17:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22I0087-06RE1 A 04
Preparation Batch: BKI0527 — Sample Size: 1.07 g (wet) — Dry Weight:1.03 g
Prepared: 09/23/2022 — Final Volume: 50 mL — % Solids: 96.64

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 10 | 2.25 | 24.2 | 45.1 | mg/kg | D |
| Arsenic | 7440-38-2 | 10 | 2.22 | 24.2 | 2290 | mg/kg | D |
| Barium | 7440-39-3 | 10 | 1.26 | 2.90 | 256 | mg/kg | D |
| Cadmium | 7440-43-9 | 10 | 0.338 | 0.967 | 0.995 | mg/kg | D |
| Chromium | 7440-47-3 | 10 | 2.13 | 4.35 | 31.0 | mg/kg | D |
| Lead | 7439-92-1 | 10 | 1.16 | 9.67 | 10.2 | mg/kg | D |
| Selenium | 7782-49-2 | 10 | 6.19 | 24.2 | ND | mg/kg | U |
| Silver | 7440-22-4 | 10 | 0.377 | 1.45 | ND | mg/kg | U |

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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP4-S2

**22I0087-07 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 15:47
Instrument: HYDRA Analyst: ML — Analyzed: 09/16/2022 13:57

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22I0087-07 A
Preparation Batch: BKI0251 — Sample Size: 0.283 g (wet) — Dry Weight:0.27 g
Prepared: 09/13/2022 — Final Volume: 50 mL — % Solids: 96.00

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.00386 | 0.0184 | 0.849 | mg/kg | |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP4-S2

**22I0087-07 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 15:47
Instrument: ICP2 Analyst: SKD — Analyzed: 09/21/2022 17:57

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 22I0087-07 A 02
Preparation Batch: BKI0271 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 5 | 0.0140 | 0.250 | 0.140 | mg/L | J |
| Barium | 7440-39-3 | 5 | 0.0075 | 0.0150 | 0.589 | mg/L | B |
| Cadmium | 7440-43-9 | 5 | 0.0006 | 0.0100 | 0.0032 | mg/L | J |
| Chromium | 7440-47-3 | 5 | 0.0024 | 0.0250 | 0.0267 | mg/L | |
| Lead | 7439-92-1 | 5 | 0.0065 | 0.100 | ND | mg/L | U |
| Selenium | 7782-49-2 | 5 | 0.0408 | 0.250 | ND | mg/L | U |
| Silver | 7440-22-4 | 5 | 0.0022 | 0.0150 | ND | mg/L | U |

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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP4-S2

**22I0087-07 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/30/2022 15:47
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 17:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEM 7470A Digestion of EPA 1311 Elutriate for Hg — Extract ID: 22I0087-07 A 01
Preparation Batch: BKI0272 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.000007 | 0.000100 | 0.000017 | mg/L | J |

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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP4-S2

**22I0087-07RE1 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 15:47
Instrument: ICP2 Analyst: SKD — Analyzed: 09/27/2022 17:38

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22I0087-07RE1 A 04
Preparation Batch: BKI0527 — Sample Size: 1.073 g (wet) — Dry Weight:1.03 g
Prepared: 09/23/2022 — Final Volume: 50 mL — % Solids: 96.00

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 10 | 2.26 | 24.3 | 27.9 | mg/kg | D |
| Arsenic | 7440-38-2 | 10 | 2.23 | 24.3 | 1500 | mg/kg | D |
| Barium | 7440-39-3 | 10 | 1.26 | 2.91 | 178 | mg/kg | D |
| Cadmium | 7440-43-9 | 10 | 0.340 | 0.971 | 0.545 | mg/kg | J, D |
| Chromium | 7440-47-3 | 10 | 2.14 | 4.37 | 37.2 | mg/kg | D |
| Lead | 7439-92-1 | 10 | 1.16 | 9.71 | 5.44 | mg/kg | J, D |
| Selenium | 7782-49-2 | 10 | 6.21 | 24.3 | ND | mg/kg | U |
| Silver | 7440-22-4 | 10 | 0.379 | 1.46 | ND | mg/kg | U |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## EB-12W-93

**22I0087-08 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 16:42
Instrument: HYDRA Analyst: ML — Analyzed: 09/16/2022 12:43

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22I0087-08 A
Preparation Batch: BKI0251 — Sample Size: 0.215 g (wet) — Dry Weight:0.21 g
Prepared: 09/13/2022 — Final Volume: 50 mL — % Solids: 97.18

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.00503 | 0.0239 | 0.220 | mg/kg | |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## EB-12W-93

**22I0087-08 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 16:42
Instrument: ICP2 Analyst: SKD — Analyzed: 09/21/2022 18:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEN Digestion of EPA 1311 Elutriate — Extract ID: 22I0087-08 A 02
Preparation Batch: BKI0271 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 5 | 0.0140 | 0.250 | ND | mg/L | U |
| Barium | 7440-39-3 | 5 | 0.0075 | 0.0150 | 0.415 | mg/L | B |
| Cadmium | 7440-43-9 | 5 | 0.0006 | 0.0100 | 0.0040 | mg/L | J |
| Chromium | 7440-47-3 | 5 | 0.0024 | 0.0250 | 0.0164 | mg/L | J |
| Lead | 7439-92-1 | 5 | 0.0065 | 0.100 | 0.0318 | mg/L | J |
| Selenium | 7782-49-2 | 5 | 0.0408 | 0.250 | 0.0797 | mg/L | J |
| Silver | 7440-22-4 | 5 | 0.0022 | 0.0150 | ND | mg/L | U |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## EB-12W-93

**22I0087-08 (Solid)**

### TCLP Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/30/2022 16:42
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 17:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: LEM 7470A Digestion of EPA 1311 Elutriate for Hg — Extract ID: 22I0087-08 A 01
Preparation Batch: BKI0272 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.000007 | 0.000100 | 0.000019 | mg/L | J |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## EB-12W-93

**22I0087-08RE1 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/30/2022 16:42
Instrument: ICP2 Analyst: SKD — Analyzed: 09/27/2022 17:41

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22I0087-08RE1 A 04
Preparation Batch: BKI0527 — Sample Size: 1.063 g (wet) — Dry Weight:1.03 g
Prepared: 09/23/2022 — Final Volume: 50 mL — % Solids: 97.18

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 5 | 1.13 | 12.1 | 2.16 | mg/kg | J, D |
| Arsenic | 7440-38-2 | 5 | 1.11 | 12.1 | 12.8 | mg/kg | D |
| Barium | 7440-39-3 | 5 | 0.629 | 1.45 | 77.7 | mg/kg | D |
| Cadmium | 7440-43-9 | 5 | 0.169 | 0.484 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 5 | 1.07 | 2.18 | 9.54 | mg/kg | D |
| Lead | 7439-92-1 | 5 | 0.581 | 4.84 | 7.70 | mg/kg | D |
| Selenium | 7782-49-2 | 5 | 3.10 | 12.1 | 6.91 | mg/kg | J, D |
| Silver | 7440-22-4 | 5 | 0.189 | 0.726 | ND | mg/kg | U |

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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S1-C

**22I0087-09 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2022 13:34
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/23/2022 18:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPN Digestion of EPA 1312 Elutriate — Extract ID: 22I0087-09 A 02
Preparation Batch: BKI0273 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Barium | 7440-39-3 | 2 | 0.0001 | 0.001 | 0.005 | mg/L | D, B |
| Cadmium | 7440-43-9 | 2 | 0.00006 | 0.0002 | ND | mg/L | U |
| Chromium | 7440-47-3 | 2 | 0.0003 | 0.001 | 0.0006 | mg/L | J, D |
| Lead | 7439-92-1 | 2 | 0.00014 | 0.00020 | 0.00339 | mg/L | D |
| Selenium | 7782-49-2 | 2 | 0.0009 | 0.004 | ND | mg/L | U |
| Silver | 7440-22-4 | 2 | 0.00003 | 0.0004 | ND | mg/L | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S1-C

**22I0087-09 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 13:34
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 18:27

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPM 7470A Digestion of EPA 1312 Elutriate for Hg — Extract ID: 22I0087-09 A 01
Preparation Batch: BKI0274 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 500 | 0.00350 | 0.0500 | 0.523 | mg/L | D |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S1-C

**22I0087-09RE1 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2022 13:34
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/23/2022 20:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPN Digestion of EPA 1312 Elutriate — Extract ID: 22I0087-09RE1 A 02
Preparation Batch: BKI0273 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 50 | 0.00155 | 0.0100 | 3.01 | mg/L | D |

| | | |
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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S2

**22I0087-10 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2022 13:46
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/23/2022 19:04

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPN Digestion of EPA 1312 Elutriate — Extract ID: 22I0087-10 A 02
Preparation Batch: BKI0273 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Barium | 7440-39-3 | 2 | 0.0001 | 0.001 | 0.02 | mg/L | D, B |
| Cadmium | 7440-43-9 | 2 | 0.00006 | 0.0002 | ND | mg/L | U |
| Chromium | 7440-47-3 | 2 | 0.0003 | 0.001 | 0.0004 | mg/L | J, D |
| Lead | 7439-92-1 | 2 | 0.00014 | 0.00020 | 0.00019 | mg/L | J, D |
| Selenium | 7782-49-2 | 2 | 0.0009 | 0.004 | ND | mg/L | U |
| Silver | 7440-22-4 | 2 | 0.00003 | 0.0004 | ND | mg/L | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S2

**22I0087-10 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 13:46
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 17:17

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPM 7470A Digestion of EPA 1312 Elutriate for Hg — Extract ID: 22I0087-10 A 01
Preparation Batch: BKI0274 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.000007 | 0.000100 | 0.00193 | mg/L | |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

**SP1-S2**

**22I0087-10RE1 (Solid)**

## SPLP Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2022 13:46

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/23/2022 20:09

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPN Digestion of EPA 1312 Elutriate — Extract ID: 22I0087-10RE1 A 02

Preparation Batch: BKI0273 — Sample Size: 25 mL (wet)

Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 50 | 0.00155 | 0.0100 | 1.98 | mg/L | D |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S4-C

**22I0087-11 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2022 13:47
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/23/2022 19:57

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPN Digestion of EPA 1312 Elutriate — Extract ID: 22I0087-11 A 02
Preparation Batch: BKI0273 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Barium | 7440-39-3 | 2 | 0.0001 | 0.001 | 0.02 | mg/L | D, B |
| Cadmium | 7440-43-9 | 2 | 0.00006 | 0.0002 | ND | mg/L | U |
| Chromium | 7440-47-3 | 2 | 0.0003 | 0.001 | 0.004 | mg/L | D |
| Lead | 7439-92-1 | 2 | 0.00014 | 0.00020 | 0.0156 | mg/L | D |
| Selenium | 7782-49-2 | 2 | 0.0009 | 0.004 | ND | mg/L | U |
| Silver | 7440-22-4 | 2 | 0.00003 | 0.0004 | 0.00003 | mg/L | J, D |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S4-C

**22I0087-11 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 13:47
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 18:19

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPM 7470A Digestion of EPA 1312 Elutriate for Hg — Extract ID: 22I0087-11 A 01
Preparation Batch: BKI0274 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 100 | 0.000700 | 0.0100 | 0.144 | mg/L | D |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP1-S4-C

**22I0087-11RE1 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2022 13:47
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/23/2022 20:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPN Digestion of EPA 1312 Elutriate — Extract ID: 22I0087-11RE1 A 02
Preparation Batch: BKI0273 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 100 | 0.00310 | 0.0200 | 5.13 | mg/L | D |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP2-S1

**22I0087-12 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2022 11:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/23/2022 19:38

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPN Digestion of EPA 1312 Elutriate — Extract ID: 22I0087-12 A 02
Preparation Batch: BKI0273 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Barium | 7440-39-3 | 2 | 0.0001 | 0.001 | 0.01 | mg/L | D, B |
| Cadmium | 7440-43-9 | 2 | 0.00006 | 0.0002 | ND | mg/L | U |
| Chromium | 7440-47-3 | 2 | 0.0003 | 0.001 | 0.002 | mg/L | D |
| Lead | 7439-92-1 | 2 | 0.00014 | 0.00020 | 0.00087 | mg/L | D |
| Selenium | 7782-49-2 | 2 | 0.0009 | 0.004 | ND | mg/L | U |
| Silver | 7440-22-4 | 2 | 0.00003 | 0.0004 | ND | mg/L | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP2-S1

**22I0087-12 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 11:40
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 17:47

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPM 7470A Digestion of EPA 1312 Elutriate for Hg — Extract ID: 22I0087-12 A 01
Preparation Batch: BKI0274 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.000007 | 0.000100 | 0.000278 | mg/L | |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP3-S1

**22I0087-13 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2022 13:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/23/2022 18:59

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPN Digestion of EPA 1312 Elutriate — Extract ID: 22I0087-13 A 02
Preparation Batch: BKI0273 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 2 | 0.00006 | 0.00040 | 0.0113 | mg/L | D |
| Barium | 7440-39-3 | 2 | 0.0001 | 0.001 | 0.02 | mg/L | D, B |
| Cadmium | 7440-43-9 | 2 | 0.00006 | 0.0002 | ND | mg/L | U |
| Chromium | 7440-47-3 | 2 | 0.0003 | 0.001 | 0.003 | mg/L | D |
| Lead | 7439-92-1 | 2 | 0.00014 | 0.00020 | 0.00080 | mg/L | D |
| Selenium | 7782-49-2 | 2 | 0.0009 | 0.004 | ND | mg/L | U |
| Silver | 7440-22-4 | 2 | 0.00003 | 0.0004 | ND | mg/L | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP3-S1

**22I0087-13 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 13:00
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 17:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPM 7470A Digestion of EPA 1312 Elutriate for Hg — Extract ID: 22I0087-13 A 01
Preparation Batch: BKI0274 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.000007 | 0.000100 | 0.000157 | mg/L | |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP4-S1

**22I0087-14 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2022 15:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/23/2022 19:43

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPN Digestion of EPA 1312 Elutriate — Extract ID: 22I0087-14 A 02
Preparation Batch: BKI0273 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 2 | 0.00006 | 0.00040 | 0.137 | mg/L | D |
| Barium | 7440-39-3 | 2 | 0.0001 | 0.001 | 0.007 | mg/L | D, B |
| Cadmium | 7440-43-9 | 2 | 0.00006 | 0.0002 | ND | mg/L | U |
| Chromium | 7440-47-3 | 2 | 0.0003 | 0.001 | ND | mg/L | U |
| Lead | 7439-92-1 | 2 | 0.00014 | 0.00020 | ND | mg/L | U |
| Selenium | 7782-49-2 | 2 | 0.0009 | 0.004 | ND | mg/L | U |
| Silver | 7440-22-4 | 2 | 0.00003 | 0.0004 | ND | mg/L | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP4-S1

**22I0087-14 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 15:45
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 17:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPM 7470A Digestion of EPA 1312 Elutriate for Hg — Extract ID: 22I0087-14 A 01
Preparation Batch: BKI0274 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.000007 | 0.000100 | 0.000103 | mg/L | |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

**SP4-S2**

**22I0087-15 (Solid)**

## SPLP Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2022 15:47

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/23/2022 19:48

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPN Digestion of EPA 1312 Elutriate — Extract ID: 22I0087-15 A 02

Preparation Batch: BKI0273 — Sample Size: 25 mL (wet)

Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 2 | 0.00006 | 0.00040 | 0.115 | mg/L | D |
| Barium | 7440-39-3 | 2 | 0.0001 | 0.001 | 0.006 | mg/L | D, B |
| Cadmium | 7440-43-9 | 2 | 0.00006 | 0.0002 | ND | mg/L | U |
| Chromium | 7440-47-3 | 2 | 0.0003 | 0.001 | 0.0006 | mg/L | J, D |
| Lead | 7439-92-1 | 2 | 0.00014 | 0.00020 | 0.00015 | mg/L | J, D |
| Selenium | 7782-49-2 | 2 | 0.0009 | 0.004 | ND | mg/L | U |
| Silver | 7440-22-4 | 2 | 0.00003 | 0.0004 | ND | mg/L | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## SP4-S2

**22I0087-15 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 15:47
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 17:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPM 7470A Digestion of EPA 1312 Elutriate for Hg — Extract ID: 22I0087-15 A 01
Preparation Batch: BKI0274 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.000007 | 0.000100 | 0.000062 | mg/L | J |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## EB-12W-93

**22I0087-16 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2022 16:42
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/23/2022 19:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPN Digestion of EPA 1312 Elutriate — Extract ID: 22I0087-16 A 02
Preparation Batch: BKI0273 — Sample Size: 25 mL (wet)
Prepared: 09/14/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 2 | 0.00006 | 0.00040 | 0.0686 | mg/L | D |
| Barium | 7440-39-3 | 2 | 0.0001 | 0.001 | 0.03 | mg/L | D, B |
| Cadmium | 7440-43-9 | 2 | 0.00006 | 0.0002 | ND | mg/L | U |
| Chromium | 7440-47-3 | 2 | 0.0003 | 0.001 | 0.002 | mg/L | D |
| Lead | 7439-92-1 | 2 | 0.00014 | 0.00020 | 0.00151 | mg/L | D |
| Selenium | 7782-49-2 | 2 | 0.0009 | 0.004 | ND | mg/L | U |
| Silver | 7440-22-4 | 2 | 0.00003 | 0.0004 | ND | mg/L | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## EB-12W-93

**22I0087-16 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 08/30/2022 16:42
Instrument: HYDRA Analyst: SKD — Analyzed: 09/15/2022 17:57

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPM 7470A Digestion of EPA 1312 Elutriate for Hg — Extract ID: 22I0087-16 A 01
Preparation Batch: BKI0274 — Sample Size: 20 mL (wet)
Prepared: 09/14/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.000007 | 0.000100 | 0.000102 | mg/L | |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

**Analysis by: Analytical Resources, LLC**

## Metals and Metallic Compounds - Quality Control

### Batch BKI0251 - 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 (BKI0251-BLK1)** | | | | Prepared: 13-Sep-2022 Analyzed: 16-Sep-2022 12:38 | | | | | | | |
| Mercury | ND | 0.00525 | 0.0250 | mg/kg | | | | | | | U |
| **LCS (BKI0251-BS1)** | | | | Prepared: 13-Sep-2022 Analyzed: 16-Sep-2022 12:40 | | | | | | | |
| Mercury | 0.508 | 0.00525 | 0.0250 | mg/kg | 0.500 | | 102 | 80-120 | | | |
| **Duplicate (BKI0251-DUP1)** | | **Source: 22I0087-08** | | Prepared: 13-Sep-2022 Analyzed: 16-Sep-2022 12:45 | | | | | | | |
| Mercury | 0.159 | 0.00515 | 0.0245 | mg/kg | | 0.220 | | | 32.10 | 20 | * |
| **Matrix Spike (BKI0251-MS1)** | | **Source: 22I0087-08** | | Prepared: 13-Sep-2022 Analyzed: 16-Sep-2022 12:47 | | | | | | | |
| Mercury | 0.286 | 0.00507 | 0.0242 | mg/kg | 0.242 | 0.220 | 27.2 | 75-125 | | | * |
| Recovery limits for target analytes in MS/MSD QC samples are advisory only. | | | | | | | | | | | |
| **Matrix Spike Dup (BKI0251-MSD1)** | | **Source: 22I0087-08** | | Prepared: 13-Sep-2022 Analyzed: 16-Sep-2022 12:50 | | | | | | | |
| Mercury | 0.0605 | 0.00507 | 0.0242 | mg/kg | 0.242 | 0.220 | -66.2 | 75-125 | 130.00 | 20 | * |
| Recovery limits for target analytes in MS/MSD QC samples are advisory only. | | | | | | | | | | | |
| **Post Spike (BKI0251-PS1)** | | **Source: 22I0087-08** | | Prepared: 13-Sep-2022 Analyzed: 16-Sep-2022 13:59 | | | | | | | |
| Mercury | 0.00235 | | | mg/kg | 0.00100 | 0.220 | 142 | 0-200 | | | |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

**Analysis by: Analytical Resources, LLC**

## Metals and Metallic Compounds - Quality Control

### Batch BKI0527 - EPA 6010D

Instrument: ICP2 Analyst: SKD

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BKI0527-BLK1)** | | | | Prepared: 23-Sep-2022 Analyzed: 26-Sep-2022 16:04 | | | | | | | |
| Antimony | ND | 0.466 | 5.00 | mg/kg | | | | | | | U |
| Arsenic | ND | 0.460 | 5.00 | mg/kg | | | | | | | U |
| Barium | ND | 0.260 | 0.600 | mg/kg | | | | | | | U |
| Cadmium | ND | 0.0700 | 0.200 | mg/kg | | | | | | | U |
| Lead | ND | 0.240 | 2.00 | mg/kg | | | | | | | U |
| Selenium | ND | 1.28 | 5.00 | mg/kg | | | | | | | U |
| Silver | ND | 0.0780 | 0.300 | mg/kg | | | | | | | U |
| **Blank (BKI0527-BLK2)** | | | | Prepared: 23-Sep-2022 Analyzed: 27-Sep-2022 15:59 | | | | | | | |
| Chromium | ND | 0.441 | 0.900 | mg/kg | | | | | | | U |
| **LCS (BKI0527-BS1)** | | | | Prepared: 23-Sep-2022 Analyzed: 26-Sep-2022 16:07 | | | | | | | |
| Antimony | 198 | 0.466 | 5.00 | mg/kg | 200 | | 98.9 | 80-120 | | | |
| Arsenic | 199 | 0.460 | 5.00 | mg/kg | 200 | | 99.6 | 80-120 | | | |
| Barium | 195 | 0.260 | 0.600 | mg/kg | 200 | | 97.3 | 80-120 | | | |
| Cadmium | 53.4 | 0.0700 | 0.200 | mg/kg | 50.0 | | 107 | 80-120 | | | |
| Chromium | 48.7 | 0.441 | 0.900 | mg/kg | 50.0 | | 97.4 | 80-120 | | | |
| Lead | 198 | 0.240 | 2.00 | mg/kg | 200 | | 98.9 | 80-120 | | | |
| Selenium | 198 | 1.28 | 5.00 | mg/kg | 200 | | 99.1 | 80-120 | | | |
| Silver | 48.7 | 0.0780 | 0.300 | mg/kg | 50.0 | | 97.5 | 80-120 | | | |
| **Duplicate (BKI0527-DUP1)** | | **Source: 22I0087-01RE1** | | Prepared: 23-Sep-2022 Analyzed: 26-Sep-2022 16:24 | | | | | | | |
| Antimony | 1480 | 21.9 | 235 | mg/kg | | 1700 | | | 14.00 | 20 | D |
| Arsenic | 74000 | 21.6 | 235 | mg/kg | | 66200 | | | 11.00 | 20 | D |
| Barium | ND | 12.2 | 28.2 | mg/kg | | ND | | | | | U |
| Cadmium | 79.4 | 3.29 | 9.41 | mg/kg | | 68.2 | | | 15.20 | 20 | D |
| Chromium | ND | 20.8 | 42.4 | mg/kg | | ND | | | | | U |
| Lead | 14.9 | 11.3 | 94.1 | mg/kg | | 15.0 | | | 0.78 | 20 | J, D |
| Selenium | ND | 60.2 | 235 | mg/kg | | ND | | | | | U |
| Silver | ND | 3.67 | 14.1 | mg/kg | | ND | | | | | U |
| **Matrix Spike (BKI0527-MS1)** | | **Source: 22I0087-01RE1** | | Prepared: 23-Sep-2022 Analyzed: 26-Sep-2022 16:27 | | | | | | | |
| Antimony | 9960 | 21.9 | 235 | mg/kg | 188 | 1700 | 4390 | 75-125 | | | HC, D |
| Arsenic | 56300 | 21.6 | 235 | mg/kg | 188 | 66200 | -5280 | 75-125 | | | HC, D |
| Barium | 111 | 12.2 | 28.2 | mg/kg | 188 | ND | 59.0 | 75-125 | | | *, D |
| Cadmium | 89.0 | 3.29 | 9.41 | mg/kg | 47.1 | 68.2 | 44.2 | 75-125 | | | *, D |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

**Analysis by: Analytical Resources, LLC**

## Metals and Metallic Compounds - Quality Control

### Batch BKI0527 - EPA 6010D

Instrument: ICP2 Analyst: SKD

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Matrix Spike (BKI0527-MS1)** | **Source: 22I0087-01RE1** | | | Prepared: 23-Sep-2022 Analyzed: 26-Sep-2022 16:27 | | | | | | | |
| Chromium | 28.5 | 20.8 | 42.4 | mg/kg | 47.1 | ND | 60.5 | 75-125 | | | *, J, D |
| Lead | 181 | 11.3 | 94.1 | mg/kg | 188 | 15.0 | 87.9 | 75-125 | | | D |
| Selenium | 163 | 60.2 | 235 | mg/kg | 188 | ND | 86.5 | 75-125 | | | J, D |
| Silver | 46.1 | 3.67 | 14.1 | mg/kg | 47.1 | ND | 98.0 | 75-125 | | | D |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

**Analysis by: Analytical Resources, LLC**

## TCLP Metals and Metallic Compounds - Quality Control

### Batch BKI0271 - EPA 6010D

Instrument: ICP2 Analyst: SKD

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BKI0271-BLK1)** | | | | Prepared: 14-Sep-2022 Analyzed: 21-Sep-2022 17:39 | | | | | | | |
| Arsenic | ND | 0.0140 | 0.250 | mg/L | | | | | | | U |
| Lead | ND | 0.0065 | 0.100 | mg/L | | | | | | | U |
| Selenium | ND | 0.0408 | 0.250 | mg/L | | | | | | | U |
| Silver | ND | 0.0022 | 0.0150 | mg/L | | | | | | | U |
| **Blank (BKI0271-BLK2)** | | | | Prepared: 14-Sep-2022 Analyzed: 23-Sep-2022 16:54 | | | | | | | |
| Barium | 0.0624 | 0.0075 | 0.0150 | mg/L | | | | | | | |
| Cadmium | ND | 0.0006 | 0.0100 | mg/L | | | | | | | U |
| Chromium | ND | 0.0024 | 0.0250 | mg/L | | | | | | | U |
| **Duplicate (BKI0271-DUP1)** | | **Source: 22I0087-02** | | Prepared: 14-Sep-2022 Analyzed: 21-Sep-2022 18:03 | | | | | | | |
| Arsenic | 1.56 | 0.0140 | 0.250 | mg/L | | 1.52 | | | 2.54 | 20 | |
| Lead | 0.0080 | 0.0065 | 0.100 | mg/L | | 0.0079 | | | 1.26 | 20 | J |
| Selenium | ND | 0.0408 | 0.250 | mg/L | | ND | | | | | U |
| Silver | ND | 0.0022 | 0.0150 | mg/L | | ND | | | | | U |
| **Duplicate (BKI0271-DUP2)** | | **Source: 22I0087-02** | | Prepared: 14-Sep-2022 Analyzed: 23-Sep-2022 17:42 | | | | | | | |
| Barium | 0.253 | 0.0075 | 0.0150 | mg/L | | 0.253 | | | 0.18 | 20 | B |
| Cadmium | 0.0034 | 0.0006 | 0.0100 | mg/L | | ND | | | | | J |
| Chromium | 0.0218 | 0.0024 | 0.0250 | mg/L | | 0.0177 | | | 20.60 | 20 | L, J |
| **Matrix Spike (BKI0271-MS1)** | | **Source: 22I0087-02** | | Prepared: 14-Sep-2022 Analyzed: 21-Sep-2022 18:06 | | | | | | | |
| Arsenic | 5.81 | 0.0140 | 0.250 | mg/L | 4.00 | 1.52 | 107 | 75-125 | | | |
| Lead | 4.08 | 0.0065 | 0.100 | mg/L | 4.00 | 0.0079 | 102 | 75-125 | | | |
| Selenium | 4.39 | 0.0408 | 0.250 | mg/L | 4.00 | ND | 110 | 75-125 | | | |
| Silver | 1.04 | 0.0022 | 0.0150 | mg/L | 1.00 | ND | 104 | 75-125 | | | |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Matrix Spike (BKI0271-MS2)** | | **Source: 22I0087-02** | | Prepared: 14-Sep-2022 Analyzed: 23-Sep-2022 17:45 | | | | | | | |
| Barium | 4.16 | 0.0075 | 0.0150 | mg/L | 4.00 | 0.253 | 97.6 | 75-125 | | | B |
| Cadmium | 1.10 | 0.0006 | 0.0100 | mg/L | 1.00 | ND | 110 | 75-125 | | | |
| Chromium | 0.997 | 0.0024 | 0.0250 | mg/L | 1.00 | 0.0177 | 97.9 | 75-125 | | | |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

**Analysis by: Analytical Resources, LLC**

## TCLP Metals and Metallic Compounds - Quality Control

### Batch BKI0272 - EPA 7470A

Instrument: HYDRA Analyst: SKD

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BKI0272-BLK1)** | | | | Prepared: 14-Sep-2022 Analyzed: 15-Sep-2022 16:33 | | | | | | | |
| Mercury | 0.000013 | 0.000007 | 0.000100 | mg/L | | | | | | | J |
| **Duplicate (BKI0272-DUP1)** | | **Source: 22I0087-02** | | Prepared: 14-Sep-2022 Analyzed: 15-Sep-2022 16:38 | | | | | | | |
| Mercury | 0.000374 | 0.000007 | 0.000100 | mg/L | | 0.000185 | | | 67.80 | 20 | * |
| **Matrix Spike (BKI0272-MS1)** | | **Source: 22I0087-02** | | Prepared: 14-Sep-2022 Analyzed: 15-Sep-2022 16:40 | | | | | | | |
| Mercury | 0.00119 | 0.000007 | 0.000100 | mg/L | 0.00100 | 0.000185 | 100 | 75-125 | | | |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

**Analysis by: Analytical Resources, LLC**

## SPLP Metals and Metallic Compounds - Quality Control

### Batch BKI0273 - EPA 6020B

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 (BKI0273-BLK1)** | | | | | Prepared: 14-Sep-2022 Analyzed: 23-Sep-2022 18:25 | | | | | | | |
| Arsenic | 75a | 0.00023 | 0.00006 | 0.00040 | mg/L | | | | | | | J, D |
| Barium | 135 | 0.002 | 0.0001 | 0.001 | mg/L | | | | | | | D |
| Cadmium | 111 | ND | 0.00006 | 0.0002 | mg/L | | | | | | | U |
| Chromium | 52 | ND | 0.0003 | 0.001 | mg/L | | | | | | | U |
| Lead | 208 | ND | 0.00014 | 0.00020 | mg/L | | | | | | | U |
| Selenium | 78 | ND | 0.0009 | 0.004 | mg/L | | | | | | | U |
| Silver | 107 | ND | 0.00003 | 0.0004 | mg/L | | | | | | | U |
| **LCS (BKI0273-BS1)** | | | | | Prepared: 14-Sep-2022 Analyzed: 23-Sep-2022 18:30 | | | | | | | |
| Arsenic | 75a | 0.0426 | 0.00006 | 0.00040 | mg/L | 0.0500 | | 85.1 | 80-120 | | | D |
| Barium | 135 | 0.05 | 0.0001 | 0.001 | mg/L | 0.0500 | | 102 | 80-120 | | | D, B |
| Cadmium | 111 | 0.04 | 0.00006 | 0.0002 | mg/L | 0.0500 | | 88.7 | 80-120 | | | D |
| Chromium | 52 | 0.05 | 0.0003 | 0.001 | mg/L | 0.0500 | | 99.9 | 80-120 | | | D |
| Lead | 208 | 0.0520 | 0.00014 | 0.00020 | mg/L | 0.0500 | | 104 | 80-120 | | | D |
| Silver | 107 | 0.047 | 0.00003 | 0.0004 | mg/L | 0.0500 | | 93.6 | 80-120 | | | D |
| **LCS (BKI0273-BS2)** | | | | | Prepared: 14-Sep-2022 Analyzed: 27-Sep-2022 18:21 | | | | | | | |
| Selenium | 78 | 0.15 | 0.004 | 0.02 | mg/L | 0.160 | | 95.3 | 80-120 | | | D |
| **Duplicate (BKI0273-DUP1)** | | | **Source: 22I0087-10** | | Prepared: 14-Sep-2022 Analyzed: 23-Sep-2022 19:10 | | | | | | | |
| Barium | 135 | 0.03 | 0.0001 | 0.001 | mg/L | | 0.02 | | | 28.00 | 20 | *, D, B |
| Cadmium | 111 | ND | 0.00006 | 0.0002 | mg/L | | ND | | | | | U |
| Chromium | 52 | 0.0004 | 0.0003 | 0.001 | mg/L | | 0.0004 | | | 5.03 | 20 | J, D |
| Lead | 208 | 0.00020 | 0.00014 | 0.00020 | mg/L | | 0.00019 | | | 4.17 | 20 | J, D |
| Selenium | 78 | ND | 0.0009 | 0.004 | mg/L | | ND | | | | | U |
| Silver | 107 | ND | 0.00003 | 0.0004 | mg/L | | ND | | | | | U |
| **Duplicate (BKI0273-DUP2)** | | | **Source: 22I0087-10** | | Prepared: 14-Sep-2022 Analyzed: 23-Sep-2022 20:14 | | | | | | | |
| Arsenic | 75a | 1.98 | 0.00155 | 0.0100 | mg/L | | 1.69 | | | 15.90 | 20 | D |
| **Matrix Spike (BKI0273-MS1)** | | | **Source: 22I0087-10** | | Prepared: 14-Sep-2022 Analyzed: 23-Sep-2022 19:15 | | | | | | | |
| Barium | 135 | 0.07 | 0.0001 | 0.001 | mg/L | 0.0500 | 0.02 | 100 | 75-125 | | | D, B |
| Cadmium | 111 | 0.05 | 0.00006 | 0.0002 | mg/L | 0.0500 | ND | 92.5 | 75-125 | | | D |
| Chromium | 52 | 0.05 | 0.0003 | 0.001 | mg/L | 0.0500 | 0.0004 | 103 | 75-125 | | | D |
| Lead | 208 | 0.0528 | 0.00014 | 0.00020 | mg/L | 0.0500 | 0.00019 | 105 | 75-125 | | | D |
| Silver | 107 | 0.047 | 0.00003 | 0.0004 | mg/L | 0.0500 | ND | 93.6 | 75-125 | | | D |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

**Analysis by: Analytical Resources, LLC**

## SPLP Metals and Metallic Compounds - Quality Control

### Batch BKI0273 - EPA 6020B

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Matrix Spike (BKI0273-MS1)** | | | **Source: 22I0087-10** | | | Prepared: 14-Sep-2022 | | Analyzed: 23-Sep-2022 19:15 | | | | |
| Recovery limits for target analytes in MS/MSD QC samples are advisory only. | | | | | | | | | | | | |
| **Matrix Spike (BKI0273-MS2)** | | | **Source: 22I0087-10** | | | Prepared: 14-Sep-2022 | | Analyzed: 23-Sep-2022 20:19 | | | | |
| Arsenic | 75a | 1.96 | 0.00155 | 0.0100 | mg/L | 0.0500 | 1.69 | 539 | 75-125 | | | HC, D |
| Recovery limits for target analytes in MS/MSD QC samples are advisory only. | | | | | | | | | | | | |
| **Matrix Spike (BKI0273-MS3)** | | | **Source: 22I0087-10** | | | Prepared: 14-Sep-2022 | | Analyzed: 27-Sep-2022 18:26 | | | | |
| Selenium | 78 | 0.15 | 0.004 | 0.02 | mg/L | 0.160 | ND | 92.2 | 75-125 | | | D |
| Recovery limits for target analytes in MS/MSD QC samples are advisory only. | | | | | | | | | | | | |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

**Analysis by: Analytical Resources, LLC**

## SPLP Metals and Metallic Compounds - Quality Control

### Batch BKI0274 - EPA 7471B

Instrument: HYDRA Analyst: SKD

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BKI0274-BLK1)** | | | | Prepared: 14-Sep-2022 Analyzed: 15-Sep-2022 17:13 | | | | | | | |
| Mercury | 0.000041 | 0.000007 | 0.000100 | mg/L | | | | | | | J |
| **LCS (BKI0274-BS1)** | | | | Prepared: 14-Sep-2022 Analyzed: 15-Sep-2022 17:15 | | | | | | | |
| Mercury | 0.00184 | 0.000007 | 0.000100 | mg/L | 0.00200 | | 92.1 | 80-120 | | | |
| **Duplicate (BKI0274-DUP1)** | | **Source: 22I0087-10** | | Prepared: 14-Sep-2022 Analyzed: 15-Sep-2022 17:20 | | | | | | | |
| Mercury | 0.00133 | 0.000007 | 0.000100 | mg/L | | 0.00193 | | | 36.60 | 20 | * |
| **Matrix Spike (BKI0274-MS1)** | | **Source: 22I0087-10** | | Prepared: 14-Sep-2022 Analyzed: 15-Sep-2022 17:22 | | | | | | | |
| Mercury | 0.00230 | 0.000007 | 0.000100 | mg/L | 0.00100 | 0.00193 | 37.1 | 75-125 | | | * |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## Certified Analyses included in this Report

| Analyte | Certifications |
|---|---|
| ***EPA 6010D in Solid*** | |
| Silver | NELAP,WADOE,DoD-ELAP |
| Arsenic | NELAP,WADOE,DoD-ELAP,ADEC |
| Barium | NELAP,WADOE,ADEC,DoD-ELAP |
| Cadmium | NELAP,WADOE,DoD-ELAP,ADEC |
| Chromium | NELAP,WADOE,DoD-ELAP,ADEC |
| Lead | NELAP,WADOE,DoD-ELAP,ADEC |
| Antimony | NELAP,WADOE,DoD-ELAP |
| Selenium | NELAP,WADOE,DoD-ELAP |
| Silver | NELAP,WADOE,DoD-ELAP |
| Arsenic | NELAP,WADOE |
| Barium | NELAP,WADOE |
| Cadmium | NELAP,WADOE,DoD-ELAP |
| Chromium | NELAP,WADOE,DoD-ELAP |
| Lead | NELAP,WADOE,DoD-ELAP |
| Selenium | NELAP,WADOE,DoD-ELAP |
| ***EPA 6020B in Solid*** | |
| Silver-107 | NELAP,DoD-ELAP,WADOE |
| Arsenic-75a | NELAP,DoD-ELAP,WADOE |
| Arsenic-75b | NELAP,DoD-ELAP,WADOE |
| Barium-135 | NELAP,DoD-ELAP,WADOE,ADEC |
| Barium-137 | NELAP,DoD-ELAP,WADOE,ADEC |
| Cadmium-111 | NELAP,DoD-ELAP,WADOE,ADEC |
| Cadmium-114 | NELAP,DoD-ELAP,WADOE,ADEC |
| Chromium-52 | NELAP,DoD-ELAP,WADOE,ADEC |
| Chromium-53 | NELAP,DoD-ELAP,WADOE,ADEC |
| Lead-208 | NELAP,DoD-ELAP,WADOE |
| Selenium-82 | NELAP,DoD-ELAP,WADOE |
| Selenium-78 | NELAP,DoD-ELAP,WADOE |
| ***EPA 7470A in Solid*** | |
| Mercury | WADOE,NELAP,DoD-ELAP |
| ***EPA 7471B in Solid*** | |
| Mercury | WADOE,NELAP,DoD-ELAP |
| Mercury | WADOE,NELAP |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

| Code | Description | Number | Expires |
|---|---|---|---|
| ADEC | Alaska Dept of Environmental Conservation | 17-015 | 03/28/2023 |
| NELAP | ORELAP - Oregon Laboratory Accreditation Program | WA100006-012 | 05/12/2023 |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: [none] | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 13-Oct-2022 10:27 |

## Notes and Definitions

| | |
|---|---|
| * | Flagged value is not within established control limits. |
| B | This analyte was detected in the method blank. |
| D | The reported value is from a dilution |
| H | Hold time violation - Hold time was exceeded. |
| HC | The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible |
| J | Estimated concentration value detected below the reporting limit. |
| L | Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD |
| U | This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD). |
| DET | Analyte DETECTED |
| ND | Analyte NOT DETECTED at or above the reporting limit |
| NR | Not Reported |
| dry | Sample results reported on a dry weight basis |
| RPD | Relative Percent Difference |
| [2C] | Indicates this result was quantified on the second column on a dual column analysis. |

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

16 December 2022

Adam Griffin
Aspect Consulting, LLC.
710 2nd Avenue, Suite 550
Seattle, WA 98104

RE: Cumberland Solids 2022 (220213)

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) |
|---|---|
| 22K0329 | N/A |

Shelly Fishel

Digitally signed by Shelly Fishel
Date: 2022.12.16 13:51:49 -08'00'

---

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

*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.*

Shelly Fishel, Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

## Chain of Custody Record & Laboratory Analysis Request

| | | | |
|---|---|---|---|
| ARI Assigned Number: 22K0329 | Turn-around Requested: Standard 5 day | Date: 11/16/22 | |
| ARI Client Company: Aspect Consulting | Phone: | Page: 1 of 2 | |
| Client Contact: Adam Griffin, Kendra Pivaroff-Ward | | No. of Coolers: 1 | Cooler Temps: 0.9 |
| Client Project Name: Cumberland | | | |
| Client Project #: 220213 | Samplers: AMG, RWN | | |

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

| Sample ID | Date | Time | Matrix | No. Containers | Analysis Requested: RCRA Metals | TCLP RCRA | SPLP RCRA | Sb | | | | | Notes/Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TP1-1 | 11/15/16 | 11:55 | Soil | 1 | ✔ | | ✔ | ✔ | | | | | High As Concentration |
| TP1-2 | 11/15/22 | 11:56 | Soil | 1 | | | | | | | | | On hold pending analysis |
| TP1-3 | 11/15/22 | 11:57 | Soil | 1 | ✔ | | | ✔ | | | | | |
| TP2-0-0.5 | 11/15/22 | 12:50 | Soil | 1 | ✔ | | | ✔ | | | | | |
| TP2-1.5 | 11/15/22 | 12:51 | Soil | 1 | ✔ | | | ✔ | | | | | |
| TP3-0-0.5 | 11/15/22 | 14:05 | Soil | 1 | ✔ | | | ✔ | | | | | |
| TP3-2.5 | 11/15/22 | 14:06 | Soil | 1 | | | | | | | | | On hold pending analysis |
| TP4-0-0.5 | 11/15/22 | 14:35 | Soil | 1 | ✔ | | ✔ | ✔ | | | | | |
| TP4-2.5 | 11/15/22 | 14:36 | Soil | 1 | ✔ | | | ✔ | | | | | |
| TP5-1 | 11/15/22 | 15:52 | Soil | 1 | ✔ | | | ✔ | | | | | High As Concentration |

| Comments/Special Instructions | Relinquished by: | Received by: | Relinquished by: | Received by: |
|---|---|---|---|---|
| Samples noted as "High As Concentration" in Notes Column Screened >1000 ppm on an XRF analyzer. | (Signature) | (Signature) Phillip Bates | (Signature) | (Signature) |
| | Printed Name: Risa Naa | Printed Name: Phillip Bates | Printed Name: | Printed Name: |
| | Company: Aspect Consulting LLC | Company: AR | Company: | Company: |
| | Date & Time: 11/16/22 1618 | Date & Time: 11/16/22 16:18 | Date & Time: | Date & Time: |

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

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

## Chain of Custody Record & Laboratory Analysis Request

| | | | |
|---|---|---|---|
| ARI Assigned Number: 22K0329 | Turn-around Requested: Standard 5 day | Date: 11/16/2022 | |
| ARI Client Company: Aspect Consulting | Phone: | Page: 2 of 2 | |
| Client Contact: Adam Griffin | | No. of Coolers: 1 | Cooler Temps: 0.9 |
| Client Project Name: Cumberland | | | |
| Client Project #: 220213 | Samplers: AMG, RWN | | |


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


| Sample ID | Date | Time | Matrix | No. Containers | Analysis Requested: RCRA Metals | TCLP RCRA | SPLP RCRA | Sb | | | | | Notes/Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TP5-5 | 11/15/22 | 15:53 | Soil | 1 | ✔ | | ✔ | ✔ | | | | | High As Concentration |
| TP5-11 | 11/15/22 | 15:54 | Soil | 1 | ✔ | | | ✔ | | | | | High As Concentration |
| TP6-0-0.75 | 11/15/22 | 15:50 | Soil | 2 | ✔ | | | ✔ | | | | | High As Concentration |
| Drum-01 | 11/15/22 | 15:55 | Soil | 1 | ✔ | | | ✔ | | | | | High As Concentration |
| Drum-02 | 11/15/22 | 15:56 | Soil | 1 | ✔ | | | ✔ | | | | | High As Concentration |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| Comments/Special Instructions | Relinquished by: (Signature) | Received by: (Signature) | Relinquished by: (Signature) | Received by: (Signature) |
|---|---|---|---|---|
| Samples noted as "High As Concentration" in notes Column Screened >1000ppm on an XRF analyzer, | Printed Name: Risi Naa | Printed Name: Phillip Bates | Printed Name: | Printed Name: |
| | Company: Aspect Consulting LLC | Company: AR | Company: | Company: |
| | Date & Time: 11/16/22 1618 | Date & Time: 11/16/22 16:18 | Date & Time: | Date & Time: |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| TP1-1 | 22K0329-01 | Solid | 15-Nov-2022 11:55 | 17-Nov-2022 16:18 |
| TP1-1 | 22K0329-02 | Solid | 15-Nov-2022 11:55 | 17-Nov-2022 16:18 |
| TP1-3 | 22K0329-04 | Solid | 15-Nov-2022 11:57 | 17-Nov-2022 16:18 |
| TP2-0-0.5 | 22K0329-05 | Solid | 15-Nov-2022 12:50 | 17-Nov-2022 16:18 |
| TP2-1.5 | 22K0329-06 | Solid | 15-Nov-2022 12:51 | 17-Nov-2022 16:18 |
| TP3-0-0.5 | 22K0329-07 | Solid | 15-Nov-2022 14:05 | 17-Nov-2022 16:18 |
| TP4-0-0.5 | 22K0329-09 | Solid | 15-Nov-2022 14:35 | 17-Nov-2022 16:18 |
| TP4-0-0.5 | 22K0329-10 | Solid | 15-Nov-2022 14:35 | 17-Nov-2022 16:18 |
| TP4-2.5 | 22K0329-11 | Solid | 15-Nov-2022 14:36 | 17-Nov-2022 16:18 |
| TP5-1 | 22K0329-12 | Solid | 15-Nov-2022 15:52 | 17-Nov-2022 16:18 |
| TP5-5 | 22K0329-13 | Solid | 15-Nov-2022 15:53 | 17-Nov-2022 16:18 |
| TP5-5 | 22K0329-14 | Solid | 15-Nov-2022 15:53 | 17-Nov-2022 16:18 |
| TP5-11 | 22K0329-15 | Solid | 15-Nov-2022 15:54 | 17-Nov-2022 16:18 |
| TP6-0-0.75 | 22K0329-16 | Solid | 15-Nov-2022 15:50 | 17-Nov-2022 16:18 |
| DRUM-01 | 22K0329-17 | Solid | 15-Nov-2022 15:55 | 17-Nov-2022 16:18 |
| DRUM-02 | 22K0329-18 | Solid | 15-Nov-2022 15:56 | 17-Nov-2022 16:18 |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

# Work Order Case Narrative

**Client:** Aspect Consulting, LLC.
**Project:** Cumberland Solids 2022
**Project Number:** 220213
**Work Order:** 22K0329

**Sample receipt**

Sample(s) as listed on the preceding page were received 17-Nov-2022 16:18 under ARI work order 22K0329. For details regarding sample receipt, please refer to the Cooler Receipt Form.

**Total Metals - EPA Method 6010D**

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.

The duplicate (DUP) relative percent difference (RPD) were within advisory control limits except Arsenic. The matrix spike (MS) percent recoveries were within advisory control limits except Antimony which was out of control low. The deviations have been flagged.

**Total Mercury - EPA Method 7470/7471**

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

Initial and continuing calibrations were within method requirements.

The method blank(s) 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.

**SPLP Metals**

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

Initial and continuing calibrations were within method requirements.

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

The method blank was clean at the reporting limits.

The matrix spike (MS) percent recoveries were within control limits.

**Analytical Resources, LLC**
Analytical Chemists and Consultants

# Cooler Receipt Form

ARI Client: Aspect | Project Name: Cumberland

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

Assigned ARI Job No: 22K0329 | 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 16:18 | 0.4

If cooler temperature is out of compliance fill out form 00070F | Temp Gun ID#: 100 9708

Cooler Accepted by: PIB | Date: 11/16/22 | Time: 16:18

***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: [signature] Date: 11/17/22 Time: 8:38 Labels checked by: PIB

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

| Sample ID on Bottle | Sample ID on COC | Sample ID on Bottle | Sample ID on COC |
|---|---|---|---|
| TA1-2.25 | TA1-2.5 | | |
| | | | |
| | | | |
| | | | |

***Additional Notes, Discrepancies, & Resolutions:***

By: Date:

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

**TP1-1**

**22K0329-01 (Solid)**

## Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 11:55

Instrument: ICP3 Analyst: SKD — Analyzed: 12/08/2022 17:39

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22K0329-01 A 01

Preparation Batch: BKK0622 — Sample Size: 1.048 g (wet) — Dry Weight:0.87 g

Prepared: 11/21/2022 — Final Volume: 50 mL — % Solids: 83.11

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 5 | 1.34 | 14.4 | 7.69 | mg/kg | J, D |
| Arsenic | 7440-38-2 | 5 | 1.32 | 14.4 | 3570 | mg/kg | D |
| Barium | 7440-39-3 | 5 | 0.746 | 1.72 | 113 | mg/kg | D |
| Cadmium | 7440-43-9 | 5 | 0.201 | 0.574 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 5 | 1.27 | 2.58 | 13.6 | mg/kg | D |
| Lead | 7439-92-1 | 5 | 0.689 | 5.74 | 8.47 | mg/kg | D |
| Selenium | 7782-49-2 | 5 | 3.67 | 14.4 | ND | mg/kg | U |
| Silver | 7440-22-4 | 5 | 0.224 | 0.861 | ND | mg/kg | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

**TP1-1**

**22K0329-01 (Solid)**

## Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 11:55

Instrument: HYDRA Analyst: ml — Analyzed: 11/30/2022 10:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22K0329-01 A

Preparation Batch: BKK0643 — Sample Size: 0.252 g (wet) — Dry Weight:0.21 g

Prepared: 11/28/2022 — Final Volume: 50 mL — % Solids: 83.11

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 100 | 0.501 | 2.39 | 48.1 | mg/kg | D |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP1-1

**22K0329-02 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 11:55
Instrument: ICP3 Analyst: SKD — Analyzed: 12/01/2022 21:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPN Digestion of EPA 1312 Elutriate — Extract ID: 22K0329-02 A 02
Preparation Batch: BKK0676 — Sample Size: 25 mL (wet)
Prepared: 11/23/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 5 | 0.0140 | 0.250 | 0.156 | mg/L | J, D |
| Barium | 7440-39-3 | 5 | 0.0075 | 0.0150 | 0.115 | mg/L | D |
| Cadmium | 7440-43-9 | 5 | 0.0006 | 0.0100 | ND | mg/L | U |
| Chromium | 7440-47-3 | 5 | 0.0024 | 0.0250 | ND | mg/L | U |
| Lead | 7439-92-1 | 5 | 0.0065 | 0.100 | ND | mg/L | U |
| Selenium | 7782-49-2 | 5 | 0.0408 | 0.250 | ND | mg/L | U |
| Silver | 7440-22-4 | 5 | 0.0022 | 0.0150 | ND | mg/L | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP1-1

**22K0329-02 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 11:55
Instrument: HYDRA Analyst: ML — Analyzed: 11/23/2022 13:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPM 7470A Digestion of EPA 1312 Elutriate for Hg — Extract ID: 22K0329-02 A 01
Preparation Batch: BKK0677 — Sample Size: 20 mL (wet)
Prepared: 11/23/2022 — Final Volume: 20 mL

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

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP1-3

**22K0329-04 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 11:57
Instrument: ICP3 Analyst: SKD — Analyzed: 12/08/2022 17:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22K0329-04 A 01
Preparation Batch: BKK0622 — Sample Size: 1.077 g (wet) — Dry Weight:0.96 g
Prepared: 11/21/2022 — Final Volume: 50 mL — % Solids: 88.92

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 5 | 1.22 | 13.1 | 31.5 | mg/kg | D |
| Arsenic | 7440-38-2 | 5 | 1.20 | 13.1 | 3760 | mg/kg | D |
| Barium | 7440-39-3 | 5 | 0.679 | 1.57 | 76.1 | mg/kg | D |
| Cadmium | 7440-43-9 | 5 | 0.183 | 0.522 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 5 | 1.15 | 2.35 | 14.7 | mg/kg | D |
| Lead | 7439-92-1 | 5 | 0.627 | 5.22 | 8.51 | mg/kg | D |
| Selenium | 7782-49-2 | 5 | 3.34 | 13.1 | ND | mg/kg | U |
| Silver | 7440-22-4 | 5 | 0.204 | 0.783 | ND | mg/kg | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP1-3

**22K0329-04 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 11:57
Instrument: HYDRA Analyst: ml — Analyzed: 11/30/2022 10:18

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22K0329-04 A
Preparation Batch: BKK0643 — Sample Size: 0.218 g (wet) — Dry Weight:0.19 g
Prepared: 11/28/2022 — Final Volume: 50 mL — % Solids: 88.92

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 10 | 0.0542 | 0.258 | 5.65 | mg/kg | D |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP2-0-0.5

**22K0329-05 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 12:50
Instrument: ICP3 Analyst: SKD — Analyzed: 12/07/2022 18:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22K0329-05 A 01
Preparation Batch: BKK0622 — Sample Size: 1.04 g (wet) — Dry Weight:0.82 g
Prepared: 11/21/2022 — Final Volume: 50 mL — % Solids: 79.25

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 2 | 0.565 | 6.07 | ND | mg/kg | U |
| Arsenic | 7440-38-2 | 2 | 0.558 | 6.07 | 1290 | mg/kg | |
| Barium | 7440-39-3 | 2 | 0.315 | 0.728 | 158 | mg/kg | |
| Cadmium | 7440-43-9 | 2 | 0.0849 | 0.243 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 2 | 0.535 | 1.09 | 18.5 | mg/kg | |
| Lead | 7439-92-1 | 2 | 0.291 | 2.43 | 9.99 | mg/kg | |
| Selenium | 7782-49-2 | 2 | 1.55 | 6.07 | ND | mg/kg | U |
| Silver | 7440-22-4 | 2 | 0.0946 | 0.364 | 0.158 | mg/kg | J |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP2-0-0.5

**22K0329-05 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 12:50
Instrument: HYDRA Analyst: ml — Analyzed: 11/30/2022 10:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22K0329-05 A
Preparation Batch: BKK0643 — Sample Size: 0.204 g (wet) — Dry Weight:0.16 g
Prepared: 11/28/2022 — Final Volume: 50 mL — % Solids: 79.25

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.00649 | 0.0309 | 0.889 | mg/kg | |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP2-1.5

**22K0329-06 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 12:51
Instrument: ICP3 Analyst: SKD — Analyzed: 12/07/2022 18:38

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22K0329-06 A 01
Preparation Batch: BKK0622 — Sample Size: 1.089 g (wet) — Dry Weight:0.88 g
Prepared: 11/21/2022 — Final Volume: 50 mL — % Solids: 80.79

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 2 | 0.530 | 5.68 | ND | mg/kg | U |
| Arsenic | 7440-38-2 | 2 | 0.523 | 5.68 | 58.0 | mg/kg | |
| Barium | 7440-39-3 | 2 | 0.296 | 0.682 | 34.7 | mg/kg | |
| Cadmium | 7440-43-9 | 2 | 0.0796 | 0.227 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 2 | 0.501 | 1.02 | 10.1 | mg/kg | |
| Lead | 7439-92-1 | 2 | 0.273 | 2.27 | 6.93 | mg/kg | |
| Selenium | 7782-49-2 | 2 | 1.45 | 5.68 | ND | mg/kg | U |
| Silver | 7440-22-4 | 2 | 0.0887 | 0.341 | ND | mg/kg | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP2-1.5

**22K0329-06 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 12:51
Instrument: HYDRA Analyst: ml — Analyzed: 11/30/2022 10:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22K0329-06 A
Preparation Batch: BKK0643 — Sample Size: 0.221 g (wet) — Dry Weight:0.18 g
Prepared: 11/28/2022 — Final Volume: 50 mL — % Solids: 80.79

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.00588 | 0.0280 | 1.37 | mg/kg | |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP3-0-0.5

**22K0329-07 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 14:05
Instrument: ICP3 Analyst: SKD — Analyzed: 12/07/2022 19:29

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22K0329-07 A 01
Preparation Batch: BKK0622 — Sample Size: 1.015 g (wet) — Dry Weight:0.84 g
Prepared: 11/21/2022 — Final Volume: 50 mL — % Solids: 82.55

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 2 | 0.556 | 5.97 | ND | mg/kg | U |
| Arsenic | 7440-38-2 | 2 | 0.549 | 5.97 | 34.0 | mg/kg | |
| Barium | 7440-39-3 | 2 | 0.310 | 0.716 | 108 | mg/kg | |
| Cadmium | 7440-43-9 | 2 | 0.0835 | 0.239 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 2 | 0.526 | 1.07 | 15.1 | mg/kg | |
| Lead | 7439-92-1 | 2 | 0.286 | 2.39 | 9.33 | mg/kg | |
| Selenium | 7782-49-2 | 2 | 1.53 | 5.97 | ND | mg/kg | U |
| Silver | 7440-22-4 | 2 | 0.0931 | 0.358 | ND | mg/kg | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP3-0-0.5

**22K0329-07 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 14:05
Instrument: HYDRA Analyst: ml — Analyzed: 11/30/2022 10:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22K0329-07 A
Preparation Batch: BKK0643 — Sample Size: 0.234 g (wet) — Dry Weight:0.19 g
Prepared: 11/28/2022 — Final Volume: 50 mL — % Solids: 82.55

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.00544 | 0.0259 | 0.765 | mg/kg | |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP4-0-0.5

**22K0329-09 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 14:35
Instrument: ICP3 Analyst: SKD — Analyzed: 12/07/2022 19:51

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22K0329-09 A 01
Preparation Batch: BKK0622 — Sample Size: 1.052 g (wet) — Dry Weight:0.85 g
Prepared: 11/21/2022 — Final Volume: 50 mL — % Solids: 81.09

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 2 | 0.546 | 5.86 | ND | mg/kg | U |
| Arsenic | 7440-38-2 | 2 | 0.539 | 5.86 | 44.4 | mg/kg | |
| Barium | 7440-39-3 | 2 | 0.305 | 0.703 | 134 | mg/kg | |
| Cadmium | 7440-43-9 | 2 | 0.0821 | 0.234 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 2 | 0.517 | 1.06 | 16.1 | mg/kg | |
| Lead | 7439-92-1 | 2 | 0.281 | 2.34 | 10.8 | mg/kg | |
| Selenium | 7782-49-2 | 2 | 1.50 | 5.86 | ND | mg/kg | U |
| Silver | 7440-22-4 | 2 | 0.0914 | 0.352 | ND | mg/kg | U |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP4-0-0.5

**22K0329-09 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 14:35
Instrument: HYDRA Analyst: ml — Analyzed: 11/30/2022 10:32

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22K0329-09 A
Preparation Batch: BKK0643 — Sample Size: 0.211 g (wet) — Dry Weight:0.17 g
Prepared: 11/28/2022 — Final Volume: 50 mL — % Solids: 81.09

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 10 | 0.0614 | 0.292 | 3.34 | mg/kg | D |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP4-0-0.5

**22K0329-10 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 14:35
Instrument: ICP3 Analyst: SKD — Analyzed: 12/01/2022 21:33

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPN Digestion of EPA 1312 Elutriate — Extract ID: 22K0329-10 A 02
Preparation Batch: BKK0676 — Sample Size: 25 mL (wet)
Prepared: 11/23/2022 — Final Volume: 25 mL

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

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP4-0-0.5

**22K0329-10 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 14:35
Instrument: HYDRA Analyst: ML — Analyzed: 11/23/2022 13:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPM 7470A Digestion of EPA 1312 Elutriate for Hg — Extract ID: 22K0329-10
Preparation Batch: BKK0677 — Sample Size: 20 mL (wet)
Prepared: 11/23/2022 — Final Volume: 20 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 1 | 0.000007 | 0.000100 | 0.000039 | mg/L | J |

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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP4-2.5

**22K0329-11 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 14:36
Instrument: ICP3 Analyst: SKD — Analyzed: 12/07/2022 19:54

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22K0329-11 A 01
Preparation Batch: BKK0622 — Sample Size: 1.081 g (wet) — Dry Weight:0.89 g
Prepared: 11/21/2022 — Final Volume: 50 mL — % Solids: 82.30

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 2 | 0.524 | 5.62 | ND | mg/kg | U |
| Arsenic | 7440-38-2 | 2 | 0.517 | 5.62 | 34.7 | mg/kg | |
| Barium | 7440-39-3 | 2 | 0.292 | 0.674 | 154 | mg/kg | |
| Cadmium | 7440-43-9 | 2 | 0.0787 | 0.225 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 2 | 0.496 | 1.01 | 17.7 | mg/kg | |
| Lead | 7439-92-1 | 2 | 0.270 | 2.25 | 10.5 | mg/kg | |
| Selenium | 7782-49-2 | 2 | 1.44 | 5.62 | ND | mg/kg | U |
| Silver | 7440-22-4 | 2 | 0.0877 | 0.337 | ND | mg/kg | U |

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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP4-2.5

**22K0329-11 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 14:36
Instrument: HYDRA Analyst: ml — Analyzed: 11/30/2022 10:34

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22K0329-11 A
Preparation Batch: BKK0643 — Sample Size: 0.21 g (wet) — Dry Weight:0.17 g
Prepared: 11/28/2022 — Final Volume: 50 mL — % Solids: 82.30

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 10 | 0.0608 | 0.289 | 7.51 | mg/kg | D |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

**TP5-1**

**22K0329-12 (Solid)**

## Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 15:52

Instrument: ICP3 Analyst: SKD — Analyzed: 12/08/2022 18:07

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22K0329-12 A 01

Preparation Batch: BKK0622 — Sample Size: 1.038 g (wet) — Dry Weight:0.93 g

Prepared: 11/21/2022 — Final Volume: 50 mL — % Solids: 89.86

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 5 | 1.25 | 13.4 | 36.2 | mg/kg | D |
| Arsenic | 7440-38-2 | 5 | 1.23 | 13.4 | 2320 | mg/kg | D |
| Barium | 7440-39-3 | 5 | 0.697 | 1.61 | 184 | mg/kg | D |
| Cadmium | 7440-43-9 | 5 | 0.188 | 0.536 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 5 | 1.18 | 2.41 | 27.3 | mg/kg | D |
| Lead | 7439-92-1 | 5 | 0.643 | 5.36 | 7.21 | mg/kg | D |
| Selenium | 7782-49-2 | 5 | 3.43 | 13.4 | ND | mg/kg | U |
| Silver | 7440-22-4 | 5 | 0.209 | 0.804 | ND | mg/kg | U |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP5-1

**22K0329-12 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 15:52
Instrument: HYDRA Analyst: ml — Analyzed: 11/30/2022 10:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22K0329-12 A
Preparation Batch: BKK0643 — Sample Size: 0.222 g (wet) — Dry Weight:0.20 g
Prepared: 11/28/2022 — Final Volume: 50 mL — % Solids: 89.86

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 10 | 0.0526 | 0.251 | 1.97 | mg/kg | D |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP5-5

**22K0329-13 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 15:53
Instrument: ICP3 Analyst: SKD — Analyzed: 12/08/2022 18:09

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22K0329-13 A 01
Preparation Batch: BKK0622 — Sample Size: 1.082 g (wet) — Dry Weight:1.01 g
Prepared: 11/21/2022 — Final Volume: 50 mL — % Solids: 93.03

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 5 | 1.16 | 12.4 | 122 | mg/kg | D |
| Arsenic | 7440-38-2 | 5 | 1.14 | 12.4 | 2300 | mg/kg | D |
| Barium | 7440-39-3 | 5 | 0.646 | 1.49 | 755 | mg/kg | D |
| Cadmium | 7440-43-9 | 5 | 0.174 | 0.497 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 5 | 1.10 | 2.24 | 24.6 | mg/kg | D |
| Lead | 7439-92-1 | 5 | 0.596 | 4.97 | 9.02 | mg/kg | D |
| Selenium | 7782-49-2 | 5 | 3.18 | 12.4 | ND | mg/kg | U |
| Silver | 7440-22-4 | 5 | 0.194 | 0.745 | ND | mg/kg | U |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP5-5

**22K0329-13 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 15:53
Instrument: HYDRA Analyst: ml — Analyzed: 11/30/2022 10:51

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22K0329-13 A
Preparation Batch: BKK0643 — Sample Size: 0.23 g (wet) — Dry Weight:0.21 g
Prepared: 11/28/2022 — Final Volume: 50 mL — % Solids: 93.03

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 2 | 0.00981 | 0.0467 | 1.21 | mg/kg | D |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP5-5

**22K0329-14 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 15:53
Instrument: ICP3 Analyst: SKD — Analyzed: 12/01/2022 21:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPN Digestion of EPA 1312 Elutriate — Extract ID: 22K0329-14 A 02
Preparation Batch: BKK0676 — Sample Size: 25 mL (wet)
Prepared: 11/23/2022 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 5 | 0.0140 | 0.250 | 0.608 | mg/L | D |
| Barium | 7440-39-3 | 5 | 0.0075 | 0.0150 | 0.169 | mg/L | D |
| Cadmium | 7440-43-9 | 5 | 0.0006 | 0.0100 | ND | mg/L | U |
| Chromium | 7440-47-3 | 5 | 0.0024 | 0.0250 | ND | mg/L | U |
| Lead | 7439-92-1 | 5 | 0.0065 | 0.100 | ND | mg/L | U |
| Selenium | 7782-49-2 | 5 | 0.0408 | 0.250 | ND | mg/L | U |
| Silver | 7440-22-4 | 5 | 0.0022 | 0.0150 | ND | mg/L | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP5-5

**22K0329-14 (Solid)**

### SPLP Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 15:53
Instrument: HYDRA Analyst: ML — Analyzed: 11/23/2022 13:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SPM 7470A Digestion of EPA 1312 Elutriate for Hg — Extract ID: 22K0329-14
Preparation Batch: BKK0677 — Sample Size: 20 mL (wet)
Prepared: 11/23/2022 — Final Volume: 20 mL

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

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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP5-11

**22K0329-15 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 15:54
Instrument: ICP3 Analyst: SKD — Analyzed: 12/08/2022 18:12

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22K0329-15 A 01
Preparation Batch: BKK0622 — Sample Size: 1.084 g (wet) — Dry Weight:0.97 g
Prepared: 11/21/2022 — Final Volume: 50 mL — % Solids: 89.81

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 5 | 1.20 | 12.8 | 32.2 | mg/kg | D |
| Arsenic | 7440-38-2 | 5 | 1.18 | 12.8 | 1320 | mg/kg | D |
| Barium | 7440-39-3 | 5 | 0.668 | 1.54 | 137 | mg/kg | D |
| Cadmium | 7440-43-9 | 5 | 0.180 | 0.514 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 5 | 1.13 | 2.31 | 20.5 | mg/kg | D |
| Lead | 7439-92-1 | 5 | 0.616 | 5.14 | 9.86 | mg/kg | D |
| Selenium | 7782-49-2 | 5 | 3.29 | 12.8 | ND | mg/kg | U |
| Silver | 7440-22-4 | 5 | 0.200 | 0.770 | ND | mg/kg | U |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP5-11

**22K0329-15 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 15:54
Instrument: HYDRA Analyst: ml — Analyzed: 11/30/2022 10:41

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22K0329-15 A
Preparation Batch: BKK0643 — Sample Size: 0.214 g (wet) — Dry Weight:0.19 g
Prepared: 11/28/2022 — Final Volume: 50 mL — % Solids: 89.81

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 10 | 0.0546 | 0.260 | 4.15 | mg/kg | D |

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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP6-0-0.75

**22K0329-16 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 15:50
Instrument: ICP3 Analyst: SKD — Analyzed: 12/12/2022 18:04

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22K0329-16 B 01
Preparation Batch: BKK0622 — Sample Size: 1.041 g (wet) — Dry Weight:0.70 g
Prepared: 11/21/2022 — Final Volume: 50 mL — % Solids: 67.23

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 10 | 3.33 | 35.7 | 126 | mg/kg | D |
| Arsenic | 7440-38-2 | 10 | 3.29 | 35.7 | 15500 | mg/kg | D |
| Barium | 7440-39-3 | 10 | 1.86 | 4.29 | 153 | mg/kg | D |
| Cadmium | 7440-43-9 | 10 | 0.500 | 1.43 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 10 | 3.15 | 6.43 | 20.8 | mg/kg | D |
| Lead | 7439-92-1 | 10 | 1.71 | 14.3 | 22.0 | mg/kg | D |
| Selenium | 7782-49-2 | 10 | 9.14 | 35.7 | ND | mg/kg | U |
| Silver | 7440-22-4 | 10 | 0.557 | 2.14 | 0.643 | mg/kg | J, D |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## TP6-0-0.75

**22K0329-16 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 15:50
Instrument: HYDRA Analyst: ml — Analyzed: 11/30/2022 10:53

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22K0329-16 B
Preparation Batch: BKK0643 — Sample Size: 0.251 g (wet) — Dry Weight:0.17 g
Prepared: 11/28/2022 — Final Volume: 50 mL — % Solids: 67.23

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 10000 | 62.2 | 296 | 2410 | mg/kg | D |

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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## DRUM-01

**22K0329-17 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 15:55
Instrument: ICP3 Analyst: SKD — Analyzed: 12/07/2022 20:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22K0329-17 A 01
Preparation Batch: BKK0622 — Sample Size: 1.027 g (wet) — Dry Weight:0.62 g
Prepared: 11/21/2022 — Final Volume: 50 mL — % Solids: 60.80

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 100 | 37.3 | 400 | 6860 | mg/kg | D |
| Arsenic | 7440-38-2 | 100 | 36.8 | 400 | 202000 | mg/kg | D |
| Barium | 7440-39-3 | 100 | 20.8 | 48.0 | 839 | mg/kg | D |
| Cadmium | 7440-43-9 | 100 | 5.61 | 16.0 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 100 | 35.3 | 72.1 | ND | mg/kg | U |
| Lead | 7439-92-1 | 100 | 19.2 | 160 | 57.7 | mg/kg | J, D |
| Selenium | 7782-49-2 | 100 | 102 | 400 | ND | mg/kg | U |
| Silver | 7440-22-4 | 100 | 6.25 | 24.0 | ND | mg/kg | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## DRUM-01

**22K0329-17 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 15:55
Instrument: HYDRA Analyst: ml — Analyzed: 11/30/2022 13:24

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22K0329-17 A
Preparation Batch: BKK0643 — Sample Size: 0.217 g (wet) — Dry Weight:0.13 g
Prepared: 11/28/2022 — Final Volume: 50 mL — % Solids: 60.80

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 50000 | 398 | 1890 | 18100 | mg/kg | D |

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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## DRUM-02

**22K0329-18 (Solid)**

### Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 11/15/2022 15:56
Instrument: ICP3 Analyst: SKD — Analyzed: 12/08/2022 18:21

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SWC EPA 3050B — Extract ID: 22K0329-18 A 01
Preparation Batch: BKK0622 — Sample Size: 1.085 g (wet) — Dry Weight:0.83 g
Prepared: 11/21/2022 — Final Volume: 50 mL — % Solids: 76.07

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Antimony | 7440-36-0 | 500 | 141 | 1510 | 4020 | mg/kg | D |
| Arsenic | 7440-38-2 | 500 | 139 | 1510 | 545000 | mg/kg | D |
| Barium | 7440-39-3 | 500 | 78.8 | 182 | 254 | mg/kg | D |
| Cadmium | 7440-43-9 | 500 | 21.2 | 60.6 | ND | mg/kg | U |
| Chromium | 7440-47-3 | 500 | 134 | 273 | 482 | mg/kg | D |
| Lead | 7439-92-1 | 500 | 72.7 | 606 | ND | mg/kg | U |
| Selenium | 7782-49-2 | 500 | 388 | 1510 | ND | mg/kg | U |
| Silver | 7440-22-4 | 500 | 23.6 | 90.9 | ND | mg/kg | U |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## DRUM-02

**22K0329-18 (Solid)**

### Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/15/2022 15:56
Instrument: HYDRA Analyst: ml — Analyzed: 11/30/2022 11:07

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 22K0329-18 A
Preparation Batch: BKK0643 — Sample Size: 0.291 g (wet) — Dry Weight:0.22 g
Prepared: 11/28/2022 — Final Volume: 50 mL — % Solids: 76.07

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Mercury | 7439-97-6 | 20000 | 94.9 | 452 | 20300 | mg/kg | D |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

**Analysis by: Analytical Resources, LLC**

## Metals and Metallic Compounds - Quality Control

### Batch BKK0622 - EPA 6010D

Instrument: ICP3 Analyst: SKD

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BKK0622-BLK1)** | | | | Prepared: 21-Nov-2022 Analyzed: 07-Dec-2022 18:27 | | | | | | | |
| Antimony | ND | 0.466 | 5.00 | mg/kg | | | | | | | U |
| Arsenic | ND | 0.460 | 5.00 | mg/kg | | | | | | | U |
| Barium | ND | 0.260 | 0.600 | mg/kg | | | | | | | U |
| Cadmium | ND | 0.0700 | 0.200 | mg/kg | | | | | | | U |
| Lead | ND | 0.240 | 2.00 | mg/kg | | | | | | | U |
| Selenium | ND | 1.28 | 5.00 | mg/kg | | | | | | | U |
| Silver | ND | 0.0780 | 0.300 | mg/kg | | | | | | | U |
| **Blank (BKK0622-BLK2)** | | | | Prepared: 21-Nov-2022 Analyzed: 08-Dec-2022 17:18 | | | | | | | |
| Chromium | ND | 0.441 | 0.900 | mg/kg | | | | | | | U |
| **LCS (BKK0622-BS1)** | | | | Prepared: 21-Nov-2022 Analyzed: 07-Dec-2022 18:29 | | | | | | | |
| Antimony | 211 | 0.466 | 5.00 | mg/kg | 200 | | 106 | 80-120 | | | |
| Arsenic | 210 | 0.460 | 5.00 | mg/kg | 200 | | 105 | 80-120 | | | |
| Barium | 210 | 0.260 | 0.600 | mg/kg | 200 | | 105 | 80-120 | | | |
| Cadmium | 51.9 | 0.0700 | 0.200 | mg/kg | 50.0 | | 104 | 80-120 | | | |
| Lead | 208 | 0.240 | 2.00 | mg/kg | 200 | | 104 | 80-120 | | | |
| Selenium | 206 | 1.28 | 5.00 | mg/kg | 200 | | 103 | 80-120 | | | |
| Silver | 53.5 | 0.0780 | 0.300 | mg/kg | 50.0 | | 107 | 80-120 | | | |
| **LCS (BKK0622-BS2)** | | | | Prepared: 21-Nov-2022 Analyzed: 08-Dec-2022 17:21 | | | | | | | |
| Chromium | 51.7 | 0.441 | 0.900 | mg/kg | 50.0 | | 103 | 80-120 | | | |
| **Duplicate (BKK0622-DUP1)** | | **Source: 22K0329-01** | | Prepared: 21-Nov-2022 Analyzed: 08-Dec-2022 17:42 | | | | | | | |
| Antimony | 11.7 | 1.34 | 14.4 | mg/kg | | 7.69 | | | 41.70 | 20 | L, J, D |
| Arsenic | 4400 | 1.32 | 14.4 | mg/kg | | 3570 | | | 20.80 | 20 | *, D |
| Barium | 111 | 0.748 | 1.73 | mg/kg | | 113 | | | 1.58 | 20 | D |
| Cadmium | ND | 0.201 | 0.576 | mg/kg | | ND | | | | | U |
| Chromium | 13.1 | 1.27 | 2.59 | mg/kg | | 13.6 | | | 3.80 | 20 | D |
| Lead | 7.94 | 0.691 | 5.76 | mg/kg | | 8.47 | | | 6.37 | 20 | D |
| Selenium | ND | 3.68 | 14.4 | mg/kg | | ND | | | | | U |
| Silver | ND | 0.225 | 0.864 | mg/kg | | ND | | | | | U |
| **Matrix Spike (BKK0622-MS1)** | | **Source: 22K0329-01** | | Prepared: 21-Nov-2022 Analyzed: 08-Dec-2022 17:44 | | | | | | | |
| Antimony | 26.1 | 1.34 | 14.4 | mg/kg | 230 | 7.69 | 7.99 | 75-125 | | | *, D |
| Arsenic | 3860 | 1.32 | 14.4 | mg/kg | 230 | 3570 | 125 | 75-125 | | | D |

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

**Analysis by: Analytical Resources, LLC**

## Metals and Metallic Compounds - Quality Control

### Batch BKK0622 - EPA 6010D

Instrument: ICP3 Analyst: SKD

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Matrix Spike (BKK0622-MS1)** | **Source: 22K0329-01** | | | Prepared: 21-Nov-2022 Analyzed: 08-Dec-2022 17:44 | | | | | | | |
| Barium | 363 | 0.747 | 1.72 | mg/kg | 230 | 113 | 109 | 75-125 | | | D |
| Cadmium | 59.7 | 0.201 | 0.575 | mg/kg | 57.5 | ND | 104 | 75-125 | | | D |
| Chromium | 73.7 | 1.27 | 2.59 | mg/kg | 57.5 | 13.6 | 105 | 75-125 | | | D |
| Lead | 248 | 0.690 | 5.75 | mg/kg | 230 | 8.47 | 104 | 75-125 | | | D |
| Selenium | 235 | 3.68 | 14.4 | mg/kg | 230 | ND | 102 | 75-125 | | | D |
| Silver | 61.9 | 0.224 | 0.862 | mg/kg | 57.5 | ND | 108 | 75-125 | | | D |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

**Analysis by: Analytical Resources, LLC**

## Metals and Metallic Compounds - Quality Control

### Batch BKK0643 - 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 (BKK0643-BLK1)** | | | | Prepared: 28-Nov-2022 Analyzed: 30-Nov-2022 10:04 | | | | | | | |
| Mercury | 0.0202 | 0.00525 | 0.0250 | mg/kg | | | | | | | J |
| **LCS (BKK0643-BS1)** | | | | Prepared: 28-Nov-2022 Analyzed: 30-Nov-2022 10:06 | | | | | | | |
| Mercury | 0.498 | 0.00525 | 0.0250 | mg/kg | 0.500 | | 99.6 | 80-120 | | | |

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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

**Analysis by: Analytical Resources, LLC**

## SPLP Metals and Metallic Compounds - Quality Control

### Batch BKK0676 - EPA 6010D

Instrument: ICP3 Analyst: SKD

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BKK0676-BLK1)** | | | | Prepared: 23-Nov-2022 Analyzed: 01-Dec-2022 21:30 | | | | | | | |
| Arsenic | ND | 0.0140 | 0.250 | mg/L | | | | | | | U |
| Barium | ND | 0.0075 | 0.0150 | mg/L | | | | | | | U |
| Cadmium | ND | 0.0006 | 0.0100 | mg/L | | | | | | | U |
| Chromium | ND | 0.0024 | 0.0250 | mg/L | | | | | | | U |
| Lead | ND | 0.0065 | 0.100 | mg/L | | | | | | | U |
| Selenium | ND | 0.0408 | 0.250 | mg/L | | | | | | | U |
| Silver | ND | 0.0022 | 0.0150 | mg/L | | | | | | | U |
| **Duplicate (BKK0676-DUP1)** | | **Source: 22K0329-02** | | Prepared: 23-Nov-2022 Analyzed: 01-Dec-2022 21:52 | | | | | | | |
| Arsenic | 0.159 | 0.0140 | 0.250 | mg/L | | 0.156 | | | 1.91 | 20 | J, D |
| Barium | 0.113 | 0.0075 | 0.0150 | mg/L | | 0.115 | | | 1.76 | 20 | D |
| Cadmium | ND | 0.0006 | 0.0100 | mg/L | | ND | | | | | U |
| Chromium | ND | 0.0024 | 0.0250 | mg/L | | ND | | | | | U |
| Lead | ND | 0.0065 | 0.100 | mg/L | | ND | | | | | U |
| Selenium | ND | 0.0408 | 0.250 | mg/L | | ND | | | | | U |
| Silver | ND | 0.0022 | 0.0150 | mg/L | | ND | | | | | U |
| **Matrix Spike (BKK0676-MS1)** | | **Source: 22K0329-02** | | Prepared: 23-Nov-2022 Analyzed: 01-Dec-2022 21:55 | | | | | | | |
| Arsenic | 4.36 | 0.0140 | 0.250 | mg/L | 4.00 | 0.156 | 105 | 75-125 | | | D |
| Barium | 4.34 | 0.0075 | 0.0150 | mg/L | 4.00 | 0.115 | 106 | 75-125 | | | D |
| Cadmium | 1.06 | 0.0006 | 0.0100 | mg/L | 1.00 | ND | 106 | 75-125 | | | D |
| Chromium | 1.03 | 0.0024 | 0.0250 | mg/L | 1.00 | ND | 103 | 75-125 | | | D |
| Lead | 4.22 | 0.0065 | 0.100 | mg/L | 4.00 | ND | 105 | 75-125 | | | D |
| Selenium | 4.24 | 0.0408 | 0.250 | mg/L | 4.00 | ND | 106 | 75-125 | | | D |
| Silver | 1.07 | 0.0022 | 0.0150 | mg/L | 1.00 | ND | 107 | 75-125 | | | D |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

**Analysis by: Analytical Resources, LLC**

## SPLP Metals and Metallic Compounds - Quality Control

### Batch BKK0677 - 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 (BKK0677-BLK1)** | | | | Prepared: 23-Nov-2022 Analyzed: 23-Nov-2022 13:11 | | | | | | | |
| Mercury | ND | 0.000007 | 0.000100 | mg/L | | | | | | | U |
| **Duplicate (BKK0677-DUP1)** | | **Source: 22K0329-02** | | Prepared: 23-Nov-2022 Analyzed: 23-Nov-2022 13:16 | | | | | | | |
| Mercury | 0.000008 | 0.000007 | 0.000100 | mg/L | | ND | | | | | J |
| **Matrix Spike (BKK0677-MS1)** | | **Source: 22K0329-02** | | Prepared: 23-Nov-2022 Analyzed: 23-Nov-2022 13:18 | | | | | | | |
| Mercury | 0.00100 | 0.000007 | 0.000100 | mg/L | 0.00100 | ND | 100 | 75-125 | | | |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## Certified Analyses included in this Report

| Analyte | Certifications |
|---|---|
| ***EPA 6010D in Solid*** | |
| Silver | NELAP,WADOE,DoD-ELAP |
| Arsenic | NELAP,WADOE,DoD-ELAP,ADEC |
| Barium | NELAP,WADOE,ADEC,DoD-ELAP |
| Cadmium | NELAP,WADOE,DoD-ELAP,ADEC |
| Chromium | NELAP,WADOE,DoD-ELAP,ADEC |
| Lead | NELAP,WADOE,DoD-ELAP,ADEC |
| Antimony | NELAP,WADOE,DoD-ELAP |
| Selenium | NELAP,WADOE,DoD-ELAP |
| Silver | NELAP,WADOE,DoD-ELAP |
| Arsenic | NELAP,WADOE |
| Barium | NELAP,WADOE |
| Cadmium | NELAP,WADOE,DoD-ELAP |
| Chromium | NELAP,WADOE,DoD-ELAP |
| Lead | NELAP,WADOE,DoD-ELAP |
| Selenium | NELAP,WADOE,DoD-ELAP |
| ***EPA 7471B in Solid*** | |
| Mercury | WADOE,NELAP,DoD-ELAP |
| Mercury | WADOE,NELAP |

| Code | Description | Number | Expires |
|---|---|---|---|
| ADEC | Alaska Dept of Environmental Conservation | 17-015 | 03/28/2023 |
| DoD-ELAP | DoD-Environmental Laboratory Accreditation Program | 66169 | 02/28/2023 |
| NELAP | ORELAP - Oregon Laboratory Accreditation Program | WA100006-012 | 05/12/2023 |
| WADOE | WA Dept of Ecology | C558 | 06/30/2023 |
| WA-DW | Ecology - Drinking Water | C558 | 06/30/2023 |

| | | |
|---|---|---|
| Aspect Consulting, LLC. | Project: Cumberland Solids 2022 | |
| 710 2nd Avenue, Suite 550 | Project Number: 220213 | **Reported:** |
| Seattle WA, 98104 | Project Manager: Adam Griffin | 16-Dec-2022 13:47 |

## 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 |
| J | Estimated concentration value detected below the reporting limit. |
| L | Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD |
| U | This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD). |
| DET | Analyte DETECTED |
| ND | Analyte NOT DETECTED at or above the reporting limit |
| NR | Not Reported |
| dry | Sample results reported on a dry weight basis |
| RPD | Relative Percent Difference |
| [2C] | Indicates this result was quantified on the second column on a dual column analysis. |

# APPENDIX C

# Report Limitations and Guidelines for Use

# REPORT LIMITATIONS AND USE GUIDELINES

## Reliance Conditions for Third Parties

This report was prepared for the exclusive use of the Client. No other party may rely on this report or the product of our services without the express written consent of Aspect Consulting, LLC (Aspect). This limitation is to provide our firm with reasonable protection against liability claims by third parties with whom there would otherwise be no contractual conditions or limitations and guidelines governing their use of the report. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and recognized standards of professionals in the same locality and involving similar conditions.

## Services for Specific Purposes, Persons and Projects

Aspect has performed the services in general accordance with the scope and limitations of our Agreement. This report has been prepared for the exclusive use of the Client and their authorized third parties, approved in writing by Aspect. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

This report is not, and should not, be construed as a warranty or guarantee regarding the presence or absence of hazardous substances or petroleum products that may affect the subject property. The report is not intended to make any representation concerning title or ownership to the subject property. If real property records were reviewed, they were reviewed for the sole purpose of determining the subject property's historical uses. All findings, conclusions, and recommendations stated in this report are based on the data and information provided to Aspect, current use of the subject property, and observations and conditions that existed on the date and time of the report.

Aspect structures its services to meet the specific needs of our clients. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and subject property. This report should not be applied for any purpose or project except the purpose described in the Agreement.

## This Report Is Project-Specific

Aspect considered a number of unique, project-specific factors when establishing the Scope of Work for this project and report. You should not rely on this report if it was:

- Not prepared for you
- Not prepared for the specific purpose identified in the Agreement
- Not prepared for the specific real property assessed
- Completed before important changes occurred concerning the subject property, project or governmental regulatory actions

If changes are made to the project or subject property after the date of this report, Aspect should be retained to assess the impact of the changes with respect to the conclusions contained in the report.

## Geoscience Interpretations

The geoscience practices (geotechnical engineering, geology, and environmental science) require interpretation of spatial information that can make them less exact than other engineering and natural science disciplines. It is important to recognize this limitation in evaluating the content of the report. If you are unclear how these "Report Limitations and Use Guidelines" apply to your project or site, you should contact Aspect.

## Discipline-Specific Reports Are Not Interchangeable

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually address any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding the subject property.

## Environmental Regulations Are Not Static

Some hazardous substances or petroleum products may be present near the subject property in quantities or under conditions that may have led, or may lead, to contamination of the subject property, but are not included in current local, state or federal regulatory definitions of hazardous substances or petroleum products or do not otherwise present potential liability. Changes may occur in the standards for appropriate inquiry or regulatory definitions of hazardous substance and petroleum products; therefore, this report has a limited useful life.

## Property Conditions Change Over Time

This report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time (for example, Phase I ESA reports are applicable for 180 days), by events such as a change in property use or occupancy, or by natural events, such as floods, earthquakes, slope failure or groundwater fluctuations. If more than six months have passed since issuance of our report, or if any of the described events may have occurred following the issuance of the report, you should contact Aspect so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

## Phase I ESAs – Uncertainty Remains After Completion

Aspect has performed the services in general accordance with the scope and limitations of our Agreement and the current version of the “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process”, ASTM E1527, and U.S. Environmental Protection Agency (EPA)'s Federal Standard 40 CFR Part 312 "Innocent Landowners, Standards for Conducting All Appropriate Inquiries".

No ESA can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with subject property. Performance of an ESA study is intended to reduce, but not eliminate, uncertainty regarding the potential for environmental conditions affecting the subject property. There is always a potential that areas with contamination that were not identified during this ESA exist at the subject property or in the study area. Further evaluation of such potential would require additional research, subsurface exploration, sampling and/or testing.

## Historical Information Provided by Others

Aspect has relied upon information provided by others in our description of historical conditions and in our review of regulatory databases and files. The available data does not provide definitive information with regard to all past uses, operations or incidents affecting the subject property or adjacent properties. Aspect makes no warranties or guarantees regarding the accuracy or completeness of information provided or compiled by others.

## Exclusion of Mold, Fungus, Radon, Lead, and HBM

Aspect’s services do not include the investigation, detection, prevention or assessment of the presence of molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detection, assessment, prevention or abatement of molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts. Aspect’s services also do not include the investigation or assessment of hazardous building materials (HBM) such as asbestos, polychlorinated biphenyls (PCBs) in light ballasts, lead based paint, asbestos-containing building materials, urea-formaldehyde insulation in on-site structures or debris or any other HBMs. Aspect’s services do not include an evaluation of radon or lead in drinking water, unless specifically requested.