APPENDIX F

Compliance Monitoring Report

REPORT

Compliance Monitoring Report

Union Pacific Railroad, Aluminum Recycling Trentwood Site

Submitted to:

Washington Department of Ecology

Eastern Regional Office
4601 N Monroe
Spokane, WA 99205-1295

Submitted by:

WSP USA Inc.
18300 Redmond Way, Suite 200 Redmond, Washington 98052

+1 425 883 0777

31406585.050

May 3, 2024

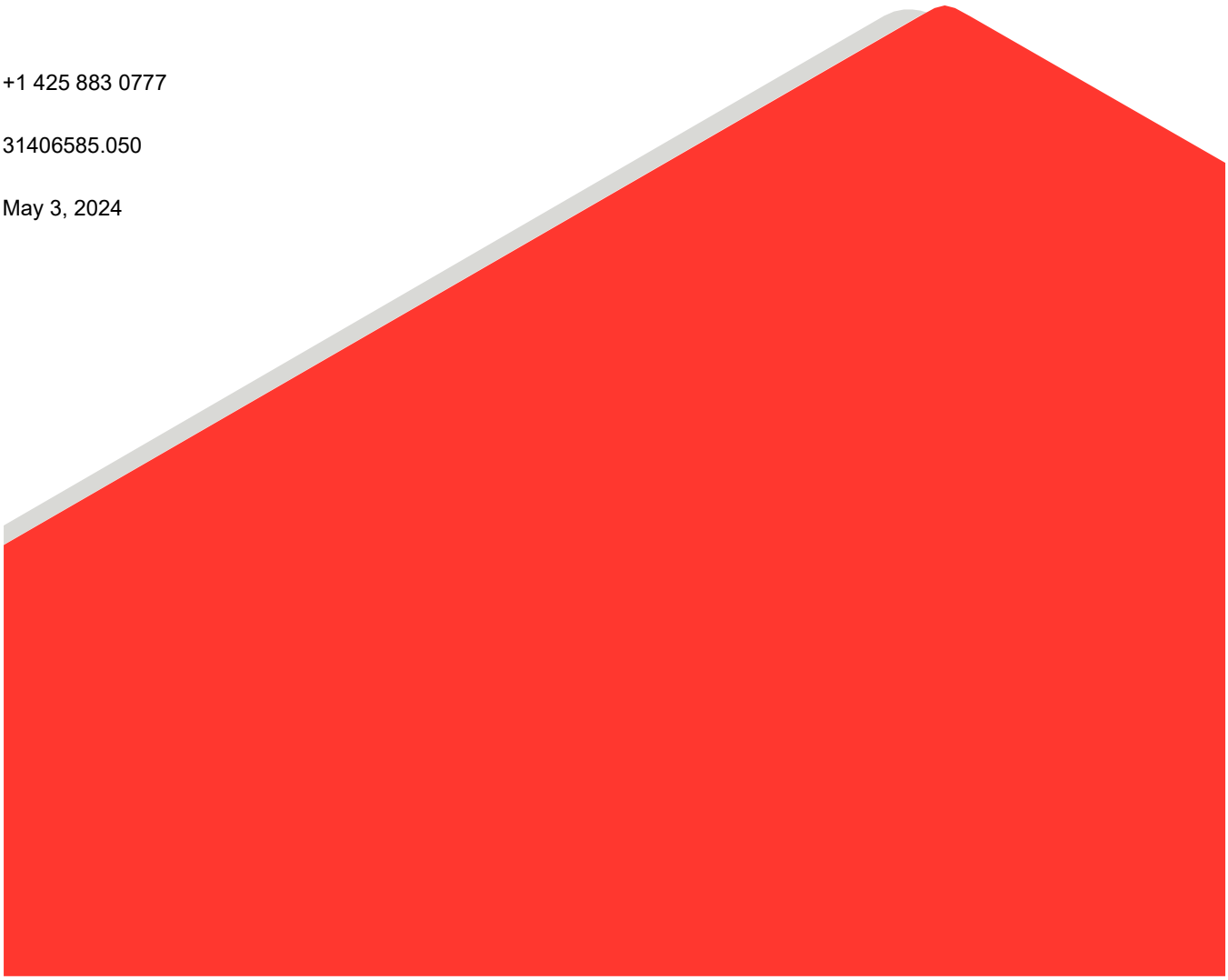


Table of Contents

TABLES

FIGURES

ATTACHMENTS

ATTACHMENT A
Select Figures - Cleanup Action Plan

ATTACHMENT B
Select Tables – Cleanup Action Plan

ATTACHMENT C
Summary – Sampling Procedures

ATTACHMENT D
XRF-Analytical Results Correlation – Copper

ATTACHMENT E
Analytical Data Packages and Data Validation

ATTACHMENT F
Ecology Communications

ATTACHMENT G
ProUCL Output for Compliance Evaluation

ATTACHMENT H
Environmental Covenant

Acronyms and Abbreviations

bgs	Below Ground Surface
BPA	Bonneville Power Administration
CAP	Cleanup Action Plan (of the EO)
CAR	Cleanup Action Report
CMP	Compliance Monitoring Plan (of the EDR)
CMR	Compliance Monitoring Report
COCs	constituents of concern
CULs	cleanup levels
DMP	Dust Monitoring Plan (of the CMP)
Ecology	Washington State Department of Ecology
EDR	Engineering Design Report
EO	Enforcement Order
FS	Feasibility Study
HASP	Health and Safety Plan (of the EDR)
I&M	inspection and maintenance
IRA	Independent Remedial Action
mg/kg	Milligrams per kilogram
mg/m^3	milligrams per cubic meter
MTCA	Model Toxics Control Act
OSHA	Occupational Safety and Health Administration
PBW	Pastor, Behling & Wheeler, LLC
Pentzer	Pentzer Venture Holdings, II, Inc.
QAPP	Quality Assurance Project Plan (of the CMP)
RAOs	Remedial Action Objectives
RI	Remedial Investigation
SAP	Sampling and Analysis Plan (of the CMP)
Site	Aluminum Recycling Trentwood Site
TWA	time weighted average
UPRR	Union Pacific Railroad Company
USEPA	United States Environmental Protection Agency
USGS	U.S. Geological Survey
UTL	Upper Tolerance Limit

VSP	Visual Sample Plan
WA Parks	Washington State Department of Parks and Recreation
WAC	Washington Administrative Code
WSDOT	Washington State Department of Transportation
XRF	X-Ray Fluorescence

1.0 INTRODUCTION

The Washington State Department of Ecology (Ecology) issued Enforcement Order (EO) DE 20752 (Ecology 2021a) to the Union Pacific Railroad Company (UPRR) on September 17, 2021 for the cleanup of the Aluminum Recycling Trentwood Site located at North Sullivan Road in Spokane Valley, Washington (the Site). The Site is identified by Ecology as Facility Site ID 628 and Cleanup Site ID 1081. The EO stated the final cleanup would be conducted by implementation of the Cleanup Action Plan (CAP) (Ecology 2021b) - Exhibit C of the EO.

This Compliance Monitoring Report (CMR) in conjunction with the overarching Cleanup Action Report (CAR) documents the cleanup action at the Site. The cleanup action was conducted in accordance with the CAP, Engineering Design Report (EDR) (Golder 2022a), and Compliance Monitoring Plan (CMP) (Golder 2022b).

UPRR submitted the EDR that provided the plans, design, and procedures to ensure the remedial action at the Site was conducted in a manner consistent with:

- The requirements of EO, DE 20752 (Ecology 2021a).
- The CAP (Exhibit C of the EO; Ecology 2021b).
- The requirements of Washington Administrative Code (WAC) 173-340-400(4)(b).

Submittal of a Site Compliance Monitoring Plan (CMP) is required as part of the Site cleanup and monitoring process under WAC 173-340-410. The Site CMP was submitted to Ecology as Appendix E of the EDR. The CMP described the environmental monitoring required to ensure that the selected remedy met the cleanup criteria at the points of compliance.

The scope of work outlined in the EO requires UPRR to submit a CAR in accordance with WAC 173-340-400 no later than 90 days after the cleanup action field activities are completed. The CAR presents the final representations of the work performed, documentation of institutional controls, and deviations from the EDR, and includes this CMR along with field and laboratory data.

1.1 Purpose and Scope

The overarching CAR is prepared following completion of the cleanup action field activities as partial fulfillment of the requirements outlined in the EO and WAC 173-340-400(4)(b). This CMR is included as Appendix F of the CAR and provides the details that supported the cleanup action field activities at the Site and documents the adherence to or variance from the CAP, EDR, and CMP.

This CMR provides data of sufficient quantity and quality to demonstrate that the implementation of the remedial actions is consistent with the remedial design to show the Site meets the performance criteria (cleanup levels [CULs] and remediation levels) to prevent or minimize the direct contact, ingestion, inhalation, or uptake of stockpile materials dross-containing soil by humans or ecological receptors.

2.0 SITE DESCRIPTION AND HISTORY

This section contains a summary of Site information pertinent to this CMR. Additional details regarding the Site's description and history are described in the CMR, EDR, and CAP.

2.1 Site Description

The Site is located at 2317 North Sullivan Road, Spokane Valley, Washington (Figure 1). The Site is identified by Ecology as Facility Site ID 628 and Cleanup Site ID 1081. Section 1,1 of the CMR provided a Site description and the dross stockpile and dross impacted soil areas subject to remedial actions.

The primary constituents of concern (COCs) associated with aluminum dross at the Site were identified in the CAP as aluminum, arsenic, barium, copper, chromium (total), and mercury. The CAP stated that groundwater was "not impacted by site-related contaminants" (Ecology 2021b).

2.2 Previous Environmental Investigations

Two environmental investigations and an independent remedial action (IRA) that produced environmental data were conducted on the Site between 2010 and 2021 and reported in the following documents:

- Pastor, Behling & Wheeler, LLC (PBW). 2012. Remedial Investigation/Feasibility Study Report Final. Aluminum Recycling Trentwood Site, Verndale, Washington. September 6.
- Golder Associates Inc. (Golder). 2021b. Completion Report Dross Removal Project – WSDOT Property Union Pacific Railroad, Aluminum Recycling Trentwood Site. January 15.
- Golder. 2021c. Completion Report Pre-Design Investigation Union Pacific Railroad, Aluminum Recycling Trentwood Site. February 5.

The data from these reports were summarized and presented in the 2021 Union Pacific Railroad Co. – Feasibility Study (Revised) Aluminum Recycling Trentwood Site (Revised FS; Golder 2021a). The data were used to evaluate remedial technologies and develop remedial alternatives and used by Ecology to select the final cleanup action in the CAP.

The 2020 IRA removed the top 6 inches of soil in select areas as presented in Figure 2 of the CAP (Attachment A). Data generated from the post-excavation confirmation sampling are presented in Figures 4 and 5 of the CAP (Attachment A). A pre-design investigation was also conducted as an independent action later in 2020 to further delineate the horizontal and vertical extents of the soil impacted above Site CULs. Data generated from the pre-design investigation is presented in Figure 6 of the CAP (Attachment A).

2.3 Cleanup Action Plan (CAP) Summary

Ecology prepared the CAP as a required part of the Site cleanup process under the Model Toxics Control Act (MTCA), Ch. 70.105D Revised Code of Washington. The CAP identified risks to human health and the environment, consisting of potential exposure of human and ecological receptors to impacted material surface and subsurface soil. Ecology ensured these risks were properly addressed in the CAP with the presentation of the following items:

- The history of operations, ownership, and activities at the Site;
- The type and extent of impacts as presented in previous environmental investigations;
- CULs and points of compliance for the Site that are protective of human health and the environment;
- The selected remedial action for the Site; and
- Requirements for compliance monitoring and institutional controls.

2.3.1 Property Designation

The Site boundaries, as defined under MTCA, consist of approximately 9 acres, and include property owned by UPRR, Washington State Department of Transportation (WSDOT), Pentzer Venture Holdings, II, Inc. (Pentzer), and Washington State Department of Parks and Recreation (WA Parks) as portrayed in Figure 2 of the CAP (Attachment A). The WSDOT, Pentzer, and UPRR properties are zoned for industrial use. However, only the UPRR property qualifies as an industrial property under WAC 173-340-745. The UPRR property being designated as an industrial property impacted the design of the Site cleanup action.

2.3.2 Cleanup Criteria

The two main cleanup criteria at the Site are the Site CULs and the points of compliance, as required by MTCA. A cleanup level is the concentration at which a substance does not threaten human health or the environment. A point of compliance is a location on Site at which the CUL must be attained.

The soil CULs were established by Ecology in the CAP and are based on MTCA Method A or B CULs for unrestricted land use. The unrestricted land use CULs for the Site COCs are presented in Table 5 of the CAP (Attachment B).

The standard point of compliance for soil CULs based on human health protection is from ground surface to 15 feet below ground surface (bgs) in accordance with WAC 173-340-740(6)(d), and for ecological receptor protection at a depth of 6 feet bgs. Ecology established cleanup point of compliance for soil in the CAP stating, “Since soil cleanup levels are based on protection of ecological receptors and background, and site investigations did not find contamination exceeding human health levels from 6 to 15 feet bgs, the soil point of compliance will be set at 6 feet bgs throughout the Site” (Ecology 2021b).

It was not necessary to achieve Site unrestricted land use CULs on the UPRR property given the property’s planned continued use as an industrial property. Under WAC 173-340-355, remediation levels can be applied to property or portions of property where unrestricted cleanup levels are impractical or unnecessary to achieve (WAC 173-340-200; Ecology 2021b).

For this Site, remediation levels were used for the UPRR industrial property. Figure 3 provides the area identified in the CMP that qualified for use of remediation levels. Use of remediation levels required construction of a cap with institutional controls to prevent potential exposure of ecological receptors to and migration/transport off Site of the Site soil exceeding CULs. The soil remediation levels are based on MTCA Method C CULs for industrial properties and WAC 173-340 Table 749-3 for the protection of ecological receptors. Table 6 of the CAP (Attachment B) presents the remediation levels established in the CAP for the UPRR property.

2.3.3 Engineering Design Report (EDR)

Ecology identified Alternative 3 (Excavation and Disposal at a Permitted Landfill with Ecological Cap) as the final cleanup action in the CAP. The requirements of the final cleanup action are outlined in the CAP. The EDR and the CMP were required as part of the Site cleanup and monitoring process under MTCA as established by the regulations set forth in Chapter 173-340 of the WAC and in consultation with Ecology.

The EDR provided the plans, designs, and procedures for implementing the cleanup action including, excavation, off-Site disposal of dross stockpile materials, backfill soils, and placement of ecological capping of remaining soil at the Site consistent with the intent of the EO, CAP, the requirements of the WAC 173-340-400(4)(a), and accepted engineering practices.

The EDR delineated two dross/soil removal areas at the Site:

1) Dross-impacted soil with COC concentrations above CULs on the Pentzer, WA Parks, and WSDOT properties. Soil from these properties with less than remediation levels was used on the UPRR property as fill to either bring the final, flat area to grade or to regrade the slope on the south side slope to approximately a 3H:1V. Excavated areas were backfilled and restored to pre-existing grade.

2) Dross stockpile material excavated from the UPRR and Pentzer properties was designated for removal and transported by truck to the Graham Road Landfill for disposal.

The soils on the UPRR property were covered with an ecological cap, which requires implementation of institutional controls as prescribed in the CAP. The final extent of the ecological cap is presented in Appendix C of the CAR. Five-foot wide clean (< CULs) soil buffers (also referred to as setbacks) were included on the UPRR property along the Pentzer property boundary to the west and the WSDOT property to the south at the limits of the ecological cap to alleviate concerns of soil with COC concentrations above remediation levels migrating onto adjacent properties.

The EDR also considered long-term surface water management. On the UPRR property, a berm was designed to be constructed around the perimeter of the flat area to support surface water management and included an emergency overflow to the railroad ditch at the northwest corner of the UPRR property (Figure 3). On the Pentzer and WSDOT properties, surface water is managed by re-establishing the existing grades and overland flow pathways following excavation and backfilling activities. Further details associated with potential run off from the Kemira facility are provided in Section 6.1.3. Final surface water management details are shown on the As-built drawings in Appendix C of the CAR.

2.3.4 Compliance Monitoring Plan (CMP)

The CMP (Appendix E of the EDR) described the compliance monitoring that was developed to enable the selected remedy to meet the cleanup criteria at the points of compliance. Protection and performance monitoring were required in the short-term during construction activities. The short-term monitoring included field screening and laboratory analysis of the soil samples. Confirmational monitoring is conducted on a long-term basis at the Site. The long-term monitoring will consist of an annual inspection of the cap and associated engineering controls to ensure the CULs are maintained at the Site. The long-term monitoring is addressed in the inspection and maintenance (I&M) plan provided in Appendix F of the EDR.

3.0 CLEANUP ACTIONS

This section provides a summary of the cleanup action implemented for the unrestricted land use properties and the UPRR industrial land use property.

3.1 Remediation Activities for Unrestricted Land Use Properties

The Pentzer and WSDOT properties are zoned as industrial but are currently unused. The WA Parks property is zoned as parks/open space and contains a public use trail. Therefore, unrestricted CULs were established as the cleanup criteria to evaluate the remedial actions on these properties.

Pentzer, WA Parks, and WSDOT property area (off-property) excavations dimensions were estimated on EDR Design Drawings 200 through 202 (Golder 2022a); the actual dimensions of removal were determined in the field by performance sampling and testing to demonstrate CULs had been achieved. Excavations were generally not extended below a maximum depth of 6 feet bgs. Six feet bgs is the point of compliance for protection of ecological

receptors (Ecology 2021b) and human health criteria were not exceeded in any performance monitoring samples associated with excavations on the Pentzer, WSDOT, or WA Parks properties. Consequently, additional excavations were not required beyond 6 feet bgs.

Off-property excavations were backfilled with clean backfill soil imported from off Site to the elevations shown on As-built drawings in Appendix C of the CAR. Details associated with the imported backfill materials including sources, analytical testing, and Ecology approval are provided in Section 6.1.1.

3.1.1 Pentzer Property

Excavations on the Pentzer property consisted of shallow areas (1-to-2 feet bgs) and deeper target excavations (EX-1 and EX-2, approximately 4-to-6 feet bgs). The completed excavations ranged between 1 and 6 feet in depth with a final areal extent of approximately 110,870 square feet (with minor overlap onto the WA Parks and WSDOT properties) and final excavation volume of approximately 11,330 cubic yards (17,000 tons). The lateral and vertical extents of excavations on the Pentzer Property are presented in Figure 4. Performance monitoring results are discussed in Section 4.3.1. The excavations conformed to applicable Occupational Safety and Health Administration (OSHA) requirements. The excavated soil was removed with an excavator or skid steer and stockpiled to be used as fill for the ecological cap subgrade.

A portion of the dross stockpile was located on the northeast end of the Pentzer property (Figure 2). The dross stockpile on the Pentzer property was removed and transported to the Graham Road Landfill for disposal. Approximately 1 foot of soil underlying the dross stockpile on the Pentzer property was also excavated to remove visible dross from this area (Figure 4) prior to conducting confirmatory sampling.

As EX-2 began to expand to the northeast (Figure 4) in the former stockpile footprint, exploratory soil samples were collected at 4 and 6 feet bgs between EX-2 and the northeastern Pentzer property boundary. The exploratory soil samples were analyzed with X-ray fluorescence (XRF) and submitted for laboratory analysis. These analysis results were used to delineate the impacted soil and direct further excavations in this area. Performance monitoring sampling results are provided in Section 4.3.1.

Shallow excavations were completed to 1-to-2 feet bgs around the Pentzer property after adjacent target excavations were completed. A few small areas in the planned shallow excavation footprint were not excavated due to being obstructed by trees (Davey Resource Group 2022) or utility infrastructure (Figure 4). Two areas adjacent to EX-2 were excavated further after XRF and/or analytical results of the shallow excavations indicated COC concentrations were still exceeding the Site CULs. Section 4.3.1 provides additional details on the shallow excavation expansions.

3.1.2 WA Parks Property

A portion of the remedial action boundary extended slightly onto the WA Parks property to the west of the Pentzer property as depicted in Figure 2. Six performance monitoring samples were collected to delineate the extent of impacted soil associated with WA Parks property. The excavations on the WA Parks property were completed to 2 feet bgs with a final areal extent of approximately 2,300 square feet, and generally extended past the native topsoil into the underlying coarse material. Excavated vegetation was loaded into a haul truck for transport and disposal at the landfill. The lateral and vertical extents of excavations on the WA Parks property are presented in Figure 4. Performance monitoring results are discussed in Section 4.3.1. Excavated topsoil was stockpiled for use as backfill for the UPRR property flat area.

3.1.3 WSDOT Property

Excavations on the WSDOT property consisted of shallow areas (1-to-2 feet bgs) and deeper target excavations (EX-3 through EX-9, approximately 3-to-6 feet bgs). The completed excavations (Figure 5) ranged between 1 and 6 feet in depth with a final areal extent of approximately 118,600 square feet and a final excavation volume of approximately 16,430 cubic yards (24,650 tons, given an assumed soil density of 1.5 tons per cubic yard). The excavated soil was removed with an excavator and stockpiled to be used as fill for the ecological cap subgrade.

The deeper, target excavations EX-3 through EX-9 completed on the WSDOT property are illustrated in Figure 5. Both the EX-3 and EX-4 expanded to 6 feet bgs and slightly outward from their initially planned lateral extents due to visible dross material observed at 6 feet bgs in these areas. The depth of these expansions was limited to six feet based on the point of compliance for the protection of ecological receptor as established in the CAP (Ecology 2021b), but the lateral expansions were completed by visual inspection and laboratory analytical results. The excavated depth of EX-5 remained at 4 feet bgs but expanded outward from its initially planned extent to address barium-rich topsoil encountered around this excavation. EX-6 expanded fully to 6 feet bgs and outward from its initially planned lateral extents, especially to the east and northeast due to visible dross material observed between 2 and 4 feet bgs (Figure 5). EX-7 expanded to 6 feet bgs and was expanded approximately 5 feet in both the east and west directions to achieve CULs. EX-8 and EX-9 expanded largely to the south, west, and north due to visible dross layers and patches between 2 and 4 feet bgs. The depth of these expansions was extended to the 6-foot depth human health requirement, but the lateral expansion was completed by visual inspection and laboratory analytical results.

Shallow excavations were generally completed to 2 feet bgs after adjacent target excavations were completed. Figure 5 shows several areas that were excavated further once XRF and/or analytical results of the shallow excavations indicated COC concentrations exceeded Site CULs, or visible dross material was observed on the remaining surface. Section 4.3.2 provides additional details on the WSDOT property shallow excavation expansions.

The lateral and vertical extents of excavations on the WSDOT property are presented in Figure 5. Performance monitoring results are discussed in Section 4.3.2.

3.1.4 Incidental Activities

3.1.4.1 3.1.4.1 Utility Locates

Power utilities and easements owned by three different power companies, Bonneville Power Administration (BPA), Avista, and Inland Power and Light, were located within excavation limits on the Pentzer and WSDOT properties. All utility companies were contacted, and all construction activities met the requirements of each utility company for working under and around their utilities.

A BPA representative was on Site when cleanup activities occurred under and around BPA utilities, unless otherwise approved. Around BPA power poles, guy wires, and grounding system, material was excavated to 2 feet bgs. In areas where BPA utilities were in excavations going deeper than 2 feet on the design plans, a 5-foot buffer was put in place.

Overhead powerlines, power poles with guy wires, and underground powerlines owned by Avista were located within the project area. Boundaries were established with painted lines such that the Avista power pole and its guy wires had no disturbances within a 10-foot radius.

Overhead powerlines and power poles with guy wire owned by Inland Power and Light were located within the project area. Boundaries were established with painted lines such that the Inland power pole had only 2 feet of soil removed within a 10-foot radius.

Following excavation activities around utilities, hand shovels were used to place backfill material immediately around power company infrastructure. Then a skid steer with a compactor attachment compacted the material. A water truck was used in the working areas to aid in compaction efforts and to suppress fugitive dust. BPA personnel at the Site approved the use of imported backfill material to be placed to final grade around their infrastructure to preclude vegetation growth. See Appendix C of the CAR for imported backfill extents. Work done under and around utilities owned by BPA, Avista, and Inland Power and Light was communicated to and approved by the power companies.

3.1.4.2 Clearing and Grubbing

Clearing of large trees and large brush was performed throughout the construction activities. The Arborist Report (Davey Resource Group 2022) identified which trees could be removed, which trees should be preserved if possible, and the means and methods for how the trees and their root systems should be preserved. Removed vegetation was hauled to a stockpile on the southwest corner of the dross stockpile area on the Pentzer property. The stockpiled vegetation was chipped and left on Site until all vegetation was removed.

No vegetation or topsoil was observed on the UPRR dross stockpile area, some vegetation and topsoil ranging from 0-1 feet bgs were encountered on the WSDOT property, and a significant amount of vegetation and topsoil ranging from 0-1 feet in depth was observed on the Pentzer property. In areas where topsoil was observed, topsoil with high organic content was stripped and hauled to a stockpile on the southwest corner of the dross stockpile area on the Pentzer property with the chipped vegetation. The chipped vegetation and topsoil were hauled to the Graham Road Landfill before final grade was re-established. In total, 355 tons of combined vegetation and topsoil were hauled off-Site.

3.1.4.3 WSDOT Buried Drums

During excavation activities on the WSDOT property for removal of impacted soils on the east side of target Excavation 9 a damaged 55-gallon drum was uncovered on October 18, 2022. The drum contained what appeared to be petroleum hydrocarbon sludge. WSDOT promptly was notified of the uncovered drum and potential for additional petroleum-impacted soil. WSDOT responded and conducted a site visit that day to inspect the drum area. The drum and any visibly impacted soil were removed from the excavation, placed on plastic sheeting, and covered on November 11. WSDOT conducted associated soil sampling at this time. The approximate drum location is identified in Figure 5. WSDOT removed the drum and approximately 3.18 tons of associated impacted soil from the Site on December 12, 2022.

3.2 Remediation Activities for Industrial Property

Remedial actions for the UPRR industrial property consisted of excavation and off-Site disposal of the dross stockpile. Ecology identified the Site soil remediation levels in Table 6 of the CAP (Attachment B) and based them on MTCA Method A or B CULs for industrial properties.

An ecological cap is required to cover the areas with soil COC concentrations exceeding CULs and less than remediation levels on the UPRR property, in addition to requirements for institutional controls. The cap consists of a geotextile layer overlain by a minimum of 6 inches of gravel. The cap was designed to prevent direct contact of humans or ecological receptors with COCs in soil and to minimize transport of impacted soil by wind or

stormwater runoff. Because metals-impacted material remains on the UPRR property exceeding unrestricted CULs, an ecological cap, institutional controls, and confirmation monitoring is required in the form of periodic inspections, maintenance, and future periodic reviews. Confirmational monitoring requirements are summarized in Appendix F of the EDR.

3.2.1 UPRR Property

The EDR approximated the dimensions of the dross stockpile to be approximately 5 to 30 feet thick over a 4-acre area prior to removal. All stockpile material and dross-containing soil with COC concentrations above remediation levels on the UPRR property were removed and transported by truck to the Graham Road Landfill for disposal. The total volume of stockpile material removed from the Site and transported to the landfill was approximately 88,400 tons or approximately 71,000 cubic yards, based on the landfill weight receipts and an estimated density for excavated dross of approximately 1.25 tons per cubic yard.

The WSDOT and Pentzer properties soil was used to establish the subgrade of the flat area in the footprint of the former stockpile. The flat area was constructed to elevations comparable to the adjacent properties and established a uniform grade to direct surface water collecting on the flat area to the west. The surface water will be managed by a berm around the entire perimeter of the flat area with an emergency overflow that discharges to the railroad ditch at the northwest corner of the UPRR property (Figure 3).

The WSDOT and Pentzer properties' soil was also used to regrade the slope on the south side slope of the UPRR property to approximately a 3H:1V slope. Following completion of the grading operations on the UPRR property, these soils were covered with an ecological cap (Figure 3).

The ecological cap on the UPRR property consists of a geotextile layer overlain by a minimum of 6 inches of gravel. See Section 2.4 Ecological Cap of the CAR for additional details and Appendix C of the CAR for the ecological cap extents.

3.2.2 Kemira Facility

Dross material was observed on the UPRR side slope (UP2) at the southwestern edge of the pavement associated with the Kemira facility. This area was excavated to 2 feet below the adjacent pavement and stopped to avoid undermining the adjacent pavement; details are further discussed in Section 4.4.2.

During the design phase of the project, Ecology expressed concern that stormwater from the Kemira facility could potentially discharge over the top of the ecological cap or underneath the cap, encounter soils exceeding CULs (but less than remediation levels), and potentially compromise the integrity of the remedial action on the east end of the UPRR south slope area.

UPRR responded to these concerns with the addition of a surface water feature that consisted of placing a row of ecology blocks end-to-end along the south side of the Kemira facility on top of the ecological cap geotextile prior to placing 6 inches of ballast on top of the geotextile. In the unlikely event that stormwater from the Kemira facility collects along the base of the ecology blocks and discharges at the east end of the ecology block surface water feature, an armor rock apron was constructed to dissipate the energy of any potential runoff. The surface topography in this area slopes to the south onto the WSDOT property.

Dross-impacted soil was removed in a small area (approximately 25- by 25-foot) where the armor rock apron is located in grid cell 28 of compliance unit UP2. If discharge were to reach the armor rock apron, the area where stormwater would flow, and infiltrate was evaluated for compliance with respect to achieving CULs (Section 5.5).

3.2.3 Incidental Activities

3.2.3.1 Utility Locates

Implementation of standard utility locate procedures on the UPRR property was sufficient to support construction activities. No additional coordination or support for utility concerns were required on the UPRR property.

3.2.3.2 Rail Flagging

Construction activities within 25 feet of the railroad tracks required a UPRR flagger for safety protection of passing trains and onsite personnel. A UPRR flagger was used when excavation, backfilling, and fence installation activities were conducted at the UPRR dross stockpile and railroad ditch areas.

Soil samples at the northern end of the UP1 compliance unit (UP1-01 through UP1-08, Figure 10) were collected outside of the 25-foot railroad buffer, so a UPRR flagger was not required to be present for the collection of these samples.

4.0 COMPLIANCE MONITORING

Protection monitoring safeguards human health and the environment during cleanup activities. Protection monitoring in the form of dust monitoring was conducted during excavation and loading of dross and dross-impacted soils to protect Site workers and ensure that construction activities had not mobilized the primary COCs, further releasing them to the environment or off-Site.

Performance monitoring directs cleanup activities and confirms that the cleanup criteria have been met. Performance monitoring at the Site consisted of collecting soil samples for field screening and laboratory analysis. As identified in the CAP, dross-containing soil with COCs at concentrations that exceed CULs was excavated from WSDOT and Pentzer properties to achieve CULs. Dross and dross-containing soil with concentrations of COCs that exceed remediation levels were excavated from the UPRR property. Excavations were backfilled until laboratory analysis results confirmed that concentrations of the primary COCs were below CULs or remediation levels at the appropriate properties at the Site.

Confirmational monitoring checks the Site remedy effectiveness over time following the completion of the construction activities. Long-term maintenance and monitoring inspections of the ecological cap are described in the I&M Plan, which is included in Appendix F of the EDR.

4.1 Protection Monitoring

Protection monitoring is short-term compliance monitoring conducted to “confirm that human health and the environment are adequately protected during construction … of a cleanup action as described in the safety and health plan” [WAC 173-340-420(a)]. In turn, the Health and Safety Plan (HASP)—Appendix E of the EDR supported protection monitoring by specifying emergency procedures, site hazards, protective clothing, equipment, and dust monitoring required at the Site.

Protection monitoring in the form of dust monitoring was conducted during construction activities to protect Site workers and ensure that these activities did not mobilize the primary COCs releasing them to the environment or off-Site. The Dust Monitoring Plan (DMP), provided as Appendix E of the HASP of the EDR, includes details on the procedures and methods used at the Site to protect Site works and adjacent properties. Specifically, the DMP included the following components:

- Identification of the Site COCs,

- Identification of Site activities that present potential exposures to Site personnel and adjacent properties,
- Definition of action levels,
- Specifics for dust monitoring activities,
- Processes for assessing dust control measure effectiveness, and
- Processes for communicating monitoring data to Site personnel and project administrators.

An action level for dust monitoring for Site workers and adjacent properties (perimeter air) was determined and employed on Site during construction activities. The action level for Site workers was 8 milligrams per cubic meter (mg/m^3) on a 1-minute time weighted average (TWA) and was based on the approximate cumulative exposure limit of all Site COCs combined under applicable OSHA regulations. The action level for perimeter air was 1 mg/m^3 on a 5-minute TWA. Any dust monitoring results that exceeded their action levels would require temporary suspension of the monitored activity until controls were sufficient to bring the measured concentrations below the applicable action level(s).

Site worker and perimeter dust monitoring was conducted using a TSI DustTrak™ II Aerosol Monitor (dust meter) that collects real-time airborne particulate mass readings. The dust monitor was programmed to capture the minimum, maximum, and average concentrations over a 1-minute interval. The dust monitor was regularly maintained and calibrated in accordance with specifications in the owner's manual.

Dust monitoring was routinely performed during various soil-disturbing activities and performance sampling tasks. Site worker dust monitoring readings were collected as close to the soil disturbing activities as safely possible. Perimeter dust monitoring readings were collected from four locations around the Site's boundary called Perimeter Points, as presented in Figure 6. Table 1 provides the ranges of concentration observed at the Site during construction activities. Activities with the highest potential to subject Site personnel and adjacent properties to dust exposure were observed to be grading, excavation, loading, and truck traffic on Site.

No exceedances to the Site worker action level were observed during construction activities. The highest 1-minte TWA dust concentration was observed to be 1.39 mg/m^3 during dross stockpile remedial activities on December 12, 2022.

The perimeter action level was slightly exceeded at one of the four perimeter points on two separate instances towards the beginning of excavation activities. The 1-minute TWA airborne dust concentration was 1.06 mg/m^3 on October 14, 2022, and 1.01 mg/m^3 on October 20, 2022, at Perimeter Point 4, which is located at the northwest corner of the Site near the dross stockpile (Figure 6). When this occurred, dust suppression was requested in the form of a water truck spraying the stockpile and the heavy equipment operators excavating the stockpile were directed to slow operations. Perimeter air exceedances were not observed following these two minor exceedances early in the cleanup action activities.

The dust monitoring data were used to ensure airborne particulate levels remained below the designated action levels to protect Site workers and adjacent properties. Air monitoring was generally not conducted while it was raining, or the Site soils were visually wet or covered in snow. To illustrate this point, dust monitoring continued through the first two active rain events on Site. The 22 observed 1-minute average dust concentrations on October 21 and 24, 2022 were less than 0.19 mg/m^3, indicating active precipitation provided sufficient dust control on Site. The dust meter had trouble working properly when exposed to moisture. A minimal number of tests were collected on extremely cold days due to the instrument LED screen not functioning.

As the dust monitoring data was compiled, it illustrated that the risk of action level exceedances was negligible. The dust monitor was removed from the Site and dust monitoring ceased once the impacted material management was substantially complete.

4.2 Performance Monitoring

Performance monitoring for remedial actions to address dross and dross-impacted soil consisted of field screening, confirmatory soil sampling, and chemical analysis by the analytical laboratory. Performance monitoring was conducted in general accordance with the Compliance Monitoring Plan Union Pacific Railroad, Aluminum Recycling Trentwood Site (Golder 2022b) and summarized in Attachment C to evaluate remedial actions with respect to two general excavation scenarios:

1) Deeper (>2-feet bgs) target excavations (1 through 9) on the WSDOT and Pentzer properties (Figure 2) were subject to XRF screening and discrete confirmation soil sampling to evaluate remedial actions with respect to CULs. The number and location of soil samples collected from excavations were in general accordance with Site Assessment Guidance for Underground Storage Tank Systems (Ecology 2021c).

2) The Site was divided into four compliance units as presented in Figure 7. Broad shallow (<=2-feet bgs) excavation areas on the WSDOT and Pentzer properties compliance units P1 and W1 (respectively) were subject to XRF screening and discrete soil sampling to evaluate remedial actions with respect to CULs. Following large-scale dross stockpile remedial actions on the UPRR property, underlying soils (compliance unit UP1) were subject to XRF screening and discrete confirmation soil sampling to evaluate remedial actions with respect to remediation levels as was the side slope area on the UPRR property (compliance unit UP2). Compliance units were evaluated to determine if the remedial actions were successful in attaining the applicable cleanup criteria throughout the Site.

All performance monitoring sampling results, i.e., both XRF and laboratory are presented by compliance unit in Sections 4.3 and 4.4.

The individual sample locations were located in the field using an Eos Arrow 100 GNSS Receiver. Compliance evaluation of the remedial actions is based on analytical results of confirmation samples in representative soils remaining in place (Section 5.0).

4.2.1 XRF Screening

The CMP described using a portable handheld XRF analyzer to evaluate concentrations of indicator parameters (a subset of the Site's metal COCs) associated with soils remaining in place after remedial action had been conducted in prescribed excavations. Performance soil samples were screened in the field using an XRF analyzer for aluminum, arsenic, total chromium, copper, and mercury. The XRF instrument does not analyze for barium. XRF results did not correlate as well during the cleanup action field work as they did during the 2021 Pre-Design Investigation (Golder 2021c). However, the XRF results correlated sufficiently well with the laboratory copper results (correlation R2 equaled 0.928) to indicate the presence of copper around 100 milligrams per kilogram (mg/kg). The copper XRF results and analytical copper data are provided in Attachment D on the associated correlation graph. Where XRF copper concentrations were significantly greater (>100 mg/kg) than the Site copper CUL (50 mg/kg), additional soil was excavated, and the area was re-sampled. The XRF was not relied on for confirmation (i.e., compliance evaluations were used as a screening tool, which resulted in a higher frequency of confirmational sampling and reliance on analytical laboratory results).

Copper XRF results proved to be generally accurate in the 50 to 100 mg/kg range, therefore, where XRF copper concentrations were significantly greater (>100 mg/kg) than the Site copper CUL (50 mg/kg), additional soil was excavated, and the area was re-sampled.

4.2.2 Confirmational Sampling

When the XRF results indicated that copper concentrations were proximal to its CUL, discrete confirmational soil samples were collected, processed, and submitted for laboratory analysis in accordance with Section 4.4 of the CMP. The analytical data packages for confirmational samples and data validation reports are provided in Attachment E.

In general, excavations were not backfilled until the laboratory results confirmed the COC concentrations were statistically below their respective CULs for the property. However, some excavations adjacent to power utility infrastructure were backfilled immediately following sampling to prevent damage to the infrastructure and for the safety of onsite personnel. In these circumstances, excavations were generally over-excavated to decrease the chance for further excavation to be required.

4.2.3 XRF Screening and Confirmation Sampling for Target Excavations

Target Excavations 1 through 9 as presented in EDR Appendix A Sheets 200, 201, and 202 were designed to remove soil impacted with COC concentrations that exceeded Site CULs. Target excavations were initially excavated to meet the dimensions and depths presented on Sheets 200, 201, and 202, however, excavation continued if dross or dross-impacted soils were visually present. Due to the presence of dross or dross-impacted soil in subsurface soils, the size of most of the target excavations increased substantially beyond the anticipated dimensions and the depth often extended to the ecological receptor point of compliance (6 feet bgs). Excavation did not generally exceed the ecological point of compliance (6 feet bgs).

Upon reaching the designed lateral and vertical extents of a target excavation with removal of dross and visibly dross-impacted soil (e.g., grey, fine-grained material) discrete performance monitoring samples were collected. The discrete performance soil samples are representative of the soil remaining in place on the sidewalls and bottom of the excavation were collected, placed in plastic bags, and processed for XRF screening in accordance with Section 5.2 of the CMP.

If the XRF screening indicated the remedial actions had potentially achieved CULs, excess soil processed for XRF screening was transferred into glass jars as confirmatory soil samples and submitted to the analytical laboratory for chemical analysis in accordance with Section 6.5 of the CMP. There were a few sample locations where confirmational samples were submitted to the analytical laboratory without using the XRF to screen the samples to expedite CUL compliance evaluations and support field efficiency and resource utilization. Excavations generally remained open and secured until sampling results confirmed that the selected cleanup criteria had been achieved.

Based on proximity to power utility infrastructure and coordination with power entities, some excavations were extended to 6 feet bgs (ecological point of compliance) and backfilled following collection of confirmatory sampling. Concentrations of COCs did not exceed human health criteria below 6 feet bgs in any target excavations and were not encountered in any Site confirmational samples.

4.2.4 XRF Screening and Confirmation Sampling for Broad Excavation Areas

Broad excavation compliance units on the WSDOT, Pentzer, and UPRR properties were subdivided into grids. Compliance unit grids consisted of between 29 and 47 cells, each measuring approximately 50- by 50-foot as

presented in Figure 7. The cells in the respective sample grids superimposed over the designated compliance unit areas were numbered consecutively within the individual compliance units. Confirmatory soil sampling for compliance units was conducted under a simple random sampling approach per United States Environmental Protection Agency (USEPA) SW-846 Test Method for Evaluating Solid Waste - Chapter 9 Sampling Plan (SW-846 Chapter 9). USEPA's Visual Sample Plan (VSP) Tool version 7.0 was used to evaluate the number of samples required per compliance unit to determine statistically with at least 95% confidence that the true mean of each COC was less than the applicable CUL or remediation level.

XRF screening was conducted for individual grid cells. A minimum of at least 10 confirmation samples were submitted for chemical analysis from each compliance unit to support the statistical compliance evaluations. A random number generator was used to identify specific cells within each comparison unit subject to chemical analysis in accordance with Section 5.4 of the CMP. Selected cells that were covered in large part by a sampled target excavation were sampled at the edge of and in the bottom of an excavation.

Broad excavation areas on Pentzer and WSDOT were subject to similar conditions as the target excavations where large amounts of dross and visibly dross-impacted soils were encountered and subsequently required additional excavation. Once a broad area excavation or portion thereof was deemed to have been adequately excavated and likely to meet the compliance unit's respective cleanup criteria (CUL or remediation level), the centroid of the individual cells was located using an Eos Arrow 100 GNSS Receiver. Performance monitoring samples were collected for XRF screening. Confirmation samples were collected from within 10 feet of the random cell's centroids for chemical analysis.

Following removal of dross and dross-impacted soils on the UPRR property, discrete confirmational samples were collected to determine if the remaining soil COC concentrations exceeded Site remediation levels. Soil samples were collected, field screened for XRF analysis, and/or submitted for laboratory analysis of Site COCs in a manner consistent with those outlined above for target excavations.

4.3 Unrestricted Land Use Property Performance Monitoring

The unrestricted properties are comprised of the Pentzer, WA Parks, and WSDOT properties. These properties were subject to both target excavation and broad area removals. As unrestricted land use properties, the cleanup is required to meet the Site CULs.

4.3.1 Pentzer-WA Parks Property

Soil samples submitted for laboratory analysis were collected from 62 locations throughout the Pentzer and WA Parks properties (Figure 8). Five field duplicate samples and four rinsate blank samples associated with Pentzer property soil samples were also submitted for laboratory analysis. Six of the 62 samples were collected on the WA Parks property. The Pentzer property soil sample XRF and analytical laboratory results are presented in Tables 2 and 3, respectively. The WA Parks property analytical laboratory results are included in Table 3. In general, where sample results indicated the remaining soil had COC concentrations above Site CULs, additional soil was excavated, and the area was re-sampled. Excavation was completed when the sample results indicated that the COC concentrations in the remaining soil were below Site CULs and occasionally slightly above. Table 3 and Figure 8 include soil sample locations and show the performance monitoring sample results and location, respectively including sample locations that were removed.

The Pentzer (plus WA Parks) property is comprised of one compliance unit: Pentzer Unrestricted 1 (P1), which is divided into 46 grid cells (Figure 7). Within the P1 compliance unit, shallow excavation performance soil samples

were collected near the centroid of 28 of the 46 grid cells between January 24 and April 10, 2023. The 28 P1 grid cell soil samples were dried and sieved for XRF analysis, and 10 of these samples were also submitted for laboratory analysis. The samples submitted to the laboratory were assigned based on the output of a random number generator. Three of the random cell locations (P1-15, P1-30, and P1-44) were in cells that had deeper target excavations covering large portions of those cells; thus, three alternative random cells (P1-01, P1-38, and P1-45) were identified for sampling. The P1 soil sample locations selected for laboratory analysis are identified in Table 2.

The laboratory results of the P1 compliance unit soil samples are presented in Table 3. Two P1 samples (P1-34 and P1-45 at 2 feet bgs) were observed to have COC concentrations exceeding Site CULs; thus, the soil around these locations was excavated further and resampled until the cleanup criteria were met. Ultimately, the soil around P1-34 and P1-45 was excavated to 6 feet bgs and sampled to confirm concentrations of COCs were below human health criteria. The remaining 18 P1 compliance unit grid cells were sampled in association with deeper target excavations.

As illustrated in Figure 8, samples were also collected on the WA Parks property to determine the excavation extent necessary to satisfy the Site cleanup criteria. Analytical results are presented in Table 3.

The P1 soil samples are statistically less than the Site CULs on Pentzer and Parks property soil and achieve the applicable cleanup criteria established in the CAP.

4.3.2 WSDOT Property

Soil samples submitted for laboratory analysis were collected from 144 locations throughout the WSDOT property (Figure 9A and Figure 9B). Seven field duplicate samples and four rinsate blank samples associated with WSDOT property soil samples were also submitted for laboratory analysis. The WSDOT property soil sample XRF and analytical laboratory results are presented in Tables 4 and 5, respectively. Where sample results indicated the remaining soil had COC concentrations above Site CULs, additional soil was excavated, and the area was re-sampled. Table 5 includes sample locations that were subsequently removed if appropriate after evaluating analytical results. Excavation was completed when the sample results statistically indicated that the COC concentrations in the remaining soil were below Site CULs. Figure 9A and Figure 9B present the performance monitoring sample locations.

The WSDOT property is comprised of one compliance unit: WSDOT Unrestricted 1 (W1), which is divided into 47 grid cells (Figure 7). Within the W1 compliance unit, confirmational performance soil samples from shallow excavations were collected near the centroid of 33 of the 47 grid cells between January 24 and March 15, 2023. The W1 grid cell soil samples were prepared for XRF analysis, and 12 of these samples were submitted for laboratory analysis. Ten samples submitted to the laboratory were assigned based on the output of a random number generator and two of the samples (W1-06 and W1-31) were submitted to the laboratory due to elevated XRF readings.

The 12 soil W1 sample locations identified for laboratory analysis are included in Table 5 and shown in Figure 9A and Figure 9B. Six W1 samples (W1-05, W1-06, W1-11, W1-14, W1-23, and W1-33 at 2 feet bgs) were observed to have COC concentrations exceeding Site CULs; thus, the soil in and around these locations was excavated further and resampled until the cleanup criteria were met. The remaining 14 W1 compliance unit grid cells were not specifically sampled as centroid grid cells because they were covered in large part by completed deeper target excavations that were already sampled.

The W1 soil samples were less than the Site CULs, confirming the remedial actions of dross and dross-impacted soils throughout the WSDOT property were successful in attaining the applicable cleanup criteria (Section 5.0).

Four soil samples were collected to verify the removal of visible dross between EX-6 and EX-8 achieved the CULs at depths from 2 to 4 feet bgs. Figure 9B shows the additional excavations completed and these confirmatory soil sample locations around W1-09, W1-22, and W1-36. The results of these confirmatory soil samples are presented in Table 5.

4.4 Industrial Land Use Property Performance Monitoring

The industrial land use property consists of the UPRR property inclusive of a portion of the Kemira facility adjacent to the south UPRR side slope. This property was subject to large-scale broad area removal. As an industrial land use property, the CAP (Ecology 2021b) set remediation levels as the cleanup criteria to be used on the UPRR property.

4.4.1 UPRR Property

The UPRR property was divided into two compliance units—UPRR Industrial 1 (UP1) which is in the northwestern portion of the UPRR property where the dross stockpile resided and UPRR Industrial 2 (UP2) which comprises the southern side slope of the UPRR property (Figure 7). The two UPRR compliance units were developed based on the relative size of the subject areas and to differentiate between the dross stockpile area and the south side slope on the UPRR property.

Performance monitoring was conducted on the UPRR property following the removal of the dross stockpile in compliance unit UP1 to confirm remaining soil COC concentrations did not exceed Site remediation levels. Soil samples were collected, field screened for XRF analysis, and a subset were submitted for laboratory analysis of Site COCs.

Within the UP1 compliance unit, soil samples were collected near the centroid of all 41 grid cells between January 19 and February 2, 2023 (Figure 10). All 41 UP1 soil samples were prepared for XRF analysis in accordance with Section 5.2 of the CMP, and 11 of those samples were submitted for laboratory analysis. One field duplicate sample associated with the UP1 soil samples was also submitted for laboratory analysis. XRF soil sampling testing results for UP1 are provided in Table 6. The samples submitted to the laboratory were assigned based on the output of a random number generator for 10 numbers. The 11th sample was assigned to be collected from grid cell UP1-30 to fill a visual void in the areal distribution of the randomly assigned cell grids, as illustrated in Figure 10. Analytical sample results for UP1 are provided in Table 7.

Compliance unit UP2 (UPRR Property side slope) was subject to an independent remedial action in 2020. To establish a baseline prior to any further removal, “confirmation” soil samples were collected near the centroid of all 29 grid cells between October 13 and 25, 2022 (Figure 10). All 29 UP2 soil samples were prepared for XRF analysis in accordance with the CMP Section 5.2, and 10 of these samples were submitted for laboratory analysis. One field duplicate sample associated with the UP2 soil samples was submitted for laboratory analysis. XRF soil sampling testing results for UP2 are provided in Table 6 with the UP1 results. The samples submitted to the laboratory were assigned based on the output of a random number generator. The selected locations for laboratory UP2 soil samples are shown in Figure 10. Analytical sample results for UP2 are provided in Table 8.

Concentrations reported for Site COCs for all UP1 and UP2 soil samples were less than the Site remediation levels, confirming the remedial actions on the UPRR property were successful in attaining the applicable remediation levels (Section 5.0).

4.4.2 Kemira Facility

A quarry spalls splash pad was constructed at the east end of the ecology block surface water feature to protect the ecological cap located on the UPRR slope area on the south side of the Kemira facility. Stormwater could potentially collect along the surface water feature and discharge to the splash pad constructed at the east end of the surface water feature. If discharge reached the splash pad, the stormwater would infiltrate into this area and to the area to the south as shown in Figure 12.

Soil sampling and chemical analysis was conducted in this area prior to construction of the armored rock apron in grid cell 28 of compliance unit UP2. Final confirmation samples collected confirmed that CULs had been achieved in this area (Section 5.5).

Two soil samples were collected adjacent to the Kemira facility pavement (Figure 11) for laboratory analysis to confirm the soil did not exceed remediation levels. This area was then immediately backfilled with excavated soil from the WSDOT property and regraded to the adjacent pavement surface to not interrupt Kemira's operations. The analytical results for these two samples are provided in Table 7 with the UP1 analytical sample results.

5.0 COMPLIANCE EVALUATION

Once field screening results including XRF test results (and/or partial analytical results) indicated that cleanup criteria had potentially been achieved within a compliance unit (or portion thereof), confirmation soil sample collection occurred. Soil samples were analyzed from a minimum of 10 cells within each of the compliance unit grid systems. Soil sampling was conducted under a simple random sampling approach per USEPA SW-846 Test Method for Evaluating Solid Waste - Chapter 9 Sampling Plan (SW-846 Chapter 9). Analytical results for each compliance unit were reviewed in accordance with WAC 173-340-740(7) and statistically evaluated (if appropriate) in accordance with Ecology's Statistical Guidance for Ecology Site Managers (Ecology Statistical Guidance, Ecology 1992) to determine if the individual compliance units have achieved cleanup criteria.

WAC 173-340-740(7)(e)(i) and (ii) state that "No single sample concentration shall be greater than two times the soil cleanup level" and "less than 10 percent of the sample concentrations shall exceed the soil cleanup level, respectively."

The Ecology Statistical Guidance (Ecology 1992) states that when evaluating compliance of soil cleanup actions an appropriate statistical method is "*a procedure in which a confidence interval for each hazardous substance is established from site sampling data and the soil cleanup level is compared to the upper confidence level [WAC173-340-740(7)(d)(i)] and the statistical tests should be performed at a Type I error level of 0.05 [WAC 173-340-740(7)(e)(i)]. Thus, for soils, compliance monitoring requires estimating the 95-percent confidence interval about the mean, and comparing this value to the Cleanup Level*."

Ecology was consulted during field operations regarding the trend in analytical arsenic results detected in concentrations exceeding the CUL in areas that appeared to be native material. Ecology established the CUL (10 mg/kg) for arsenic based on WAC 173-340, Table 749-3 (Ecology 2021b). Ecology stated "When using the values included in Table 749-3, the 95% UCL on the true mean is the only requirement when setting screening/cleanup levels for the specific contaminants included. This is because the values in Table 749-3 are considered very conservative and Ecology will accept them [using the 95 UCL] as safe without further evaluation of terrestrial risks" (Ecology 2023). Ecology reviewed the Site analytical dataset for in-place soils available at that point in time. Ecology calculated the 95% UCL on the mean using the ProCUL tool and reported a UCL for arsenic

of 9.44 mg/kg. CULs for arsenic, barium, chromium (total), copper, and mercury were based on Table 749-3. Communications with Ecology regarding arsenic and use of statistical analyses are provided in Attachment F.

Ecology asserted that the “three-part statistics rule (95% UCL, 10% exceedance, and no 2x CUL) doesn’t apply to contaminants with CULs set using Table 749-3, which Ecology did for arsenic.” This assertion was used to demonstrate that compliance criteria were achieved with respect to other specific COCs in compliance evaluations for compliance units P1 and W1.

5.1 Compliance Evaluation for Compliance Units P1 and W1

Unanticipated subsurface dross and soils visibly impacted with dross were encountered in association with target excavation areas on large portions of the WSDOT property and the northeast portion of the Pentzer property. As noted above, the size of most of the target excavations increased substantially beyond the anticipated dimensions and the depth often extended to 6 feet bgs. Therefore, the Site Assessment Guidance for Underground Storage Tank Systems (Ecology 2021c) became less applicable for sampling the target excavations and evaluating compliance with Site CULs on an excavation-by-excavation basis. The excavation data was combined with the compliance grid sampling data and used to evaluate compliance for the Pentzer property (including the WA Parks property) and WSDOT properties on a compliance unit basis.

Figure 7 shows the numbered approximate 50 by 50-foot cells in the respective sample grids for the unrestricted land use properties superimposed over the designated compliance unit areas. Confirmatory sampling and analysis were conducted for a minimum of 10 cells within each compliance unit.

Compliance units W1 and P1 were evaluated for select COCs using ProUCL version 5.1 (ProUCL) a statistical tool that uses methods consistent with Ecology’s Statistical Guidance (Ecology 1992) to determine that the remedial actions had been successful in achieving Site CULs and upon completion of restoration activities would meet the Remedial Action Objectives (RAOs) for these compliance units.

As stated in Section 4.2.4, the USEPA’s VSP Tool version 7.0 was used to evaluate the number of samples required per compliance unit to determine with at least 95% confidence that the true mean of each COC was less than the applicable CUL. The grid cell samples for each compliance unit were selected using a random generator number.

5.2 Pentzer-WA Parks P1 Compliance Unit

Table 3 presents the data for all confirmation soil samples analyzed in association with compliance unit P1. Table 9 presents the data for samples representative of soil remaining in-place following completion of excavation activities and used to perform the compliance evaluation for the P1 compliance unit, which incorporates the WA Parks property. Figure 8 presents the sample locations, sample ID, and representative depth of confirmation samples collected in association with compliance unit P1 and general limits of the excavations.

The compliance monitoring dataset evaluated for compliance with CULs for compliance unit P1 consisted of the analytical results for 39 discrete confirmation soil samples, including duplicate samples (the results of which were averaged with the primary samples) for compliance evaluations. Three of the samples represented soil samples collected on the WA Parks property as part of compliance unit P1. The following provides a compliance evaluation of each Site COC for compliance unit P1 representing the respective areas of the Pentzer and WA Park properties.

Aluminum

Aluminum was detected in the 39 confirmation soil samples evaluated. Concentrations ranged between 2,320 and 25,050 mg/kg. Aluminum concentrations slightly exceeded the aluminum CUL (21,400 mg/kg) in one sample and its associated duplicate, the average concentration of the primary and duplicate samples was 25,050 mg/kg. Aluminum was not detected in more than 10% of the samples and was not detected at a concentration greater than two times the CUL.

Cleanup compliance criteria were achieved for aluminum in compliance unit P1 based on less than 10% of the sample aluminum concentrations exceeding the CUL and no exceedance was greater than two times the CUL.

Arsenic

Arsenic was detected in all 39 confirmation soil samples evaluated. Concentrations ranged between 2.98 and 13.7 mg/kg. Arsenic was detected in five samples including duplicates at concentrations exceeding its CUL (10.0 mg/kg). Based on the averages of primary samples and their respective duplicates, arsenic was detected in four samples exceeding its CUL. Arsenic was not detected in more than 10% of the samples and was not detected at a concentration greater than two times the CUL. The ProUCL tool was used to confirm that the 95% UCL on the mean (7.60 mg/kg) did not exceed the arsenic CUL. The calculated arsenic UCL was reported at 7.60 mg/kg. The ProUCL output file is provided in Attachment G1.

Cleanup compliance criteria were achieved for arsenic in compliance unit P1, based on less than 10% of the sample aluminum concentrations exceeding the CUL, and no exceedance was greater than two times the CUL.

Barium

Barium was detected in all 39 confirmation soil samples evaluated. Concentrations ranged between 9.02 and 120 mg/kg. Barium concentrations slightly exceeded the barium CUL (102 mg/kg) in two samples. Barium was not detected in more than 10% of the samples and was not detected at a concentration greater than 2 times the CUL.

Cleanup compliance criteria were achieved for barium in compliance unit P1 based on less than 10% of the sample barium concentrations exceeding the CUL and no exceedance was greater than two times the CUL.

Chromium (Total)

Chromium was detected in all 39 confirmation soil samples evaluated. Concentrations ranged between 2.02 and 17.9 mg/kg. Chromium concentrations did not exceed the chromium (total) CUL (42 mg/kg) in any samples.

Cleanup compliance criteria were achieved for total chromium in compliance unit P1 based on all sample concentrations being less than the CUL.

Copper

Copper was detected in all 39 confirmation soil samples evaluated. Concentrations ranged between 8.51 and 140.0 mg/kg. Copper was detected in four samples including duplicates at concentrations exceeding its CUL (50.0 mg/kg). Based on the averages of primary samples and their respective duplicates, copper was detected in three samples exceeding its CUL. Copper was not detected in more than 10% of the samples but was detected at a concentration greater than two times the CUL in one sample. The one sample where copper was detected at a concentration greater than twice the CUL was collected from 6 feet bgs, the limit for the point of compliance for CULs respective of ecological receptors. None of the concentrations reported exceeded human health criteria

(Table 6 of the CAP). Since soil with COCs greater than the copper CUL was removed to the point of compliance, no further excavation was required. The ProUCL tool was used to confirm that the 95% UCL on the mean did not exceed the copper CUL. The calculated copper UCL on the true mean was reported at 36.47 mg/kg. The ProUCL output file is provided in Attachment G2.

Cleanup compliance criteria were achieved for copper in compliance unit P1 based on 95% UCL being less than the CUL.

Mercury

Mercury was detected in 7 of the 39 confirmation soil samples evaluated. Concentrations ranged between <0.0118 (non-detect) and 0.107 mg/kg. Mercury concentrations slightly exceeded the mercury CUL (0.1 mg/kg) in one sample, mercury was not detected in more than 10% of the samples and was not detected at a concentration greater than two times the CUL.

Cleanup compliance criteria were achieved for mercury in compliance unit P1, based on less than 10% of the sample mercury concentrations exceeding the CUL and no exceedance was greater than two times the CUL.

5.3 WSDOT W1 Compliance Unit

Table 5 presents the data for all confirmation soil samples analyzed in association with compliance unit W1. Table 10 presents the data for samples representative of soil remaining in-place following completion of excavation activities and used to perform the compliance evaluation for the W1 compliance unit. Figure 9A and Figure 9B present the sample locations, sample ID, and representative depth of confirmation samples collected in association with compliance unit W1 and general limits of the excavations.

The compliance monitoring dataset evaluated for compliance with CULs for compliance unit W1 consisted of the analytical results for 82 discrete confirmation soil samples, including duplicate samples (the results of which were averaged with the primary samples) for compliance evaluations. The following provides a compliance evaluation of each Site COC for compliance unit P1 representing the respective areas of the WSDOT property.

Aluminum

Aluminum was detected in all 82 confirmation soil samples evaluated for compliance unit W1. Concentrations ranged between 1,650 and 24,400 mg/kg. Aluminum concentrations slightly exceeded the aluminum CUL (21,400 mg/kg) in one sample and its associated duplicate, the average concentration of the primary and duplicate sample was 24,440 mg/kg. Aluminum was not detected in more than 10% of the samples and was not detected at a concentration greater than two times the CUL.

Cleanup compliance criteria were achieved for aluminum in compliance unit W1, based on less than 10% of the sample aluminum concentrations exceeding the CUL, and no exceedance was greater than two times the CUL.

Arsenic

Arsenic was detected in all 82 confirmation soil samples evaluated for compliance unit W1. Concentrations ranged between 0.83 and 15.0 mg/kg. Arsenic was detected in 35 samples including duplicates at concentrations exceeding its CUL (10.0 mg/kg). No one sample exceeded twice the arsenic CUL of 10 mg/kg.

Ecology was consulted during field operations regarding the trend in analytical arsenic results being detected in concentrations commonly exceeding the CUL. Ecology established the CUL (10 mg/kg) for arsenic based on

WAC 173-340, Table 749-3 (Ecology 2021b). Ecology reviewed the Site analytical dataset for in-place soils available at that point in time. Ecology calculated the 95% UCL on the mean using the ProUCL tool and reported a UCL for arsenic of 9.44 mg/kg in their email dated January 18, 2023.

Ecology set the CUL for arsenic using Table 749-3. Therefore, ProUCL tool was used to confirm that the 95% UCL on the true mean did not exceed the arsenic CUL for compliance unit W1 discrete confirmation soil sample dataset representing in-place soils following completion of excavation activities for the WSDOT property. The calculated arsenic UCL on the true mean for compliance unit W1 was reported at 9.97 mg/kg. The ProUCL output file is provided in Attachment G2.

Cleanup compliance criteria were achieved for arsenic in compliance unit W1 based on 95% UCL being less than the CUL.

Barium

Barium was detected in all 82 confirmation soil samples evaluated. Concentrations ranged between 24.9 and 176 mg/kg. Barium concentrations exceeded the barium CUL (102 mg/kg) in 12 samples, including duplicate samples (the results of which were averaged with the primary samples) for compliance evaluations. Based on the averages of primary samples and their respective duplicates, barium was detected in 11 samples (13.4%) exceeding its CUL. Barium was not detected at concentrations greater than two times the CUL.

Ecology set the CUL for barium using Table 749-3. Therefore, the ProUCL tool was used to confirm that the 95% UCL on the true mean did not exceed the barium CUL for compliance unit W1 discrete confirmation soil sample dataset representing in-place soils following completion of excavation activities for the WSDOT property. The calculated barium UCL on the true mean for compliance unit W1 was reported at 78.29 mg/kg. The ProUCL output file is provided in Attachment G2.

Cleanup compliance criteria were achieved for barium in compliance unit W1 based on 95% UCL being less than the CUL.

Chromium (Total)

Chromium was detected in all 82 confirmation soil samples evaluated. Concentrations ranged between 1.63 and 20.2 mg/kg. Chromium concentrations did not exceed the chromium (total) CUL (42 mg/kg) in any samples.

Cleanup compliance criteria were achieved for total chromium in compliance unit W1 based on all sample concentrations being less than the CUL.

Copper

Copper was detected in all 82 confirmation soil samples evaluated. Concentrations ranged between 9.58 and 136.0 mg/kg. Copper concentrations exceeded the copper CUL (50 mg/kg) in 16 samples. Copper was detected at concentrations greater than two times the CUL in three samples. All three samples where copper was detected greater than twice the CUL were collected from 6 feet bgs, the limit for the point of compliance for CULs respective of ecological receptors. None of the concentrations reported exceeded human health criteria of 140,000 mg/kg (CAP Table 6 [Ecology 2021b]). Since soil with COCs greater than the copper CUL was removed to the point of compliance, no further excavation was required. The ProUCL tool was used to confirm that the 95% UCL on the mean did not exceed the copper CUL. The calculated copper Student's-t UCL on the true mean was reported at 41.99 mg/kg. The ProUCL tool recommended using the 95% Chebyshev (Mean, Sd) UCL

(49.57 mg/kg) in place of the 95% Students-t UCL, which is also less than the copper CUL. The ProUCL output file is provided in Attachment G2.

Cleanup compliance criteria were achieved for copper in compliance unit W1 based on the 95% UCL.

Mercury

Mercury was detected in 35 of the 82 confirmation soil samples evaluated. Concentrations ranged between <0.0180 (non-detect) and 0.302 mg/kg. Mercury concentrations exceeded the mercury CUL (0.1 mg/kg) in five samples. Based on the averages of primary samples and their respective duplicates, mercury was detected in four samples exceeding its CUL.

Mercury was detected at concentrations greater than two times the CUL in two samples. The two samples where mercury was detected greater than twice the CUL were collected from 6 feet bgs, the limit for the point of compliance for CULs respective of ecological receptors. None of the concentrations reported exceeded the remediation level for mercury (5.5 mg/kg). There is no human health criteria for mercury (CAP Table 6 [Ecology 2021b]). Since soil with COCs greater than twice the mercury CUL was removed to the point of compliance, no further excavation was required.

Cleanup compliance criteria were achieved for mercury in compliance unit W1 based on the 95% UCL.

5.4 Compliance Evaluation for Compliance Units UP1 and UP2

Consistent with WAC Chapter 173-340-740(7)(e)(i), statistical analysis was not required for the compliance evaluations for compliance units UP1 and UP2. A direct comparison of the confirmation sample concentration data to remediation levels for Site COCs (Tables 7 and 8) demonstrates that neither UP1 nor UP2 had concentrations of COCs that exceeded remediation levels and the RAOs for the UPRR property would be achieved with installation of the ecological cap. The UP1 evaluation included two additional samples collected on the south side of the facility to ensure that concentrations of COCs remaining in place underneath the ecological cap and ecology block surface water feature (Section 4.4.2) did not exceed remediation levels. The compliance unit cells screened by XRF and those randomly selected for confirmation sampling and chemical analysis are identified in Figure 10.

The following provides a compliance evaluation of each compliance unit UP1 and UP2 representing the respective areas of the UPRR property.

UPRR Flat Area - UP1 Compliance Unit

All Site COCs were detected in each of the 14 discrete confirmation soil samples. To demonstrate UP1's compliance criteria, the following provides the list of individual COCs, the range of concentrations reported for the 14 samples evaluated (including 1 duplicate), and the respective remediation levels.

- Aluminum, concentration range 21,400 to 173,000 mg/kg, remediation level 3,500,000 mg/kg,
- Arsenic, concentration range 2.7 to 11.7 mg/kg, remediation level 42 mg/kg,
- Barium, concentration range 42.6 to 264 mg/kg, remediation level 700,000 mg/kg,
- Chromium (total), concentration range 21.0 to 213 mg/kg, remediation level 5,300,000 mg/kg,
- Copper, concentration range 258.0 to 1,580 mg/kg, remediation level 140,000 mg/kg, and

- Mercury, concentration range 0.0385 to 2.31 mg/kg, remediation level 5.5 mg/kg.

Cleanup compliance criteria were achieved for Site COCs in compliance unit UP1 based on less than 10% (zero) of the sample concentrations exceeding their respective remediation level and no exceedance was greater than two times the remediation level.

UPRR South Slope Area – UP2 Compliance Unit

All Site COCs were detected in each of the 11 discrete confirmation soil samples. To demonstrate UP2's compliance criteria the following provides the list of individual COCs, the range of concentrations reported for the 11 samples evaluated (including 1 duplicate), and the respective remediation levels.

- Aluminum, concentration range 22,100 to 214,000 mg/kg, remediation level 3,500,000 mg/kg,
- Arsenic, concentration range 1.19 to 10.0 mg/kg, remediation level 42 mg/kg,
- Barium, concentration range 52.8 to 234 mg/kg, remediation level 700,000 mg/kg,
- Chromium (total), concentration range 16.3 to 118 mg/kg, remediation level 5,300,000 mg/kg,
- Copper, concentration range 96.2 to 1,830 mg/kg, remediation level 140,000 mg/kg, and
- Mercury, concentration range 0.0456 to 1.66 mg/kg, remediation level 5.5 mg/kg.

Cleanup compliance criteria were achieved for Site COCs in compliance unit UP2 based on less than 10% (zero) of the sample concentrations exceeding their respective remediation level and no exceedance was greater than two times the remediation level.

5.5 Compliance Evaluation for Stormwater Infiltration Area

A small area focused on compliance unit UP2 Cell 28 (Figure 12) was cleaned up to achieve CULs. The area was cleaned to CULs to allow stormwater from Kemira to infiltrate if water discharged from the east end of the ecology block surface water feature. The stormwater infiltration area extended south of the WSDOT property east of compliance Unit W1. Confirmation samples collected in support of the stormwater infiltration area evaluation are presented in Figure 12. Analytical data for this set of samples is provided in Table 11. Compliance evaluation data consist of eight samples identified as not removed represented in Table 11.

Aluminum

Aluminum was detected in all eight confirmation samples representing soil remaining in-place in the stormwater infiltration area. Aluminum concentrations ranged between 2,160 and 22,000 mg/kg (Table 11). Aluminum concentrations slightly exceeded the aluminum CUL (21,400 mg/kg) in one sample. Aluminum was not detected at concentrations greater than two times the CUL. Due to the limited sample size and exceedance of the CUL by one sample (>10% exceeding the CUL), the 95% UCL for aluminum was calculated. The ProUCL output file is provided in Attachment G3.

Cleanup compliance criteria were achieved for aluminum in the stormwater infiltration area based on the 95% UCL.

Arsenic

Arsenic was detected in all eight confirmation samples representing soil remaining in-place in the stormwater infiltration area. Arsenic concentrations ranged between 1.49 and 8.15 mg/kg. Arsenic concentrations did not exceed the arsenic CUL (10.0 mg/kg) in any compliance evaluation samples.

Consistent WAC Chapter 173-340-740(7)(e)(i) statistical analysis was not required for the arsenic compliance evaluations for the stormwater infiltration area. Cleanup compliance criteria were achieved for arsenic in the stormwater infiltration area based on a direct comparison of the confirmation sample concentration data to the CUL (Table 11). Cleanup compliance criteria were achieved for arsenic in the stormwater infiltration area based on all arsenic concentrations being less than the CUL.

Barium

Barium was detected in all eight confirmation samples representing soil remaining in-place in the stormwater infiltration area. Concentrations ranged between 41.1 and 81 mg/kg. Barium concentrations did not exceed the barium CUL (102 mg/kg) in any samples.

Cleanup compliance criteria were achieved for barium in the stormwater infiltration area based on all sample concentrations being less than the CUL.

Chromium (total)

Chromium (total) was detected in all eight confirmation samples representing soil remaining in-place in the stormwater infiltration area. Concentrations ranged between 2.5 and 12.6 mg/kg. Chromium concentrations did not exceed the chromium (total) CUL (42 mg/kg) in any samples.

Cleanup compliance criteria were achieved for chromium (total) in the stormwater infiltration area based on all sample concentrations being less than the CUL.

Copper

Copper was detected in all eight confirmation samples representing soil remaining in-place in the stormwater infiltration area. Copper concentrations ranged between 19.7 and 78.7 mg/kg (Table 11). Copper concentrations exceeded the copper CUL (50 mg/kg) in one sample. Copper was not detected at concentrations greater than two times the CUL. Due to the limited sample size and exceedance of the CUL by one sample (>10% exceeding the CUL), the 95% UCL for copper was calculated. The ProUCL output file is provided in Attachment G3.

Cleanup compliance criteria were achieved for copper in the stormwater infiltration area based on the 95% UCL.

Mercury

Mercury was detected in two of the eight confirmation samples representing soil remaining in-place in the stormwater infiltration area. Concentrations ranged between <0.018 and 0.0195 mg/kg. Mercury concentrations did not exceed the mercury CUL (0.1 mg/kg) in any samples.

Cleanup compliance criteria were achieved for mercury in the stormwater infiltration area based on all sample concentrations being less than the CUL.

6.0 RESTORATION ACTIVITIES

Restoration activities for the unrestricted land use properties (i.e., Pentzer, WSDOT, and WA Parks properties) consisted of backfilling the target and broad area excavations with soil imported from off-Site and reseeding disturbed areas. Restoration activities for the UPRR industrial property consisted of building the subgrade to a level grade and re-grading the south slope to achieve an approximate 3H:1V slope, constructing the ecological cap, constructing the Kemira ecological block surface water feature, and installing a security fence.

6.1 Off-Property Backfill and Ecological CAP Subgrade

Excavations on the Pentzer, WA Parks, and WSDOT unrestricted land use properties were backfilled with “clean” materials to restore the original grade as presented in the ERD design drawings 200 - 201. This was accomplished through the import of off-Site backfill and topsoil meeting the geotechnical specifications and analytical requirements outlined in Section 6.1.1. Topsoil and off-Site backfill sources are presented in Figure 13.

6.1.1 Imported Backfill and Topsoil Materials

After target excavations were completed on the Pentzer and WSDOT properties, the excavations were backfilled with clean, imported material to preexisting grade. Imported backfill material was placed up to 6 inches below the final grading surface. The last 6 inches was comprised of imported topsoil to bring the surface to grade. Imported materials were supplied by GrayMar and sourced from nearby commercial sources. All imported material was tested and sampled to confirm the material met the physical and engineering specifications outlined in the Drawings and Specifications (Golder 2022a), and the chemical screening levels for select total petroleum hydrocarbons, metals, and semi-volatile organic compounds provided in Appendix B (CQA) Attachment A Table 1 of the EDR prior to placement.

All proposed imported material sources were visited and sampled by WSP personnel in accordance with the Sampling and Analysis Plan (SAP) outlined in the EDR CMP (Golder 2022b). All backfill and topsoil chemical characterizations were approved by Ecology prior to use on-Site. One local backfill source (Backfill #1) was identified as having slightly elevated concentrations of barium. This material was from a virgin source and the elevated concentration was determined to be local background condition. Ecology approved the use of this material in their email dated November 16, 2022, provided in Attachment F. Two other local backfill sources (Backfill #3 and Backfill #5) were identified and approved by Ecology in their email dated March 6, 2023 (Attachment F).

Difficulties were encountered identifying a topsoil source in the Spokane Valley region that did not have background concentrations of barium below the Site CUL for barium (102 mg/kg). Based on concentrations of barium detected in Site topsoil and those encountered in off-Site topsoil sources, it is believed that naturally occurring concentrations of barium present in the Spokane Valley region topsoil exceed the Site barium CUL. There is not currently a natural background concentration established for barium like there is for other metals in Washington State (Ecology 1994).

UPRR consulted with Ecology regarding barium in topsoil. To understand background barium concentrations in eastern Washington, Ecology recommended UPRR calculate the Upper Tolerance Limit (UTL) for 90% coverage with a 90% confidence coefficient for barium based on a 20-point topsoil data they provided in an email dated March 20, 2023 (Attachment F). Ecology derived the topsoil dataset from a U.S. Geological Survey (USGS) reference “Geochemical and Mineralogical Data Soils of the Conterminous United States Data Series 801” (USGS 2013). A UTL of 810.3 mg/kg for 90% coverage with a 90% confidence coefficient was calculated using

the 20-point barium data set using ProUCL. The 95% Student's-t UCL of the mean was calculated for the five-point data set associated with the "Topsoil (2)" source. The UCL calculated for barium from five characterization samples collected from the "Topsoil (2)" source was reported at 150.7 mg/kg. The barium concentrations for the five characterization samples had barium concentrations that ranged between 103 and 168 mg/kg. The UCL for the Topsoil 2 was well below the 810.3 mg/kg background UTL. Further detail regarding Topsoil (2) is provided in Section 2.3 of the CAR. Ecology approved "Topsoil (2)" for use on Site in the Ecology email dated March 28, 2023 (Attachment F). Communications with Ecology regarding the barium in topsoil are provided in Attachment F and include the WSP letter addressing the barium background issue.

A summary of materials sampled and tested is provided in Table 1 of the CAR. Figure 13 presents the locations of the material sources relative to the Site. Attachment E presents the analytical laboratory results of the imported materials.

6.1.2 Ecological Cap Subgrade

Following removal of the dross stockpile, confirmation sampling confirmed the area achieved compliance with remediation levels. The excavated areas were backfilled to the extent necessary to bring the final surface to elevations requested by UPRR for the construction of the ecological cap.

Material was placed on the southern side slope of the UPRR property to regrade this area to an approximately 3H:1V slope and prepare for construction of the ecological cap. The backfill/regrade material used on the UPRR property was predominately excavated soil material from the WSDOT and/or Pentzer properties that had COC concentrations less than Site remediation levels.

Ecology approved the use of excavated soils with COC concentrations less than remediation levels from the WSDOT and Pentzer properties to build the subgrade for the ecological cap. The soil was used to bring the subgrade of a flat area with a uniform grade towards the west to elevations requested by UPRR.

An ecological cap was constructed and consists of a geotextile layer overlain by a minimum of 6 inches of gravel. The cap is designed to prevent direct contact of human or ecological receptors with COCs in soil and to minimize transport of impacted soil by wind or stormwater runoff. Placement of the ecological cap to cover soils that exceed CULs is accompanied by requirements for the implementation of institutional controls in the form of an environmental covenant. The Environmental Covenant (unsigned) for the ecological cap on the UPRR property provided in Attachment H will be signed by both UPRR and Ecology and then filed with the County within 30 days of Ecology's approval of the CAR.

Clean soil buffers (setbacks) were included along the Pentzer property boundary to the west and the WSDOT property to the south to alleviate any concerns about soil with COC concentrations above remediation levels migrating onto these adjacent properties. The clean soil buffers consist of 1-foot deep, 5-foot wide trenches filled with imported soil with COC concentrations less than Site CULs.

6.1.3 Kemira Stormwater

The Kemira facility's stormwater record indicates that the facility is not required to have an industrial stormwater discharge permit since stormwater infiltrates on Site and does not leave the property. As a precautionary measure, a surface water feature was constructed of ecology blocks to the south of the Kemira facility just off the pavement and an area on the eastern end of the UPRR slope (UP2) area (Figure 12) was removed for underlying soils to meet the Site CULs. These measures prevent any potential runoff from the southern side of the Kemira facility from discharging over the edge onto the south side slope area. In the unlikely event that water does not

infiltrate, the berm was graded to allow water to flow to the eastern end of the south slope and discharge to an area that meets Site CULs.

7.0 DROSS AND IMPACTED SOIL MANAGEMENT

The EDR estimated the amount of the dross stockpile to be 62,000 in-place cubic yards of material. The final amount of dross-impacted soil removed for cleanup and remedial actions equaled 88,500 tons (plus 355 tons of topsoil and vegetation).

The dross stockpile materials were transported by truck to the Graham Road Landfill for disposal. Dross-containing soil with COC concentrations above CULs on the Pentzer, WSDOT, and WA Parks properties (Figure *1*) and below remediation levels were used on the UPRR property for ecological cap subgrade.

8.0 DEVIATIONS FROM CMP WORK PLAN

The EDR provided the details of the remedial action, including excavation and off-Site disposal of soil, and presented specific requirements pertaining to construction activities. The CMP described the environmental monitoring necessary to fulfill the requirements of the CAP and to complete the remedial action. The CMP included a SAP defining the scope of work, specific tasks to be completed, and a Quality Assurance Project Plan (QAPP) describing field and laboratory quality control, decontamination, and chain of custody procedures. The following list identifies the deviations from methods and procedures outlined in those documents:

- Precipitation at the Site was observed to provide sufficient dust control on Site. An evaluation was conducted during the first two rain events on-Site that demonstrated dust suppression was sufficient during rain events, monitoring was not conducted during active rainfall or snowfall at the Site. As dust monitoring data was compiled and illustrated that the risk of action level exceedances was negligible, the monitoring was focused on drier weather periods.
- The XRF screening results did not meet expectations for correlation with analytical laboratory results based on PDI field activities. Comparison of metal concentrations of numerous soil samples obtained in the field via the XRF analyzer and laboratory analysis only showed a good correlation for copper. Therefore, the XRF results were not used to demonstrate compliance for Site COC concentration exceedances but were used as a screening tool if copper was present at XRF levels above Site CULs.
- Deviations from the work plan were associated with the P1 and W1 compliance unit evaluations. Compliance evaluations for several COCs were based on statistical analysis and comparison of the 95% UCL of the mean to the Site CULs when the direct comparison of individual sample results proved to be an inadequate representation of compliance. The use of statistical analysis was supported by Ecology as presented in Section 5.0.
- Large boulders were discovered buried on the WSDOT property during off-property area excavations on the WSDOT property and to a lesser extent on the Pentzer property. The boulders were used as backfill in the deeper target excavations.
- The original design included in Appendix A of the EDR (Golder 2022), a “Berm to be Constructed by Others” was shown southeast of the Kemira Facility. The intent of the berm was to address the potential for surface water drainage from the south side of the Kemira facility to impact the remedial action. For better integration of the surface water management for the Kemira facility into the remedial action, UPRR assumed design and construction responsibilities for the surface water feature during remedial action construction.

9.0 DATA VALIDATION AND USABILITY

Performance monitoring analytical results were validated by UPRR's data management sub-contractor GHD, based on the applicable elements of the USEPA National Functional Guidelines for Organic Superfund Methods Data Review (USEPA 2020a), USEPA National and Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA 2020b), applicable reference method requirements, and/or the CMP.

Data generated in the field or by the subcontractor laboratory were reviewed. Original data was copied and retained in the project file. Working copies were distributed to personnel for validating/verifying analytical data.

Validation and data management activities were organized by constituent group (i.e., organic, inorganic). All hard copy or electronic data deliverables were compared to chain-of-custody forms for verification of sample identification and analyses requested. Any incorrect data or discrepancies noted in the verification were resolved with project management and/or the data generator. Any corrections to the original data were noted on the batch log and corrected data sheets or electronic deliverables were issued if necessary. After the completion of data validation, any qualifiers or other comments noted in the validation process and assigned to the data were entered into the qualifier or comment section of the data tables as appropriate. The final data summary report was reviewed by appropriate personnel before inclusion in this report.

The analytical data collected in support of the Aluminum Recycling Trentwood Site cleanup action were validated and deemed acceptable for their intended use. The analytical laboratory reports data including validation packages are included in Attachment E.

10.0 SUMMARY AND CONCLUSION

This CMR in conjunction with the overarching CAR, documents the cleanup action conducted at the Aluminum Recycling Trentwood Site in response to the Ecology EO issued to UPRR on September 17, 2021. The cleanup action was conducted in accordance with the EO, CAP, EDR, and CMP.

The CAP identified risks to human health and the environment, consisting of potential exposure of human and ecological receptors to impacted surface and subsurface soil. The EDR presented the construction plans and specifications for the cleanup action. The CMP described the environmental monitoring required to ensure that the selected remedy met the cleanup criteria at the points of compliance.

This CMR describes the protection and performance (short term) monitoring that was conducted during construction. The CMP details the confirmational monitoring (annual [long term] compliance monitoring) that will follow completion of the remedial actions and site restoration.

The overarching CAR was prepared following completion of the cleanup action field activities as partial fulfillment of the requirements outlined in the EO and WAC 173-340-400(4)(b). This CMR is included as Attachment F of the CAR and provides the details that supported the cleanup action field activities at the Site and documents the adherence to or variance from the CAP, EDR, and CMP.

Implementation of the remedial actions performed on the Aluminum Recycling Trentwood Site, Spokane Valley WA were consistent with cleanup actions presented in the EDR and met the CAP RAOs. This CMR provides data of sufficient quantity and quality to demonstrate the Site meets the performance criteria (CULs and remediation levels where applicable) to prevent or minimize the direct contact, ingestion, inhalation, or uptake of dross or dross-containing soil with concentrations of COCs above Site CULs by humans or ecological receptors. UPRR has met the requirement of the EO to implement the on-Site remedial actions addressed in the CAP.

WSP USA Inc.

James Roman
Associate Consultant, Hydrogeologist

Ted Norton
Vice President, Environmental Scientist

Matthew K. Wickham
Vice President, Hydrogeologist

JR/TN/MW/ks

https://golderassociates.sharepoint.com/sites/116727/project files/5 technical work/2023 cleanup action report/final car/appendix f - compliance monitoring report/31406585.050-r-rev0-compliance monitoring report (app f)-050324.docx

11.0 REFERENCES

Davey Resource Group. 2022. *Arborist Report – Trentwood (Spokane Valley)*. October.

Golder Associates Inc. (Golder). 2021a. *Union Pacific Railroad Co. – Feasibility Study (Revised), Aluminum Recycling Trentwood Site*. April 20.

Golder. 2021b. *Completion Report Dross Removal Project – WSDOT Property Union Pacific Railroad, Aluminum Recycling Trentwood Site*.

Golder. 2021c. *Completion Report Pre-Design Investigation Union Pacific Railroad, Aluminum Recycling Trentwood Site*. February 5.

Golder. 2022a. *Engineering Design Report, Union Pacific Railroad, Aluminum Recycling Trentwood Site*. May 17.

Golder. 2022b. *Compliance Monitoring Plan, Union Pacific Railroad, Aluminum Recycling Trentwood Site*. May 17.

Pastor, Behling & Wheeler, LLC (PBW). 2012. *Remedial Investigation/Feasibility Study Report Final. Aluminum Recycling Trentwood Site, Verndale, Washington*. September 6.

United States Environmental Protection Agency (USEPA). 2020a. *National Functional Guidelines for Organic Superfund Methods Data Review, USEPA 540-R-20-005*. November.

USEPA. 2020b. *National Functional Guidelines for Inorganic Superfund Methods Data Review, USEPA 542-R-20-006*. November.

United States Geological Survey (USGS). 2013. *Geochemical and Mineralogical Data Soils of the Conterminous United States Data Series 801*.

Washington State Department of Ecology (Ecology). 1992. *Washington State Department of Ecology Toxics Cleanup Program, Statistical Guidance for Ecology Site Managers, Publication 92-54*. August.

Ecology. 1994. *Natural Background Soil Metals Concentrations in Washington State.* Pu*blication 91-115*. October.

Ecology. 2020. *Chapter 173-303 Washington Administrative Code. Dangerous Waste Regulations*. September 20.

Ecology. 2021a. *Union Pacific Railroad Company. Enforcement Order. No. DE 20752. Aluminium Recycling Trentwood Site*. September.

Ecology. 2021b. *Cleanup Action Plan Aluminium Recycling Site Trentwood Facility Site ID 628 Cleanup Site ID 1081*. September.

Ecology. 2021c. *Site Assessment Guidance for Underground Storage Tank Systems Publication 21-09-050*. January.

Ecology. 2023. Email communication from Sandra Treccani, "*FW: Trentwood.*" Received by Ted Norton. January 18.

Tables

Table 1: Dust Monitoring 1-Minute TWA Recordings

Location/Activity	Minimum	Maximum	Average
Air Quality Index (AQI)			
Spokane, WA	6	132	29
Perimeter Monitoring (Action Level = 1 mg/m^3)			
Perimeter Point 1	0.00	0.57	0.07
Perimeter Point 2	0.00	0.89	0.09
Perimeter Point 3	0.01	0.53	0.07
Perimeter Point 4	0.00	1.06	0.09
Of All Locations	**0.00**	**1.06**	**0.08**
Site Worker Monitoring (Action Level = 8 mg/m^3)			
UPRR Dross Stockpile Removal	0.01	1.39	0.10
UPRR Material Spreading	0.00	0.19	0.05
WSDOT Excavations	0.01	1.08	0.15
WSDOT Backfilling	0.01	0.13	0.04
Pentzer Vegetation Removal	0.02	0.05	0.03
Pentzer Excavations	0.01	0.08	0.04
Pentzer Backfilling	0.01	0.13	0.05
WA Parks & Rec Excavations	0.02	0.05	0.04
General Site Activities	0.01	0.14	0.04
Of All Activities	**0.00**	**1.39**	**0.08**

Notes:
WSDOT = Washington State Department of Transportation
UPRR = Union Pacific Railroad Company
Parks & Rec = Washington State Department of Parks and Recreation
General Site Activities = including, but not limited to, wood chipping, material transfer from one area of the Site to another, and pressure washing equipment
Spokane, WA AQI readings were recorded daily from the AccuWeather website *https://www.accuweather.com/en/us/spokane/99201/air-quality-index/33142* 2
See Figure 6 for locations of Perimeter Points
Aerosol mass readings collected using a TSI DustTrakTM II Aerosol Monitor
Aerosol mass readings in units of mg/m^3
Statistics are those of the average aersol mass concentraion collected over a 1-minute interval
Grey highlighted cell = Exceedance to an action level, defined in the Dust Monitoring Plan in "Appendix D Health and Safety Plan" of the Engineering Design Report (Golder 2022)

Table 2: Pentzer Property XRF Results

Sample ID	Sample Date	Sample Depth (ft)	Submitted to Lab (Y/N)	Latitude (°)	Longitude (°)	Aluminium (mg/kg)	Arsenic (mg/kg)	Chromium, Total (mg/kg)	Cooper (mg/kg)	Mercury (mg/kg)
Pentzer Unrestricted 1 (P1) Compliance Unit Grid Cell Samples										
P1-01	1/24/2023	1.0	Y	47.677320	-117.203696					
	3/02/2023	2.0	N	47.677319	-117.203699	35,530	8	25	80	5
	3/20/2023	2.0	N	47.677303	-117.203666	28,880	9	23	90	7
P1-02	-	-	-	-	-	-	-	-	-	-
P1-03	-	-	-	-	-	-	-	-	-	-
P1-04[1]	2/22/2023	2.0	Y	47.677463	-117.203154	25,350	7	29	56	5
P1-05	-	-	-	-	-	-	-	-	-	-
P1-06	4/10/2023	1.0	N	47.677520	-117.202757					
P1-07	4/10/2023	1.0	N	47.677557	-117.202562					
P1-08	4/10/2023	1.0	Y	47.677588	-117.202363	33,670	10	23	77	6
P1-09	4/10/2023	1.0	N	47.677625	-117.202169					
P1-10	-	-	-	-	-	-	-	-	-	-
P1-11	-	-	-	-	-	-	-	-	-	-
P1-12[2]	2/24/2023	2.0	Y	47.677278	-117.203050	39,900	9	32	69	4
P1-13	3/15/2023	2.0	Y	47.677349	-117.202900	37,410	9	32	64	ND
P1-14	-	-	-	-	-	-	-	-	-	-
P1-15	4/10/2023	1.0	N	47.677420	-117.202512	32,330	9	38	284	7
P1-16	4/10/2023	1.0	N	47.677457	-117.202308					
P1-17	4/10/2023	1.0	N	47.677486	-117.202155					
P1-18	3/15/2023	2.0	N	47.677144	-117.203473	36,680	10	24	76	5
P1-19	2/13/2023	2.0	N	47.677149	-117.203239	30,560	7	32	57	4
P1-20	3/13/2023	2.0	N	47.677184	-117.203045	27,020	9	33	57	ND
P1-21	3/15/2023	2.0	N	47.677220	-117.202840	39,470	9	18	64	6
P1-22	3/15/2023	2.0	N	47.677255	-117.202652	34,810	9	31	54	6
P1-23	-	-	-	-	-	-	-	-	-	-
P1-24	4/10/2023	1.5	N	47.677326	-117.202257					
P1-25	4/10/2023	1.0	N	47.677336	-117.202127					
P1-26	2/13/2023	2.0	Y	47.677030	-117.203166	33,180	7	28	63	ND

Table 2: Pentzer Property XRF Results

Sample ID	Sample Date	Sample Depth (ft)	Submitted to Lab (Y/N)	Latitude (°)	Longitude (°)	Aluminium (mg/kg)	Arsenic (mg/kg)	Chromium, Total (mg/kg)	Cooper (mg/kg)	Mercury (mg/kg)
P1-27	1/24/2023	1.0	Y	47.677057	-117.202987					
	3/15/2023	2.0	N	47.677055	-117.202980	41,520	8	27	59	ND
P1-28	3/20/2023	2.0	N	47.677087	-117.202784	44,610	9	41	52	4
P1-29	3/15/2023	2.0	N	47.677124	-117.202595	3,541	9	29	72	ND
P1-30	-	-	-	-	-	-	-	-	-	-
P1-31	4/10/2023	1.0	Y	47.677192	-117.202198	33,870	7	35	243	6
P1-32	2/13/2023	2.0	Y	47.676918	-117.202937	29,310	8	20	65	ND
P1-33	2/13/2023	2.0	N	47.676954	-117.202742	42,370	7	30	89	ND
P1-34	2/17/2023	2.0	Y	47.676990	-117.202546	32,460	8	17	53	ND
	3/27/2023	6.0	Y	47.676990	-117.202541					
P1-35	-	-	-	-	-	-	-	-	-	-
P1-36	-	-	-	-	-	-	-	-	-	-
P1-37	2/13/2023	2.0	N	47.676812	-117.202740	29,980	8	30	65	6
P1-38	2/16/2023	2.0	Y	47.676860	-117.202483	31,280	6	22	67	ND
P1-39	-	-	-	-	-	-	-	-	-	-
P1-40	-	-	-	-	-	-	-	-	-	-
P1-41	3/13/2023	2.0	N	47.676706	-117.202642	30,490	7	23	44	ND
P1-42[3]	2/13/2023	2.0	N	47.676723	-117.202438	38,850	9	31	74	5
	2/21/2023	2.0	Y	47.676723	-117.202438	36,780	10	36	65	5
P1-43	-	-	-	-	-	-	-	-	-	-
P1-44	-	-	-	-	-	-	-	-	-	-
P1-45	1/24/2023	1.0	Y	47.676636	-117.202244					
	2/13/2023	2.0	Y	47.676637	-117.202247	37,130	9	20	52	5
	3/14/2023	4.0	Y	47.676640	-117.202246	32,590	15	23	53	5
	3/22/2023	6.0	Y	47.676639	-117.202253					
P1-46	-	-	-	-	-	-	-		-	-

Table 2: Pentzer Property XRF Results

Sample ID	Sample Date	Sample Depth (ft)	Submitted to Lab (Y/N)	Latitude (°)	Longitude (°)	Aluminium (mg/kg)	Arsenic (mg/kg)	Chromium, Total (mg/kg)	Cooper (mg/kg)	Mercury (mg/kg)
Pentzer Unrestricted 1 (P1) Target Excavation Confirmatory Samples										
EX-1-01B	2/22/2023	6.0	Y	47.677259	-117.203319	27,180	6	31	49	ND
EX-1-02B	2/22/2023	4.0	Y	47.677460	-117.203152	29,930	11	23	61	5
EX-1-03W	2/22/2023	2.0	Y	47.677463	-117.203154	25,350	7	29	56	5
EX-1-04B	2/24/2023	4.0	Y	47.677399	-117.203024	35,060	8	27	84	5
EX-1-05B	2/24/2023	4.0	Y	47.677278	-117.203050	26,250	10	26	54	6
EX-1-06W	2/24/2023	2.0	Y	47.677278	-117.203050	39,900	9	32	69	4
EX-1-07B	2/24/2023	4.0	Y	47.677178	-117.203353	39,110	9	26	83	5
EX-1-08B	3/02/2023	4.0	Y	47.677314	-117.203525	30,770	8	38	65	5
EX-1-09W	3/02/2023	2.0	Y	47.677307	-117.203541	31,490	8	22	66	ND
EX-2-01B	2/21/2023	4.0	Y	47.676987	-117.202535	29,770	9	21	69	ND
EX-2-02B	2/21/2023	4.0	Y	47.676736	-117.202435	38,780	9	37	86	7
EX-2-03W	2/21/2023	2.0	Y	47.676725	-117.202436	36,780	10	36	65	5
EX-2-04B	2/22/2023	6.0	Y	47.676869	-117.202399	29,480	6	31	62	ND
EX-2-05B	3/09/2023	2.0	Y	47.677198	-117.202596					
EX-2-06B	3/09/2023	4.0	Y	47.677207	-117.202594					
EX-2-07B	3/09/2023	2.0	Y	47.677262	-117.202679					
EX-2-08B	3/09/2023	4.0	Y	47.677248	-117.202687					
EX-2-09B	3/09/2023	4.0	Y	47.677257	-117.202543					
EX-2-10B	3/09/2023	4.0	Y	47.677287	-117.202605					
EX-2-11S	3/24/2023	4.0	Y	47.677380	-117.202663					
EX-2-12B	3/24/2023	4.5	Y	47.676976	-117.202230					
EX-2-13S	3/24/2023	4.0	Y	47.677097	-117.202139					
EX-2-14S	3/24/2023	4.0	Y	47.677259	-117.202461					
EX-2-15B	3/24/2023	4.0	Y	47.676855	-117.202113					
EX-2-16B	3/31/2023	6.0	Y	47.677295	-117.202437					
EX-2-17S	3/31/2023	4.0	Y	47.677365	-117.202531	32,450	8	23	236	5
EX-2-18B	3/31/2023	6.0	Y	47.677380	-117.202609					
EX-2-19S	4/04/2023	4.0	Y	47.677381	-117.202504					
EX-2-20B	4/04/2023	6.0	Y	47.677365	-117.202508					

Table 2: Pentzer Property XRF Results

Sample ID	Sample Date	Sample Depth (ft)	Submitted to Lab (Y/N)	Latitude (°)	Longitude (°)	Aluminium (mg/kg)	Arsenic (mg/kg)	Chromium, Total (mg/kg)	Cooper (mg/kg)	Mercury (mg/kg)
Pentzer Unrestricted 1 (P1) Exploratory Samples										
P1-4.0-01B	4/10/2023	4.0	Y	47.677175	-117.202306	36,420	9	18	72	6
P1-6.0-02B	4/10/2023	6.0	Y	47.677175	-117.202306	26,820	8	16	54	6
P1-4.0-03B	4/10/2023	4.0	Y	47.677306	-117.202358	34,450	7	29	283	ND
P1-6.0-04B	4/10/2023	6.0	Y	47.677306	-117.202358	30,550	7	21	60	ND
P1-4.0-05B	4/10/2023	4.0	N	47.677440	-117.202411	35,000	8	30	341	5
P1-6.0-06B	4/10/2023	6.0	N	47.677440	-117.202411	32,730	9	25	235	ND
P1-4.0-07B	4/10/2023	4.0	Y	47.677468	-117.202632	31,320	11	25	234	ND
P1-6.0-08B	4/10/2023	6.0	Y	47.677468	-117.202632	28,260	10	37	156	5
P1-4.0-09B	4/11/2023	4.0	N	47.677282	-117.202186	30,300	7	54	600	5
P1-4.0-10B	4/11/2023	4.0	Y	47.677415	-117.202229	29,580	8	33	669	ND
P1-4.0-11B	4/11/2023	4.0	Y	47.677586	-117.202164	30,110	8	22	252	ND
P1-4.0-12B	4/11/2023	4.0	Y	47.677570	-117.202464	33,970	7	34	283	ND
P1-6.0-13B	4/11/2023	6.0	Y	47.677570	-117.202464	37,050	11	33	243	7
P1-6.0-14B	4/11/2023	6.0	Y	47.677586	-117.202164	33,130	9	30	129	ND
P1-6.0-15B	4/11/2023	6.0	Y	47.677415	-117.202229	36,380	9	40	232	ND
P1-6.0-16B	4/11/2023	6.0	N	47.677282	-117.202186	32,490	10	38	669	6

Notes:
NA = Not Analyzed
ND = Not Detected
UP = Union Pacific Railroad Company
The XRF analyzer does not test for barium
Sample IDs are prefixed with "SO-2494-" and are suffixed with the Sample Date in the format "-MMDDYY"
[1] = P1-04 grid cell sample laboratory sample identification is SO-2494-EX-1-03W-2.0-022223
[2] = P1-12 grid cell sample laboratory sample identification is SO-2494-EX-1-06W-2.0-022423
[3] = P1-42 grid cell sample collected on 5/21/2023 laboratory sample identification is SO-2494-EX-2-03W-2.0-022123

Table 3: Pentzer- WA Parks Confirmation Sampling Results

Excavation Confirmation Samples											
Sample Id	Sample Date	Al (mg/Kg)	As (mg/Kg)	Ba (mg/Kg)	Cr (total) (mg/Kg)	Cu (mg/Kg)	Hg (mg/Kg)	Lab Report Number	Removed* Y/N	Depth (ft bgs)	Comment
Site CUL		21400	10	102	42	50	0.1				
Human Health Criteria		80000	20	16000	2000	3200	2				
SO-2494-P1-01-012423	1-24-2023	11000	5.9	109	9.49	28	0.107	L1579818	N	1	P1 Grid sample
SO-2494-P1-27-012423	1-24-2023	13800	6.67	207	11.7	29.4	0.0299	L1579818	Y	1	P1 Grid sample
SO-2494-P1-45-012423	1-24-2023	15500	6.43	208	8.95	18.9	<0.02	L1579818	Y	1	P1 Grid sample
SO-2494-P1-45-021323	2-13-2023	16700	7.42	168	10.4	19.9	<0.0186	L1585200	Y	2	P1 Grid sample
SO-2494-P1-32-021323	2-13-2023	13100	6.25	174	13.7	33.7	0.026	L1585661	Y	2	P1 Grid sample
SO-2494-P1-26-021323	2-13-2023	12300	6.62	100	12.7	24.8	0.0214	L1585661	N	2	P1 Grid sample
SO-2494-P1-38-021623	2-16-2023	23300	7.89	192	17	33.5	0.161	L1587163	Y	2	P1 Grid sample
SO-2494-P1-34-021723	2-17-2023	23200	7.48	184	13.3	25.3	0.0777	L1587163	Y	2	P1 Grid sample
SO-2494-EX-2-01B-4.0-022123	2-21-2023	6480	6.98	35.4	8.09	22.8	<0.0182	L1589045	N	4	EX-2 Bottom sample
SO-2494-EX-2-02B-4.0-022123	2-21-2023	9670	5.88	40	10.6	30.5	<0.0182	L1589045	N	4	EX-2 Bottom sample
SO-2494-EX-2-03W-2.0-022123	2-21-2023	9830	6.22	67.4	11.5	22.9	0.0196	L1589045	N	2	EX-2 Bottom sample
SO-2494-EX-2-04B-6.0-022223	2-22-2023	10200	7.32	46.7	11.3	24	<0.0184	L1589045	N	6	EX-2 Bottom sample
SO-2494-EX-1-01B-6.0-022223	2-22-2023	5190	6.03	47.2	6.24	17	<0.0182	L1589045	N	6	EX-1 Bottom sample
SO-2494-EX-1-02B-4.0-022223	2-22-2023	8590	6.91	60	11	19.7	<0.0180	L1589045	N	4	EX-1 Bottom sample
SO-2494-EX-1-03W-2.0-022223	2-22-2023	5430	8.35	43.2	6.25	18.5	<0.0181	L1589045	N	2	EX-1 Bottom sample
SO-2494-Dup-8-022223	2-22-2023	7800	5.11	41.8	8.56	21.5	<0.0181	L1589045	N	2	Duplicate for SO-2494-EX-1-03W-2.0-022223
SO-2494-EX-1-04B-4.0-022423	2-24-2023	16900	7.01	69.3	9.83	35.3	<0.0184	L1589381	N	4	EX-1 Bottom sample
SO-2494-EX-1-05B-4.0-022423	2-24-2023	2320	3.33	25.3	2.37	12	<0.0180	L1589381	N	4	EX-1 Bottom sample
SO-2494-EX-1-06W-2.0-022423	2-24-2023	6960	2.98	61.4	8.86	17.8	<0.0186	L1589381	N	2	EX-1 Sidewall sample
SO-2494-EX-1-07B-4.0-022423	2-24-2023	7310	4.25	95.9	7.38	26.9	<0.0187	L1589381	N	4	EX-1 Bottom sample
SO-2494-EX-1-08B-4.0-030223	3-2-2023	8810	8.36	49	11.1	27.8	<0.0183	L1591638	N	4	EX-1 Bottom sample
SO-2494-EX-1-09W-2.0-030223	3-2-2023	14200	8.41	81.3	14.8	31.9	<0.0185	L1591638	N	2	EX-1 Sidewall sample
SO-2494-EX-2-05B-2.0-030923	3-9-2023	13700	7.22	78.2	14.6	27.3	<0.0188	L1594018	N	2	EX-2 Bottom sample
SO-2494-EX-2-06B-4.0-030923	3-9-2023	7910	6.78	31.3	8.41	23.7	<0.0182	L1594018	N	4	EX-2 Bottom sample
SO-2494-EX-2-07B-2.0-030923	3-9-2023	14000	8	86.8	15.8	22.3	<0.0183	L1594018	N	2	EX-2 Bottom sample
SO-2494-EX-2-08B-4.0-030923	3-9-2023	7940	4.36	47.6	11.2	22.3	<0.0118	L1594018	N	4	EX-2 Bottom sample
SO-2494-EX-2-09B-4.0-030923	3-9-2023	8310	6.63	61.6	7.99	22.7	<0.0181	L1594018	N	4	EX-2 Bottom sample
SO-2494-EX-2-10B-4.0-030923	3-9-2023	9760	13.3	101	12.2	26.1	<0.0183	L1594018	Y	4	EX-2 Bottom sample
SO-2494-P1-45-031423	3-14-2023	11600	17	53.4	12.7	24.3	<0.0183	L1596169	Y	4	P1 Grid sample
SO-2494-P1-13-031523	3-15-2023	16600	7.2	96.7	16	28.6	<0.0186	L1596169	N	2	P1 Grid sample
SO-2494-P1-27-031523	3-15-2023	13400	6.92	120	12.5	26.9	<0.0188	L1596169	N	2	P1 Grid sample
SO-2494-P1-45-032223	3-22-2023	5610	10.9	47.7	6.27	18.8	0.0289	L1597478	N	4	P1 Grid sample
SO-2494-EX-2-11S-4.0-032423	3-24-2023	30500	17.2	124	21.2	91.4	<0.0186	L1598332	Y	4	EX-2 Bottom sample
SO-2494-EX-2-12B-4.5-032423	3-24-2023	12400	10.7	50.8	14.6	17	<0.0181	L1598332	N	4.5	EX-2 Bottom sample
SO-2494-EX-2-13S-4.0-032423	3-24-2023	14800	11	67.3	14.6	24.3	<0.0181	L1598332	N	4	EX-2 Sidewall sample
SO-2494-EX-2-14S-4.0-032423	3-24-2023	15600	7.46	60.9	14	134	<0.0182	L1598332	Y	4	EX-2 Sidewall sample
SO-2494-EX-2-15B-4.0-032423	3-24-2023	16600	6.93	61.5	16.3	23.5	<0.0183	L1598332	N	4	EX-2 Bottom sample
SO-2494-FD-11-032423	3-24-2023	14400	9.69	54.9	14.1	21.3	<0.0183	L1598332	N	4	Duplicate for SO-2494-EX-2-13S-4.0-032423
SO-2494-P1-34-032723	3-27-2023	10800	7.71	54.7	11.7	20.2	<0.0181	L1598851	N	6	P1 Grid sample
SO-2494-EX-2-16B-6.0-033123	3-31-2023	11600	6.93	40.8	8.51	43.1	<0.0184	L1600677	N	6	EX-2 Bottom sample
SO-2494-EX-2-17S-4.0-033123	3-31-2023	14200	9.23	47.7	8	120	<0.0184	L1600677	Y	4	EX-2 Sidewall sample
SO-2494-EX-2-18B-6.0-033123	3-31-2023	15100	8.02	45.1	9.58	97.9	0.0406	L1600677	N	6	EX-2 Bottom sample
SO-2494-FD-13-033123	3-31-2023	11600	8.84	52	7.01	44.5	<0.0184	L1600677	N	6	Duplicate for SO-02494-2-EX-16B-6.0-033123

Table 3: Pentzer- WA Parks Confirmation Sampling Results

Excavation Confirmation Samples											
Sample Id	Sample Date	Al (mg/Kg)	As (mg/Kg)	Ba (mg/Kg)	Cr (total) (mg/Kg)	Cu (mg/Kg)	Hg (mg/Kg)	Lab Report Number	Removed* Y/N	Depth (ft bgs)	Comment
Site CUL		21400	10	102	42	50	0.1				
Human Health Criteria		80000	20	16000	2000	3200	2				
SO-2494-EX-2-19S-4.0-040423	4-4-2023	19800	13.5	77.3	14.6	137	<0.0212	L1602304	Y	4	EX-2 Sidewall sample
SO-2494-EX-2-20B-6.0-040423	4-4-2023	24700	16.2	62.3	15.4	135	<0.0184	L1602304	N	6	EX-2 Bottom sample
SO-2494-FD-14-040423	4-4-2023	25400	11.2	63	17.9	145	<0.0184	L1602304	N	6	Duplicate for SO-2494-EX-2-20B-6.0-040423
SO-2494-P1-08-041023	4-10-2023	12300	5.37	94.1	11.3	33.7	0.0236	L1604229	N	1	P1 Grid sample
SO-2494-P1-31-041023	4-10-2023	20800	9.15	149	20.9	145	0.213	L1604229	Y	2	P1 Grid sample
SO-2494-P1-4.0-01B-041023	4-10-2023	9030	6.57	45	7.57	24.9	<0.0182	L1604229	N	4	P1 Exploratory sample, NE corner Pentzer
SO-2494-P1-6.0-02B-041023	4-10-2023	11700	6.94	84.9	12.4	25	<0.0182	L1604229	N	6	P1 Exploratory sample, NE corner Pentzer
SO-2494-P1-4.0-03B-041023	4-10-2023	12300	6.35	48.2	7.19	97.4	<0.0182	L1604229	Y	4	P1 Exploratory sample, NE corner Pentzer
SO-2494-P1-6.0-04B-041023	4-10-2023	4400	7.58	29.9	4.55	20.6	<0.0181	L1604229	N	6	P1 Exploratory sample, NE corner Pentzer
SO-2494-P1-4.0-07B-041023	4-10-2023	10400	9.87	43.7	9.55	106	<0.0181	L1604229	Y	4	P1 Exploratory sample, NE corner Pentzer
SO-2494-P1-6.0-08B-041023	4-10-2023	2910	3.63	9.02	2.02	53.7	<0.0181	L1604229	N	6	P1 Exploratory sample, NE corner Pentzer
SO-2494-P1-4.0-10B-041123	4-11-2023	9630	5.06	36.2	11.8	352	0.0218	L1605229	Y	4	P1 Exploratory sample, NE corner Pentzer
SO-2494-P1-4.0-11B-041123	4-11-2023	16700	5.66	46.7	11.6	151	0.0202	L1605229	Y	4	P1 Exploratory sample, NE corner Pentzer
SO-2494-P1-4.0-12B-041123	4-11-2023	9180	6.74	29.1	5.36	158	<0.0181	L1605229	Y	4	P1 Exploratory sample, NE corner Pentzer
SO-2494-P1-6.0-13B-041123	4-11-2023	13700	10.4	59.4	11.9	148	0.0368	L1604229	N	6	P1 Exploratory sample, NE corner Pentzer
SO-2494-P1-6.0-14B-041123	4-11-2023	9260	5.91	36.2	6.6	44.7	<0.0181	L1605229	N	6	P1 Exploratory sample, NE corner Pentzer
SO-2494-P1-6.0-15B-041123	4-11-2023	14600	10.2	51.5	12.7	115	<0.0181	L1605229	N	6	P1 Exploratory sample, NE corner Pentzer
SO-2494-FD-15-041123	4-11-2023	10700	9.58	33.5	7.45	163	<0.0181	L1605229	N	6	Duplicate of SO-2494-P1-6.0-15B-041023
SO-2494-P1-PRPL02-012723	1/27/2023	26300	8.31	137	17.5	30.3	<0.0186	L1580579	Y	1	P1 Grid sample
SO-2494-P1-PRPL03-012723	1/27/2023	30200	7.49	216	14.7	18.7	<0.0183	L1580579	Y	1	P1 Grid sample
SO-2494-W1-PRPL02-012723	1/27/2023	25600	6.6	193	13.5	34.8	0.0234	L1580579	Y	1	W1 Grid (West), Included in Parks evaluation
SO-2494-PRSL-1-031623	3/16/2023	7960	7	73.1	8.62	8.51	<0.0186	L1596169	N	2	P1 Grid sample
SO-2494-PRNL-1-031723	3/17/2023	11200	6.91	111	9.97	23.7	<0.0183	L1596169	N	2	P1 Grid sample
SO-2494-PRNL-2-031723	3/17/2023	9100	8.75	48.9	10.3	26.2	<0.0181	L1596169	N	2	P1 Grid sample
Rinsate Blank		**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**				
RB-2494-8-102022	2-22-2023	<0.0185	0.00018	<0.000381	<0.00124	<0.00151	<0.0001	L1549698	N/A	N/A	Rinsate Blank
RB-2494-9-032423	3-24-2023	<0.0470	0.00128	<0.000476	<0.00560	<0.000670	<0.0001	L1598332	N/A	N/A	Rinsate Blank
RB-2494-10-032723	3-27-2023	0.0809	<0.00018	0.0000528	0.0023	<0.00151	<0.0001	L1598851	N/A	N/A	Rinsate Blank
RB-2924-11-033123	3-31-2023	0.0206	<0.00018	<0.000381	<0.00124	<0.00151	<0.0001	L1600677	N/A	N/A	Rinsate Blank

Note:

CUL - Cleanup level

mg/kg - milligrams per kilogram

Removed* - Soil from which sample was collected was subsequently excavated and removed designated with "Y". Sample is not representative of soil left in place.

Shaded/red text indicates exceedance of respective CUL

N/A - Not applicable QC water sample.

Table 4: WSDOT Property XRF Results

Sample ID	Sample Date	Sample Depth (ft)	Submitted to Lab (Y/N)	Latitude (°)	Longitude (°)	Aluminium (mg/kg)	Arsenic (mg/kg)	Chromium, Total (mg/kg)	Cooper (mg/kg)	Mercury (mg/kg)
WSDOT Unrestricted 1 (W1) Target Excavation Confirmatory Samples										
EX-3-01B	3/07/2023	4.0	Y	47.676690	-117.201695	41,550	12	32	161	ND
EX-3-02W	3/07/2023	3.0	Y	47.676761	-117.201806	44,130	8	37	231	5
EX-3-03B	3/07/2023	4.0	Y	47.676751	-117.201805	38,500	10	24	210	ND
EX-3-04W	3/07/2023	3.0	Y	47.676613	-117.201731	37,190	12	32	145	ND
EX-3-05B	3/07/2023	4.0	Y	47.676624	-117.201732	39,320	9	26	166	5
EX-3-06B	3/08/2023	6.0	Y	47.676688	-117.201901	52,690	8	33	795	6
EX-3-07B	3/08/2023	4.0	Y	47.676593	-117.201902	38,230	9	32	359	ND
EX-3-08B	3/13/2023	6.0	N	47.676784	-117.201843	50,530	10	34	296	5
EX-3-09B	3/13/2023	6.0	N	47.676662	-117.201670	35,650	8	36	79	5
EX-4-01B	3/06/2023	6.0	Y	47.676691	-117.201434	39,720	12	31	147	7
EX-4-02W	3/06/2023	3.0	Y	47.676742	-117.201321	36,000	14	37	71	6
EX-4-03B	3/06/2023	4.0	Y	47.676739	-117.201326	42,460	14	32	66	ND
EX-4-04W	3/06/2023	4.0	Y	47.676798	-117.201428	35,850	13	36	74	ND
EX-4-05B	3/06/2023	6.0	Y	47.676794	-117.201426	37,050	14	36	387	ND
EX-4-06B	3/06/2023	4.0	Y	47.676756	-117.201617	41,000	11	21	202	5
EX-4-07W	3/06/2023	3.0	Y	47.676636	-117.201460	36,230	12	36	77	6
EX-4-08B	3/06/2023	4.0	Y	47.676638	-117.201461	34,040	11	41	131	5
EX-4-09B	3/06/2023	4.0	Y	47.676688	-117.201586	44,830	11	36	460	5
EX-4-10W	3/06/2023	4.0	Y	47.676658	-117.201298	35,160	14	28	153	6
EX-4-11B	3/06/2023	6.0	Y	47.676661	-117.201299	35,190	14	39	94	ND
EX-4-12B	3/13/2023	4.0	N	47.676756	-117.201619	45,280	9	31	234	4
EX-5-B	10/24/2023	4.0	Y	47.676536	-117.200915	26,410	14	10	59	ND
EX-5-NW	10/24/2023	2.0	Y	47.676555	-117.200926	30,070	15	38	66	ND
EX-5-EW	10/24/2023	2.0	Y	47.676534	-117.200897	30,600	14	40	71	ND
EX-5-SW	10/24/2023	2.0	Y	47.676517	-117.200916	34,130	12	10	63	ND
EX-5-WW	10/24/2023	2.0	Y	47.676525	-117.200952	32,740	12	10	62	ND
EX2-5-EW	11/04/2022	3.0	Y	47.676523	-117.200867	23,620	17	33	62	ND
EX2-5-NW	11/04/2022	3.0	Y	47.676574	-117.200941	24,070	19	41	61	ND
EX2-5-SW	11/04/2022	3.0	Y	47.676524	-117.200917	30,970	10	10	56	5
EX2-5-EW2	11/04/2022	3.0	Y	47.676574	-117.200886	24,080	43	37	53	ND
EX-5-WW-2	12/06/2022	4.0	Y	47.676513	-117.200948	33,580	8	18	37	5
EX-5-ESW	12/15/2022	3.0	Y	47.676494	-117.200843	34,870	8	24	61	ND
EX-5-NWW	12/15/2022	3.0	Y	47.676583	-117.200995	29,950	11	23	53	ND

Table 4: WSDOT Property XRF Results

Sample ID	Sample Date	Sample Depth (ft)	Submitted to Lab (Y/N)	Latitude (°)	Longitude (°)	Aluminium (mg/kg)	Arsenic (mg/kg)	Chromium, Total (mg/kg)	Cooper (mg/kg)	Mercury (mg/kg)
EX-6-WW	10/20/2022	2.0	Y	47.676845	-117.200732	29,050	20	69	124	6
EX-6-SW	10/20/2022	2.0	Y	47.676845	-117.200732	24,310	17	47	66	ND
EX-6-EW	10/20/2022	2.0	Y	47.676857	-117.200623	25,580	16	39	108	ND
EX-6-B	10/20/2022	6.0	Y	47.676850	-117.200679	25,260	18	31	119	ND
EX-6-NW	10/20/2022	2.0	Y	47.676886	-117.200685	28,400	20	42	107	ND
EX-6-2-WW	11/08/2022	4.0	Y	47.676870	-117.200570	25,010	18	51	153	ND
EX-6-2-SW	11/08/2022	4.0	Y	47.676777	-117.200658	21,710	17	44	54	ND
EX-6-2-EW	11/09/2022	4.0	Y	47.676804	-117.200831	20,290	13	10	86	ND
EX-6-2-NWE	11/09/2022	4.0	Y	47.676905	-117.200641	30,180	22	59	95	ND
EX-6-2-NWW	11/09/2022	4.0	Y	47.676894	-117.200727	38,100	22	64	132	6
EX-6-NW-3	11/29/2022	4.0	Y	47.676919	-117.200622	30,870	10	25	59	ND
EX-6-EW-3	11/30/2022	4.0	Y	47.676829	-117.200553	27,660	11	30	34	5
EX-6-SW-3	12/01/2022	4.0	Y	47.676761	-117.200682	30,300	13	30	39	5
EX-6-WSW	12/07/2022	4.0	Y	47.676746	-117.200745	30,650	13	21	66	ND
EX-6-WNW	12/07/2022	4.0	Y	47.676902	-117.200738	29,420	17	26	80	5
EX-6-SWW	12/07/2022	4.0	Y	47.676782	-117.200788	29,090	14	29	63	5
EX-6-B-2	12/07/2022	6.0	Y	47.676804	-117.200727	54,760	13	26	137	5
EX-6-NEW	12/07/2022	4.0	Y	47.676858	-117.200563	23,910	14	14	48	ND
	12/15/2022	4.0	Y	47.676918	-117.200543	39,660	12	35	65	5
EX-7-NW	10/24/2022	2.0	Y	47.676696	-117.200181	25,210	17	46	104	6
EX-7-B	10/24/2022	4.0	Y	47.676675	-117.200174	62,150	16	63	898	ND
EX-7-SW	10/24/2022	2.0	Y	47.676653	-117.200143	22,720	14	42	58	4
EX-7-EW	10/24/2022	2.0	Y	47.676680	-117.200141	27,360	16	48	352	ND
EX-7-WW	10/24/2022	2.0	Y	47.676670	-117.200195	30,780	12	38	510	ND
EX2-7-EW	11/04/2022	3.0	Y	47.676671	-117.200122	26,400	15	42	109	7
EX2-7-WW	11/04/2022	4.0	Y	47.676670	-117.200195	26,180	17	37	51	6
EX2-7-BE	11/04/2022	6.0	Y	47.676685	-117.200178	26,650	17	39	84	ND
EX2-7-BW	11/04/2022	6.0	Y	47.676670	-117.200145	29,810	15	35	116	6
EX-5-SW-3	11/29/2022	3.0	Y	47.676653	-117.200143	27,320	10	35	57	ND
EX-7-EW-3	12/06/2022	4.0	N	47.676680	-117.200141	34,400	12	25	41	ND
EX-7-SW-3	12/06/2022	4.0	N	47.676630	-117.200189	41,770	12	31	337	5
EX-8-B6	10/19/2022	6.0	Y	47.677007	-117.199872	48,850	17	70	565	ND
EX-8-B4	10/19/2022	4.0	Y	47.677026	-117.199754	46,220	16	63	576	ND
EX-8-S1	10/20/2022	2.0	Y	47.677066	-117.199769	58,980	16	68	632	5

Table 4: WSDOT Property XRF Results

Sample ID	Sample Date	Sample Depth (ft)	Submitted to Lab (Y/N)	Latitude (°)	Longitude (°)	Aluminium (mg/kg)	Arsenic (mg/kg)	Chromium, Total (mg/kg)	Cooper (mg/kg)	Mercury (mg/kg)
EX-8-S2	10/20/2022	2.0	Y	47.676990	-117.199768	56,090	16	71	589	ND
EX-8-S3	10/20/2022	2.0	Y	47.676985	-117.199909	44,650	20	43	528	6
EX-8-2-B	11/09/2022	6.0	N	47.677039	-117.199770	NA	NA	NA	NA	NA
EX-8-2-S1	11/15/2022	4.0	N	47.677054	-117.199878	39,330	17	52	406	ND
EX-8-3-S1	11/16/2022	4.0	Y	47.677089	-117.199921	23,820	19	53	60	5
EX-8-S4-2	11/29/2022	4.0	N	47.676937	-117.199781	33,910	15	32	129	ND
EX-8-S3-2	12/08/2022	4.0	Y	47.676858	-117.200156	28,510	13	25	62	ND
EX-8-S6	12/08/2022	4.0	Y	47.676943	-117.200177	26,800	15	20	50	ND
EX-8-SW	12/19/2022	4.0	Y	47.676683	-117.199968	122,020	12	ND	224	ND
EX-8-SEW	12/19/2022	4.0	Y	47.676697	-117.199842	28,470	12	24	59	5
EX-8-WW	12/20/2022	4.0	Y	47.676753	-117.200147	19,700	6	ND	62	ND
EX-9-B6	10/19/2022	6.0	Y	47.677047	-117.199477	30,490	17	46	102	ND
EX-9-B4	10/19/2022	4.0	Y	47.677028	-117.199583	58,230	19	74	526	5
EX-9-S1	10/20/2022	2.0	Y	47.677070	-117.199657	44,980	20	61	443	5
EX-9-S2	10/20/2022	2.0	Y	47.677096	-117.199540	60,670	18	70	575	5
EX-9-S3	10/20/2022	2.0	Y	47.677001	-117.199603	94,580	18	78	805	5
EX-9-S4	10/20/2022	2.0	Y	47.677017	-117.199511	50,430	22	70	356	7
EX-9-S5	10/21/2022	2.0	Y	47.677118	-117.199375	55,490	15	62	447	5
EX-9-2-B	11/09/2022	6.0	Y	47.677045	-117.199633	NA	NA	NA	NA	NA
EX-9-2-S2-01	11/14/2022	4.0	N	47.677098	-117.199706	26,810	21	61	53	ND
EX-9-2-S2-02	11/14/2022	4.0	Y	47.677100	-117.199737	26,160	16	40	ND	7
EX-9-3-S1	11/15/2022	4.0	Y	47.677116	-117.199793	28,920	17	37	65	ND
EX-9-S4-4	11/29/2022	4.0	Y	47.676956	-117.199599	28,470	13	27	46	ND
EX-9-S5-2	11/29/2022	4.0	Y	47.677054	-117.199367	31,550	10	30	59	8
EX-9-S3-2	11/29/2022	4.0	N	47.677006	-117.199462	47,290	13	31	170	6
EX-9-S3-3	12/02/2022	4.0	N	47.676939	-117.199607	34,820	17	26	77	5
EX-9-S3-4	12/02/2022	4.0	Y	47.676920	-117.199628	30,270	16	28	69	6

Table 4: WSDOT Property XRF Results

Sample ID	Sample Date	Sample Depth (ft)	Submitted to Lab (Y/N)	Latitude (°)	Longitude (°)	Aluminium (mg/kg)	Arsenic (mg/kg)	Chromium, Total (mg/kg)	Cooper (mg/kg)	Mercury (mg/kg)
WSDOT Unrestricted 1 (W1) Compliance Unit Grid Cell Samples										
W1-01	2/07/2023	2.0	N	47.676786	-117.201835	47,350	10	34	198	5
W1-02	3/07/2023	2.0	Y	47.676821	-117.201638	32,010	11	23	84	5
W1-03	3/07/2023	2.0	N	47.676856	-117.201441	39,310	12	35	121	6
W1-04	3/07/2023	2.0	N	47.676893	-117.201237	36,420	15	25	103	5
W1-05	2/14/2023	2.0	Y	47.676927	-117.201051	29,280	16	16	53	ND
	2/20/2023	3.0	Y	47.676936	-117.201024	29,020	14	18	64	4
	2/20/2023	4.0	Y	47.676936	-117.201024	33,340	15	25	59	5
	3/07/2023	6.0	Y	47.676938	-117.201021	27,540	15	21	75	5
W1-06	1/31/2023	2.0	N	47.676964	-117.200853	36,320	14	26	195	6
	2/10/2023	2.0	Y	47.676964	-117.200855	44,450	14	34	198	6
	2/20/2023	3.0	N	47.676961	-117.200857	33,450	12	27	126	6
	2/20/2023	4.0	Y	47.676961	-117.200857	35,440	15	38	110	6
	3/07/2023	6.0	Y	47.676967	-117.200857	34,380	12	27	113	ND
W1-07	1/27/2023	2.0	Y	47.677002	-117.200656	40,150	14	24	195	ND
W1-08	1/31/2023	2.0	N	47.677034	-117.200465	34,030	15	39	97	ND
W1-11	2/09/2023	2.0	N	47.677142	-117.199864	4,589	15	33	442	7
	3/09/2023	4.0	Y	47.677188	-117.199873	36,110	16	37	85	6
	3/14/2023	6.0	Y	47.677176	-117.199856	37,300	13	33	57	ND
W1-12	2/09/2023	2.0	N	47.677178	-117.199676	30,210	15	31	74	5
W1-13	3/15/2023	2.0	N	47.677213	-117.199481	42,740	14	32	157	6
W1-14	1/27/2023	2.0	Y	47.677246	-117.199287	33,680	17	28	81	ND
	2/14/2023	4.0	Y	47.677244	-117.199286	NA	NA	NA	NA	NA
W1-18	3/08/2023	2.0	Y	47.676758	-117.201199	35,650	14	29	70	5
W1-19	2/14/2023	2.0	Y	47.676794	-117.201004	34,530	17	26	63	ND
W1-22	2/03/2023	2.0	N	47.676899	-117.200415	45,360	11	30	231	5
	2/10/2023	4.0	N	47.676901	-117.200417	38,190	14	35	74	5
W1-23	1/24/2023	2.0	Y	47.676935	-117.200219	40,910	12	27	142	7
	2/01/2023	4.0	Y	47.676930	-117.200238	32,230	14	25	61	5
W1-28	2/10/2023	1.0	Y	47.677111	-117.199264	37,670	12	29	90	7
W1-29	2/13/2023	2.0	N	47.676551	-117.201769	31,360	8	28	50	ND
W1-30	1/31/2023	1.0	N	47.676558	-117.201524	31,680	10	31	111	4
	2/07/2023	2.0	N	47.676559	-117.201523	31,590	10	26	68	ND

Table 4: WSDOT Property XRF Results

Sample ID	Sample Date	Sample Depth (ft)	Submitted to Lab (Y/N)	Latitude (°)	Longitude (°)	Aluminium (mg/kg)	Arsenic (mg/kg)	Chromium, Total (mg/kg)	Cooper (mg/kg)	Mercury (mg/kg)
W1-31	1/31/2023	1.0	N	47.676592	-117.201338	32,800	10	23	138	4
	2/07/2023	2.0	Y	47.676592	-117.201337	34,320	12	31	104	ND
W1-32	3/08/2023	2.0	N	47.676680	-117.201171	33,750	15	38	65	ND
W1-33	2/14/2023	2.0	Y	47.676664	-117.200945	35,250	13	34	71	6
	2/20/2023	3.0	Y	47.676664	-117.200943	32,290	12	33	56	5
	2/20/2023	4.0	N	47.676664	-117.200943	39,370	15	36	48	5
W1-34	1/31/2023	2.0	N	47.676698	-117.200749	31,510	13	37	67	5
W1-35	1/31/2023	2.0	N	47.676737	-117.200543	31,740	12	38	88	6
W1-36	2/03/2023	2.0	N	47.676772	-117.200347	33,800	12	27	122	7
	2/10/2023	4.0	N	47.676773	-117.200346	32,660	13	23	66	ND
W1-37	2/03/2023	2.0	N	47.676808	-117.200173	3,750	12	31	105	ND
W1-40	2/10/2023	1.0	Y	47.677001	-117.199286	35,780	13	29	101	4
	2/17/2023	3.0	Y	47.676998	-117.199296	35,010	14	28	80	ND
W1-41	2/14/2023	2.0	Y	47.676468	-117.201341	34,960	11	33	48	6
W1-42	1/31/2023	1.0	N	47.676495	-117.201089	34,190	8	29	49	6
	2/07/2023	2.0	N	47.676495	-117.201089	36,200	14	28	61	5
W1-44	2/16/2023	2.0	N	47.676566	-117.200696	37,030	15	29	64	5
W1-45	2/16/2023	2.0	N	47.676601	-117.200502	38,380	12	26	60	4
W1-46	1/24/2023	2.0	Y	47.676652	-117.200305	34,220	12	23	57	ND
WSDOT Unrestricted 1 (W1) Verification Soil Samples Chasing Visible Dross Layers and Patches Between EX-6 and EX-8										
W1-4.0-01B	1/24/2023	4.0	Y	47.676807	117.200418	29,490	13	31	69	6
W1-4.0-02W	1/24/2023	4.0	Y	47.676785	117.200363	35,570	12	22	65	5
W1-4.0-03B	1/24/2023	4.0	Y	47.677046	117.200266	30,400	13	23	62	ND
W1-4.0-04W	1/24/2023	4.0	Y	47.677094	117.200248	30,990	15	38	76	7

Notes:
NA = Not Analyzed
ND = Not Detected
WSDOT = Washington State Department of Transportation
The XRF analyzer does not test for barium
Sample IDs are prefixed with "SO-2494-" and are suffixed with the Sample Date in the format "-MMDDYY"

Table 5: WSDOT Confirmation Sampling Results

Excavation Confirmation Samples											
Sample Id	Sample Date	Al (mg/Kg)	As (mg/Kg)	Ba (mg/Kg)	Cr (total) (mg/Kg)	Cu (mg/Kg)	Hg (mg/Kg)	Lab Report Number	Removed* Y/N	Depth (ft bgs)	Comment
Site CUL		21400	10	102	42	50	0.1				
Human Health Criteria		80000	20	16000	2000	3200	2				
SO-2494-EX-9-B6-101922	10-19-2022	18100	11.8	104	17.4	55.5	0.0212 J	L1549698	N	6	EX-9 Bottom sample
SO-2494-EX-9-B4-101922	10-19-2022	41100	11.6	111	30.7	293	0.199	L1549698	Y	4	EX-9 Bottom sample
SO-2494-EX-9-S1-102022	10-20-2022	43400	13.6	132	36.2	286	0.148	L1549698	Y	2	EX-9 Sidewall sample
SO-2494-EX-9-S2-102022	10-20-2022	48700	12.1	110	36.8	334	0.134	L1549698	Y	2	EX-9 Sidewall sample
SO-2494-EX-9-S3-102022	10-20-2022	70300	12.1	170	50.3	511	0.847	L1549698	Y	2	EX-9 Sidewall sample
SO-2494-EX-9-S4-102022	10-20-2022	32600	23.4	104	36.4	204	0.0951	L1549698	Y	2	EX-9 Sidewall sample
SO-2494-EX-9-S5-102122	10-21-2022	37900	12.9	115	27.1	270	0.168	L1549698	Y	2	EX-9 Sidewall sample
SO-2494-EX-8-B6-101922	10-19-2022	45900	10.6	114	37	315	0.0982	L1549698	Y	6	EX-8 Bottom sample
SO-2494-EX-8-B4-101922	10-19-2022	43400	9.35	119	36.6	303	0.126	L1549698	Y	4	EX-8 Bottom sample
SO-2494-EX-8-S1-102022	10-20-2022	49000	11.1	139	38.5	383	0.178	L1549698	Y	2	EX-8 Sidewall sample
SO-2494-EX-8-S2-102022	10-20-2022	56300	15.1	130	43.3	417	0.145	L1549698	Y	2	EX-8 Sidewall sample
SO-2494-EX-8-S3-102022	10-20-2022	44400	12.4	108	47	315	0.0643	L1549698	Y	2	EX-8 Sidewall sample
SO-2494-DUP2-102022	10-20-2022	40200	11.6	153	33.6	289	0.07	L1549698	Y		Primary sample SO-2494-EX-8-S3-102022.
SO-2494-EX-7-NW-102422	10-24-2022	8130	8.23	58.7	8	46.4	<0.0187	L1550711	N	2	EX-7 Sidewall sample
SO-2494-EX-7-B-102422	10-24-2022	54800	7.83	110	34.5	615	0.122	L1550711	Y	4	EX-7 Bottom sample
SO-2494-EX-7-SW-102422	10-24-2022	9310	5.23	74.5	10.3	33.7	<0.0195	L1550711	N	2	EX-7 Sidewall sample
SO-2494-EX-7-EW-102422	10-24-2022	17000	7.94	63.6	13.2	208	<0.0166	L1550711	Y	2	EX-7 Sidewall sample
SO-2494-EX-7-WW-102422	10-24-2022	41200	5.69	103	30.1	391	0.0862	L1550711	Y	2	EX-7 Sidewall sample
SO-2494-EX-6-WW-102022	10-20-2022	17600	13.3	90.3	18.2	72.1	<0.0186	L1549698	Y	2	EX-6 Sidewall sample
SO-2494-EX-6-SW-102022	10-20-2022	12400	14.6	81.8	14.6	28.2	<0.0187	L1549698	Y	2	EX-6 Sidewall sample
SO-2494-EX-6-EW-102022	10-20-2022	17100	15.6	106	19.1	68.9	<0.0186	L1549698	Y	2	EX-6 Sidewall sample
SO-2494-EX-6-B-102022	10-20-2022	17100	12.9	97	16	49.6	0.0297 J	L1549698	N	6	EX-6 Bottom sample
SO-2494-EX-6-NW-102022	10-20-2022	15200	14.2	92.2	16.4	64.4	0.0424	L1549698	Y	2	EX-6 Sidewall sample
SO-2494-EX-5-B-102422	10-24-2022	7950	5	96	7.33	20.7	<0.0187	L1550711	N	4	EX-5 Bottom sample
SO-2494-EX-5-NW-102422	10-24-2022	10500	5.07	138	9.86	24.6	<0.0208	L1550711	Y	2	EX-5 Sidewall sample
SO-2494-EX-5-EW-102422	10-24-2022	11500	2.24	153	9.43	24.8	<0.0210	L1550711	Y	2	EX-5 Sidewall sample
SO-2494-EX-5-SW-102422	10-24-2022	12700	1.8	164	9.59	19.7	<0.0192	L1550711	Y	2	EX-5 Sidewall sample
SO-2494-EX-5-WW-102422	10-24-2022	5880	5.44	88.7	5.55	21.4	0.0505	L1550711	N	2	EX-5 Sidewall sample
SO-2494-EX2-7-EW-110422 (SO-2494-EX7-2-EW-110422)	11-04-2022	2070	6.47	45.3	2.77	23.2	<0.018	L1554509	N	3	EX-7 Sidewall sample
SO-2494-EX2-7-WW-110422 (SO-2494-EX7-2-WW-110422)	11-04-2022	2760	2.75	50.9	2.82	18	<0.0185	L1554509	N	4	EX-7 Sidewall sample
SO-2494-EX2-7-BE-110422 (SO-2494-EX7-2-BE-110422)	11-04-2022	3130	7.66	52.2	2.98	47.3	<0.0189	L1554509	N	6	EX-7 Bottom sample
SO-2494-EX2-7-BW-110422 (SO-2494-EX7-2-BW-110422)	11-04-2022	3110	3.64	42.6	4.19	38.5	0.0256	L1554509	N	6	EX-7 Bottom sample
SO-2494-EX2-5-EW-110422 (SO-2494-EX5-2-EW-110422)	11-04-2022	1650	6.87	53.8	1.63	21	<0.0186	L1554509	N	3	EX-5 Sidewall sample
SO-2494-EX2-5-NW-110422 (SO-2494-EX5-2-NW-110422)	11-04-2022	1670	6.37	43.8	1.66	19.6	<0.0187	L1554509	N	3	EX-5 Sidewall sample
SO-2494-EX2-5-SW-110422 (SO-2494-EX5-2-SW-110422)	11-04-2022	3030	0.825	126	2.03	13.2	<0.0182	L1554509	N	3	EX-5 Sidewall sample
SO-2494-EX2-5-EW2-110422 (SO-2494-EX5-2-EW2-110422)	11-04-2022	1540	26.5	39.7	1.49	15.7	<0.0193	L1554509	Y	3	EX-5 Sidewall sample
SO-2494-EX-6-2-WW-110922	11-08-2022	9040	8.96	89.3	20.2	27.1	0.0403	L1556071	N	4	EX-6 Sidewall sample
SO-2494-EX-6-2-SW-110822	11-08-2022	5880	12.3	63.8	7.59	24.8	0.0432	L1556071	Y	4	EX-6 Sidewall sample

Table 5: WSDOT Confirmation Sampling Results

Excavation Confirmation Samples											
Sample Id	Sample Date	Al (mg/Kg)	As (mg/Kg)	Ba (mg/Kg)	Cr (total) (mg/Kg)	Cu (mg/Kg)	Hg (mg/Kg)	Lab Report Number	Removed* Y/N	Depth (ft bgs)	Comment
Site CUL		21400	10	102	42	50	0.1				
Human Health Criteria		80000	20	16000	2000	3200	2				
SO-2494-EX-6-2-EW-110922	11-09-2022	11200	11.6	74.9	12.3	75.6	0.15	L1556071	Y	4	EX-6 Sidewall sample
SO-2494-EX-6-2-NWE-110922	11-09-2022	6650	11.9	60.3	8.41	38	0.0395	L1556071	Y	4	EX-6 Sidewall sample
SO-2494-EX-6-2-NWW-110922	11-09-2022	6540	11.4	51.7	8.49	53.6	0.0489	L1556071	Y	4	EX-6 Sidewall sample
SO-2494-EX-9-2-B-110922	11-09-2022	8900	8.18	51.1	7.34	38.4	0.0452	L1556071	N	6	EX-9 Bottom sample
SO-2494-DUP4-110922	11-09-2022	7090	8.19	52.7	7.19	44	0.0712	L1556071	N	6	Primary sample SO-2494-EX-9-2-B-110922
SO-2494-W1-48-110222	11-02-2022	2260	2.82	44.7	3.62	19.7	0.0261	L1554509	N	0.5	UPRR2 Cell 48 East slope
SO-2494-W1-BF-110922	11-09-2022	33500	11.4	97.2	27.8	291	0.21	L1556071	NA		WSDOT stockpiled excavation soils
SO-2494-EX-6-2-BW-110922	11-09-2022	4180	8.96	46.1	5.13	17.7	0.037	L1556071	N	6	EX-6 Bottom sample
SO-2494-EX-6-2-BE-110922	11-09-2022	5310	6.2	37.4	5.87	28.7	0.0512	L1556071	N	6	EX-6 Bottom sample
SO-2494-EX-8-2-B-110922	11-09-2022	2500	4.14	24.9	2.61	9.58	0.0386	L1556071	N	6	EX-8 Bottom sample
SO-2494-EX-9-2-S2-02-111422	11-14-2022	10600	14.4	73.6	11.6	26.9	<0.0181	L1559016	N	4	EX-9 Sidewall sample
SO-2494-EX-9-3-S1-111522	11-15-2022	17500	11.5	74.8	15.1	30.0	<0.0181	L1559016	N	4	EX-9 Sidewall sample
SO-2494-EX-8-3-S1-111622	11-16-2022	11300	11.9	78.1	12.5	21.9	<0.0181	L1559016	Y	4	EX-8 Sidewall sample
SO-2494-W1-02-111622	11-16-2022	38200	15.4	118	34.1	230	0.138	L1559016	NA		WSDOT stockpiled excavation soils
SO-2494-EX-9-S4-4-112922	11-29-2022	7180	10.1	57.1	7.67	24.2	<0.0183	L1562957	N	4	EX-9 Sidewall sample
SO-2494-EX-9-S5-2-112922	11-29-2022	8460	8.03	64.5	8.49	25.1	<0.0184	L1562957	N	4	EX-9 Sidewall sample
SO-2494-EX-5-SW-3-112922 (SO-2494-EX-7-SW-3-112922)	11-29-2022	15400	6	159	9.85	14.9	<0.0203	L1562957	Y	4	EX-7 Sidewall sample
SO-2494-EX-6-EW-3-112922	11-29-2022	3450	6.65	31.2	7.17	11.6	<0.0201	L1562957	N	4	EX-6 Sidewall sample
SO-2494-EX-6-SW-3-112922	11-29-2022	4280	8.23	39.1	4.41	13.9	<0.0181	L1562957	N	4	EX-6 Sidewall sample
SO-2494-EX-6-NW-3-112922	11-29-2022	6150	6.99	73.1	7.04	21.8	<0.0202	L1562957	N	4	EX-6 Sidewall sample
SO-2494-EX-9-S3-4-120222	12-2-2022	14400	14.3	63.7	15.1	53.8	<0.0192	L1565584	Y	4	EX-9 Sidewall sample
SO-2494-EX-5-WW-2-120622	12-6-2022	25300	7.54	195	14.6	24.1	<0.0182	L1565584	Y	3	EX-5 Sidewall sample
SO-2494-EX-6-WSW-120722	12-7-2022	11800	11.1	69.9	13.7	21.4	<0.0181	L1565584	N	4	EX-6 Sidewall sample
SO-2494-EX-6-SWW-120722	12-7-2022	13300	14.2	82.4	14.7	29.5	<0.0181	L1565584	N	4	EX-6 Sidewall sample
SO-2494-DUP-5-120722	12-7-2022	13700	12.1	88.8	14	29.2	<0.0181	L1565584	N	4	Primary sample SO-2494-EX-6-SWW-120722
SO-2494-EX-6-NEW-120722	12-7-2022	12900	15.9	91.3	14.2	30.6	<0.0197	L1565584	Y	4	EX-6 Sidewall sample
SO-2494-EX-6-WNW-120722	12-7-2022	11200	6.73	92.4	17	17.7	<0.0190	L1565584	N	4	EX-6 Sidewall sample
SO-2494-EX-6-B-2-120722	12-7-2022	11800	8.42	66.3	13.1	43.9	<0.0192	L1565584	N	6	EX-6 Bottom sample
SO-2494-EX-8-S3-2-120822	12-8-2022	12500	13.6	79.9	15.1	26.6	<0.0181	L1568651	N	4	EX-8 Sidewall sample
SO-2494-EX-8-S6-2-120822	12-8-2022	9400	9.16	58.2	10.3	16.8	<0.0183	L1568651	N	4	EX-8 Sidewall sample
SO-2494-EX-6-NEW-121522	12-15-2022	16300	14.7	81.9	13.3	29.6	<0.0183	L1568651	Y	4	EX-6 Sidewall sample
SO-2494-EX-5-ESW-121522	12-15-2022	23100	6.61	171	12.4	23.5	<0.0183	L1568651	Y	3	EX-5 Sidewall sample
SO-2494-EX-5-NWW-121522	12-15-2022	11900	10.8	77.5	13.6	22.4	<0.0184	L1568651	N	3	EX-5 Sidewall sample
SO-2404-EX-8-SW-121922	12-19-2022	14,100	11.7	75.4	12.5	98.1	0.0429	L1570129	Y	4	EX-8 Sidewall sample
SO-2404-DUP-6-121922	12-19-2022	18900	10.8	70.2	14.6	152	0.0539	L1570129	Y	4	Primary sample SO-2404-EX-8-SW-121922
SO-2404-EX-8-SEW-121922	12-19-2022	9840	13.8	79	10.9	34.3	0.0416	L1570129	N	4	EX-8 Sidewall sample
SO2404-EX-8-WW-121922	12-20-2022	12100	7.8	120	17.4	27.9	0.0525	L1570129	N	4	EX-8 Sidewall sample
SO2404-EX-5-BSE-121922	12-20-2022	9400	9.72	81.6	10.6	24.8	0.0333 J	L1570129	N	6	EX-5 Bottom sample
SO2404-EX-5-SEW-121922	12-20-2022	12400	4.2	176	8.37	15.3	0.0424 J	L1570129	N	3	EX-5 Sidewall sample
SO-2494-W1-4.0-01B-012423	1-24-2023	6330	12.2	59.5	6.83	24.5	<0.0181	L1579818	N	4	EX-6 Bottom sample, Following visible dross
SO-2494-W1-4.0-02W-012423	1-24-2023	6040	8.66	54.3	5.75	27.3	<0.0181	L1579818	N	4	EX-6 Sidewall sample, Following visible dross E wall
SO-2494-W1-4.0-03B-012423	1-24-2023	5270	10.1	66.9	6.12	20	<0.0180	L1579818	N	4	EX-8 Bottom sample, Following visible dross
SO-2494-W1-4.0-04W-012423	1-24-2023	4420	7.67	46.4	5.04	17.9	<0.0181	L1579818	N	4	EX-8 Sidewall sample, Following visible dross NW wall
SO-2494-W1-23-012423	1-24-2023	8720	16.9	53.7	7.14	53.7	<0.0181	L1579818	Y	2	W1 Grid (East)
SO-2494-W1-46-012423	1-24-2023	8200	8.81	66.4	7.68	18.8	<0.0184	L1579818	N	2	W1 Grid (East)

Table 5: WSDOT Confirmation Sampling Results

Excavation Confirmation Samples											
Sample Id	Sample Date	Al (mg/Kg)	As (mg/Kg)	Ba (mg/Kg)	Cr (total) (mg/Kg)	Cu (mg/Kg)	Hg (mg/Kg)	Lab Report Number	Removed* Y/N	Depth (ft bgs)	Comment
Site CUL		21400	10	102	42	50	0.1				
Human Health Criteria		80000	20	16000	2000	3200	2				
SO-2494-W1-07-012723	1-27-2023	15400	11.5	55.8	12.1	83.5	<0.0181	L1582227	N	2	W1 Grid (East)
SO-2494-W1-14-012723	1-27-2023	7850	17	39.8	9.58	23.6	<0.0181	L1582227	Y	2	W1 Grid (East)
SO-2494-W1-23-020123	2-1-2023	7490	12.1	59.6	9.6	21.8	<0.0181	L1582227	N	4	W1 Grid (East)
SO-2494-W1-31-020723	2-7-2023	11800	9.34	76.9	12.9	52.7	0.051	L1583723	N	2	W1 Grid (West)
SO-2494-W1-06-021023	2-10-2023	9170	12.4	68.8	12.3	89.2	0.157	L1585200	Y	2	W1 Grid (East)
SO-2494-W1-28-021023	2-10-2023	11500	12.2	103	12.3	39.7	0.023	L1585200	N	2	W1 Grid (East)
SO-2494-W1-40-021023	2-10-2023	11800	17.3	79.9	12.7	55.6	0.0314	L1585200	Y	2	W1 Grid (East)
SO-2494-W1-14-021423	2-14-2023	6000	15	44.9	6.82	31.1	<0.0197	L1585661	N	4	W1 Grid (East)
SO-2494-W1-05-021423	2-14-2023	5170	14.3	48.1	6.97	25.7	<0.0187	L1585661	N	2	W1 Grid (West)
SO-2494-W1-19-021423	2-14-2023	5840	13.7	64.6	6.92	24.4	<0.0181	L1585661	N	2	W1 Grid (West)
SO-2494-W1-33-021423	2-14-2023	8600	21.1	70.8	11.9	30.2	<0.0182	L1585661	Y	2	W1 Grid (West)
SO-2494-W1-41-021423	2-14-2023	10300	8.88	69.4	12.3	15.3	<0.0182	L1585661	N	2	W1 Grid (West)
SO-2494-W1-40-021723	2-17-2023	11300	10.6	75.2	11.2	31.7	0.0384	L1587163	N	4	W1 Grid (East)
SO-2494-W1-05-3.0-022023	2-20-2023	7690	14	65.9	9.53	32.9	<0.0181	L1587995	Y	3	W1 Grid (East)
SO-2494-W1-06-4.0-022023	2-20-2023	10500	15.4	68.6	11.3	65	<0.0181	L1587995	Y	4	W1 Grid (East)
SO-2494-W1-33-3.0-022023	2-20-2023	5180	11	56.4	5.96	20.5	<0.0181	L1587995	N	3	W1 Grid (East)
SO-2494-W1-05-4.0-022023	2-20-2023	5610	14.6	61.7	7.05	26.6	<0.0182	L1589780	N	4	W1 Grid (East) Test pit check extent of As
SO-2494-EX-4-01B-6.0-030623	3-6-2023	17100	8.91	109	14.5	59.9	0.0716	L1592493	N	6	EX-4 Bottom sample
SO-2494-EX-4-02W-3.0-030623	3-6-2023	12800	12.2	88.9	12.3	30.4	0.0238	L1592493	Y	3	EX-4 Sidewall sample
SO-2494-EX-4-03B-4.0-030623	3-6-2023	12300	11.8	82.6	11.6	27.2	<0.0181	L1592493	Y	4	EX-4 Sidewall sample
SO-2494-EX-4-04W-4.0-030623	3-6-2023	13200	16.2	90.6	12.5	28.9	<0.0181	L1592493	Y	4	EX-4 Sidewall sample
SO-2494-EX-4-05B-6.0-030623	3-6-2023	17600	13.5	88.9	14.7	136	0.0214	L1592492	N	6	EX-4 Bottom sample
SO-2494-EX-4-06B-4.0-030623	3-6-2023	25700	9.19	135	21.3	129	0.233	L1592493	Y	4	EX-4 Bottom sample
SO-2494-EX-4-07W-3.0-030623	3-6-2023	10900	8.94	90.5	10.6	29.3	0.0234	L1592493	N	3	EX-4 Sidewall sample
SO-2494-EX-4-08B-4.0-030623	3-6-2023	17600	10.5	110	16.3	63	0.0866	L1592493	N	4	EX-4 Bottom sample
SO-2494-EX-4-09B-4.0-030623	3-6-2023	28800	8.2	95.6	24	183	0.143	L1592493	Y	4	EX-4 Bottom sample
SO-2494-EX-4-10W-4.0-030623	3-6-2023	115100	13.9	83.9	14	70.8	0.124	L1592493	Y	4	EX-4 Sidewall sample
SO-2494-EX-4-11B-6.0-030623	3-6-2023	16600	14	102	16	52	0.0366	L1592492	N	6	EX-4 Bottom sample
SO-2494-EX-3-01B-4.0-030723	3-7-2023	17100	7.42	99.4	15.4	90.3	0.124	L1593050	Y	4	EX-3 Bottom sample
SO-2494-EX-3-02W-3.0-030723	3-7-2023	21700	7.11	118	17	121	0.277	L1593050	Y	3	EX-3 Sidewall sample
SO-2494-EX-3-03B-4.0-030723	3-7-2023	18000	7.84	106	14.5	94.6	0.157	L1593050	Y	4	EX-3 Bottom sample
SO-2494-EX-3-04W-3.0-030723	3-7-2023	16700	7.63	110	13.8	68.1	0.0519	L1593050	N	3	EX-3 Sidewall sample
SO-2494-EX-3-05B-4.0-030723	3-7-2023	16500	7.45	113	12.3	81.1	0.0571	L1593050	Y	4	EX-3 Bottom sample
SO-2494-EX-3-06B-6.0-030823	3-8-2023	44300	6.35	174	30.8	407	1.09	L1593050	Y	6	EX-3 Bottom sample
SO-2494-EX-3-07B-4.0-030823	3-8-2023	25500	8.23	97.3	19.5	198	0.438	L1593050	Y	4	EX-3 Bottom sample
SO-2494-W1-02-030723	3-7-2023	8510	10.5	59.5	9.34	34	<0.0182	L1593050	N	6	W1 Grid (West)
SO-2494-W1-18-030823	3-8-2023	8000	11.9	69.4	8.91	25.8	<0.0181	L1593050	N	6	W1 Grid (West)
SO-2494-DUP-9-030723	3-7-2023	16600	7.17	95.5	14.9	75.1	0.102	L1593050	N	4	Dup for SO-2494-EX-3-01B-4.0-030723
SO-2494-W1-05-030723	3-7-2023	5530	13.7	61.3	6.13	30.1	<0.0183	L1594018	N	6	W1 Grid (West)
SO-2494-W1-06-030723	3-7-2023	5310	10.2	52	6.93	45.4	<0.0182	L1594018	N	6	W1 Grid (West)
SO-2494-W1-11-030923	3-9-2023	8540	12.8	72.1	7.31	38.5	0.0282	L1594018	Y	4	W1 Grid (East)
SO-2494-DUP-10-030923	3-9-2023	9940	13.9	87.5	8.38	37.6	<0.0180	L1594018	Y	4	Dup for SO-2494-W1-11-030923
SO-2494-W1-11-031423	3-14-2023	6990	14.6	67	7.89	31.6	<0.0184	L1596169	N	6	W1 Grid (East)
SO-2494-EX-4-13S-4.0-031723	3-17-2023	13200	10.9	91.1	14.7	94.5	0.11	L1596169	Y	4	EX-4 Sidewall sample
SO-2494-EX-4-14S-4.0-031723	3-17-2023	19300	11.2	117	17.4	135	0.158	L1596169	Y	4	EX-4 Sidewall sample
SO-2494-EX-4-15S-4.0-031723	3-17-2023	24200	9.51	121	20.1	170	0.177	L1596169	Y	4	EX-4 Sidewall sample

Table 5: WSDOT Confirmation Sampling Results

Excavation Confirmation Samples											
Sample Id	Sample Date	Al	As	Ba	Cr (total)	Cu	Hg	Lab Report Number	Removed* Y/N	Depth (ft bgs)	Comment
		(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)				
Site CUL		21400	10	102	42	50	0.1				
Human Health Criteria		80000	20	16000	2000	3200	2				
SO-2494-EX-4-16S-4.0-031723	3-17-2023	15700	10.8	116	13.4	145	0.063	L1596169	Y	4	EX-4 Sidewall sample
SO-2494-EX-4-17S-4.0-031723	3-17-2023	11900	11.3	89.7	12	63.2	0.0572	L1596169	N	4	EX-4 Sidewall sample
SO-2494-EX-4-18B-4.0-031723	3-17-2023	6470	13.3	68.3	7.85	24.3	<0.018	L1596169	N	4	EX-4 Bottom sample
SO-2494-EX-4-19S-4.0-031723	3-17-2023	5820	12.3	59.6	6.38	24.6	<0.0181	L1596169	N	4	EX-4 Sidewall sample
SO-2494-EX-3-10S-4.0-031723	3-17-2023	17200	7.73	120	15.7	113	0.13	L1596169	Y	4	EX-3 Sidewall sample
SO-2494-EX-3-11S-4.0-031723	3-17-2023	21600	10	141	18	137	0.308	L1596169	Y	4	EX-3 Sidewall sample
SO-2494-EX-3-12B-4.0-031723	3-17-2023	26000	9.3	129	18.7	190	0.241	L1596169	Y	4	EX-3 Bottom sample
SO-2494-EX-3-13S-4.0-031723	3-17-2023	14900	13	119	13.6	51.3	0.0598	L1596169	Y	4	EX-3 Sidewall sample
SO-2494-EX-3-17B-4.0-032123	3-21-2023	5200	8.34	43.3	5.54	22.4	<0.0185	L1597478	N	4	EX-3 Bottom sample
SO-2494-EX-3-18B-4.0-032123	3-21-2023	7860	9.37	40.4	7.78	30	0.0299	L1597478	N	4	EX-3 Sidewall sample
SO-2494-EX-3-19S-4.0-032123	3-21-2023	19000	8.08	169	14.5	87.9	0.226	L1597478	Y	4	EX-3 Sidewall sample
SO-2494-EX-3-20S-4.0-032123	3-21-2023	12800	8.33	101	11.7	60.7	0.0769	L1597478	N	4	EX-3 Sidewall sample
SO-2494-EX-4-21B-4.0-032123	3-21-2023	6020	12.7	70.7	6.84	26.1	<0.0183	L1597478	N	4	EX-4 Bottom sample
SO-2494-EX-3-23S-5.0-032223	3-22-2023	10600	8.24	86.7	10.9	48.2	0.0361	L1597478	N	5	EX-3 Sidewall sample
SO-2494-EX-3-24B-6.0-032223	3-22-2023	16100	10.3	88.6	12.4	94.4	0.0967	L1597478	N	6	EX-3 Bottom sample
SO-2494-EX-3-25B-4.0-032223	3-22-2023	11000	7.72	70.8	10.4	43.3	0.0372	L1597478	N	4	EX-3 Bottom sample
SO-2494-EX-4-22S-4.0-032223	3-22-2023	4050	6.7	44.3	4.8	16.9	<0.0182	L1597478	N	4	EX-4 Sidewall sample
SO-2494-EX-3-14B-6.0-032123	3-21-2023	20700	10.1	110	16	133	0.302	L1597478	N	6	EX-3 Bottom sample
SO-2494-EX-3-15B-6.0-032123	3-21-2023	19700	8.27	130	14.3	111	0.211	L1597478	N	6	EX-3 Bottom sample
SO-2494-EX-3-16B-6.0-032123	3-21-2023	12900	9.24	92.8	10.2	74.2	0.158	L1597478	N	6	EX-3 Bottom sample
SO-2494-EX-3-21S-4.0-032123	3-21-2023	9040	7.15	48.3	10.8	22	<0.0182	L1597478	N	4	EX-3 Sidewall sample
SO-2494-EX-3-22S-4.0-032123	3-21-2023	14300	8.43	84	10.9	75.4	0.027	L1597478	N	4	EX-3 Sidewall sample
SO-2494-EX-3-26B-6.0-032723	3-27-2023	26600	10.3	144	19.4	68.2	0.0516	L1598851	N	6	EX-3 Bottom sample
SO-2494-FD-12-032723	3-27-2023	22200	9.2	128	16.6	60.4	0.0546	L1598851	N	6	Dup for SO-2494-EX-3-26B-6.0-032723
Rinsate Blank		**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**				
RB-2494-2-102022	10-20-2022	<0.0561	0.00508J	<0.000736J	<0.0014	<0.00368	<0.0001	L1549698	N/A	N/A	Rinsate Blank
RB-2494-4-110922	11-09-2022	<0.0044	NA	<0.000736	<0.0014	NA	<0.0001	L1556071	N/A	N/A	Rinsate Blank
RB-2494-5-120722	12-7-2022	<0.0044	NA	<0.000736	<0.0014	NA	<0.0001	L1565584	N/A	N/A	Rinsate Blank
RB-2494-7-020123	2-1-2023	0.0353	<0.0008	<0.000381	<0.00124	<0.00151	<0.001	L1582227	N/A	N/A	Rinsate Blank

Note:
CUL - Cleanup level
mg/Kg - milligrams per kilogram
Removed* - Soil from which sample was collected was subsequently excavated and removed. Sample is not representative of soil left in place.
Shaded/red text indicates exceedance of respective CUL
NA - Not analyzed
N/A - Not applicable QC water sample.
Sample IDs in parentheses are correct; the ID will be addressed during data validation.

Table 6: UPRR Property XRF Results

Sample ID	Sample Date	Sample Depth (ft)	Submitted to Lab (Y/N)	Latitude (N)	Longitude (W)	Aluminum (mg/kg)	Arsenic (mg/kg)	Cooper (mg/kg)	Chromium, Total (mg/kg)	Mercury (mg/kg)
UPRR Industrial 1 (UP1) Compliance Unit Grid Cell Samples										
UP1-01	2/02/2023	0.5	N	47.677717	-117.201926	94,720	6	1,702	97	5
UP1-02	2/02/2023	0.5	N	47.677749	-117.201765	32,210	11	93	25	6
UP1-03	2/02/2023	0.5	N	47.677783	-117.201560	87,120	3	1,425	63	ND
UP1-04	1/20/2023	0.5	Y	47.677814	-117.201364	87,120	4	1,386	53	ND
UP1-05	2/02/2023	0.5	N	47.677852	-117.201171	83,850	3	1,385	80	ND
UP1-06	1/20/2023	0.5	Y	47.677892	-117.200981	112,360	5	1,050	33	ND
UP1-07	1/19/2023	0.5	N	47.677916	-117.200787	98,360	3	859	49	ND
UP1-08	1/19/2023	0.5	N	47.677956	-117.200596	91,970	3	1,418	27	ND
UP1-09	1/23/2023	0.5	Y	47.677617	-117.201934	47,450	11	795	34	ND
UP1-10	1/23/2023	0.5	Y	47.677656	-117.201733	53,620	7	666	33	ND
UP1-11	2/01/2023	0.5	N	47.677691	-117.201544	90,020	3	1,375	61	ND
UP1-12	2/02/2023	0.5	N	47.677727	-117.201337	88,630	3	1,717	63	ND
UP1-13	1/23/2023	0.5	Y	47.677762	-117.201153	104,330	2	1,610	84	ND
UP1-14	1/20/2023	0.5	N	47.677796	-117.200952	102,480	3	1,814	79	ND
UP1-15	1/19/2023	0.5	N	47.677833	-117.200761	80,060	2	1,864	75	ND
UP1-16	1/19/2023	0.5	N	47.677867	-117.200564	95,870	2	1,663	180	ND
UP1-17	2/01/2023	0.5	N	47.677460	-117.202024	83,700	4	1,118	81	ND
UP1-18	2/01/2023	0.5	N	47.677489	-117.201872	98,271	4	1,075	80	ND
UP1-19	1/23/2023	0.5	Y	47.677526	-117.201676	95,790	6	1,847	66	ND
UP1-20	2/01/2023	0.5	N	47.677559	-117.201479	89,120	4	1,339	73	ND
UP1-21	2/02/2023	0.5	N	47.677596	-117.201276	93,340	2	1,613	78	ND
UP1-22	2/02/2023	0.5	N	47.677631	-117.201088	103,720	ND	1,448	104	ND
UP1-23	1/20/2023	0.5	N	47.677668	-117.200892	73,530	3	1,697	44	ND
UP1-24	1/19/2023	0.5	Y	47.677702	-117.200692	122,970	3	1,895	71	ND
UP1-25	1/19/2023	0.5	N	47.677737	-117.200502	98,370	ND	1,205	80	19
UP1-26	2/02/2023	0.5	N	47.677323	-117.201994	79,380	6	974	72	ND
UP1-27	2/01/2023	0.5	N	47.677357	-117.201819	85,300	4	1,124	77	ND
UP1-28	2/01/2023	0.5	N	47.677392	-117.201621	118,450	5	1,341	118	ND
UP1-29	2/01/2023	0.5	N	47.677427	-117.201426	96,930	3	855	44	ND
UP1-30	1/23/2023	0.5	Y	47.677463	-117.201225	12,543	4	959	107	ND
UP1-31	2/02/2023	0.5	N	47.677498	-117.201035	100,470	2	1,287	55	ND

Table 6: UPRR Property XRF Results

Sample ID	Sample Date	Sample Depth (ft)	Submitted to Lab (Y/N)	Latitude (N)	Longitude (W)	Aluminum (mg/kg)	Arsenic (mg/kg)	Cooper (mg/kg)	Chromium, Total (mg/kg)	Mercury (mg/kg)
UP1-32	1/20/2023	0.5	N	47.677531	-117.200842	135,990	2	1,509	112	ND
UP1-33	1/20/2023	0.5	N	47.677568	-117.200641	90,610	ND	962	55	4
UP1-34	1/23/2023	0.5	Y	47.677187	-117.201974	107,430	5	1,024	85	6
UP1-35	2/01/2023	0.5	N	47.677224	-117.201768	87,820	6	995	86	ND
UP1-36	2/01/2023	0.5	N	47.677260	-117.201571	81,280	3	1,156	70	ND
UP1-37	1/23/2023	0.5	Y	47.677294	-117.201377	114,490	5	1,565	43	ND
UP1-38	2/02/2023	0.5	N	47.677330	-117.201170	73,900	8	927	51	ND
UP1-39	1/20/2023	0.5	Y	47.677366	-117.200984	MISSING	MISSING	MISSING	MISSING	MISSING
UP1-40	1/20/2023	0.5	N	47.677401	-117.200789	100,760	ND	1,060	30	ND
UP1-41	1/20/2023	0.5	N	47.677436	-117.200589	90,300	ND	1,327	105	ND
UPRR Industrial 2 (UP2) Compliance Unit Grid Cell Samples										
UP2-01	10/13/2022	0	Y	47.677064	-117.201954	40,460	11	212	37	5
UP2-02	10/13/2022	0	N	47.677086	-117.201684	34,150	11	181	53	7
UP2-03	10/13/2022	0	N	47.677114	-117.201503	40,550	11	232	55	5
UP2-04	10/13/2022	0	N	47.677160	-117.201275	40,690	15	240	42	5
UP2-05	10/13/2022	0	N	47.677192	-117.201096	48,340	14	402	101	8
UP2-06	10/13/2022	0	Y	47.677227	-117.200922	89,950	12	1,929	80	ND
UP2-07	10/14/2022	0	N	47.677260	-117.200701	42,430	14	254	60	5
UP2-08	10/14/2022	0	N	47.677288	-117.200517	83,430	13	978	59	ND
UP2-09	10/14/2022	0	N	47.677315	-117.200333	101,240	ND	2,370	113	ND
UP2-10	10/14/2022	0	Y	47.677345	-117.200107	114,380	6	1,745	69	ND
UP2-11	10/25/2022	0	N	47.677400	-117.199962	110,010	14	1,220	140	ND
UP2-12	10/25/2022	0	N	47.677485	-117.199317	79,970	13	1,086	63	ND
UP2-13	10/25/2022	0	N	47.677475	-117.199223	54,140	11	455	57	6
UP2-14	10/17/2022	0	Y	47.676957	-117.202026	31,500	11	169	44	ND
UP2-15	10/19/2022	0	N	47.676938	-117.201878	31,570	14	148	45	6
UP2-16	10/19/2022	0	N	47.676968	-117.201639	31,470	13	150	36	7
UP2-17	10/19/2022	0	N	47.676992	-117.201485	39,600	15	260	51	7
UP2-18	10/17/2022	0	Y	47.677032	-117.201243	41,680	15	232	49	5
UP2-19	10/17/2022	0	Y	47.677070	-117.201041	86,990	13	1,144	124	7
UP2-20	10/17/2022	0	Y	47.677108	-117.200860	10,426	14	1,603	70	ND
UP2-21	10/19/2022	0	N	47.677136	-117.200665	73,130	14	1,137	79	7

Table 6: UPRR Property XRF Results

Sample ID	Sample Date	Sample Depth (ft)	Submitted to Lab (Y/N)	Latitude (N)	Longitude (W)	Aluminum (mg/kg)	Arsenic (mg/kg)	Cooper (mg/kg)	Chromium, Total (mg/kg)	Mercury (mg/kg)
UP2-22	10/17/2022	0	Y	47.677177	-117.200464	68,530	15	614	64	8
UP2-23	10/21/2022	0	N	47.677247	-117.200280	69,830	19	1,002	71	ND
UP2-24	10/21/2022	0	N	47.677266	-117.200134	105,500	10	1,221	128	ND
UP2-25	10/17/2022	0	Y	47.677284	-117.199888	125,310	11	1,989	64	ND
UP2-26	10/25/2022	0	N	47.677320	-117.199707	75,890	12	982	86	7
UP2-27	10/17/2022	0	Y	47.677346	-117.199490	111,330	15	1,533	110	ND
UP2-28	10/25/2022	0	N	47.677367	-117.199283	34,100	9	380	54	ND
UP2-29	10/19/2022	0	N	47.677409	-117.199145	39,210	13	296	60	5

Notes:
NA = Not Analyzed
ND = Not Detected
UP = Union Pacific Railroad Company
Sample IDs are prefixed with "SO-2494-" and are suffixed with the Sample Date in the format "-MMDDYY"
The XRF analyzer does not test for barium

Table 7: UPRR (Flat Area) UP1 Grid Confirmation Sampling Results

UP1 Grid Confirmation Samples									
Sample ID	Sample Date	Al (mg/Kg)	As (mg/Kg)	Ba (mg/Kg)	Cr (total) (mg/Kg)	Cu (mg/Kg)	Hg (mg/Kg)	Lab Report Number	Comment
Remediation Levels		3500000	42	700000	5300000	140000	5.5		
SO-2494-UP1-K01-011223	01-12-2023	39700	5.78	72.5	30.4	302	0.278	L1575671	South of Kemira Facility
SO-2494-UP1-K02-011223	01-12-2023	110000	4.74	124	104	1030	0.0385	L1575671	South of Kemira Facility
SO-2494-UP1-04-012023	01-20-2023	173000	3.28	96.1	213	1580	0.64	L1578898	UPRR1 Grid - confirmation
SO-2494-UP1-06-012023	01-20-2023	139000	7.17	42.6	82.1	793	0.812	L1578476	UPRR1 Grid - confirmation
SO-2494-UP1-09-012323	01-23-2023	32200	11.1	130	29.9	342	0.266	L1578476	UPRR1 Grid - confirmation
SO-2494-UP1-10-012323	01-23-2023	52500	8.86	150	39	270	0.342	L1578476	UPRR1 Grid - confirmation
SO-2494-DUP-7-012323	01-23-2023	50300	9.31	153	39.3	258	0.294	L1578476	Field Duplicate to SO-2494-UP1-10-012323
SO-2494-UP1-13-012023	01-20-2023	149000	2.76	89.8	182	1330	2.31	L1578476	UPRR1 Grid - confirmation
SO-2494-UP1-19-012323	01-23-2023	94000	4.67	150	94.7	1350	0.843	L1578898	UPRR1 Grid - confirmation
SO-2494-UP1-24-011923	01-19-2023	155000	2.7	69.3	192	1520	0.32	L1578476	UPRR1 Grid - confirmation
SO-2494-UP1-30-012323	01-23-2023	107000	4.52	72.7	104	696	0.887	L1578898	UPRR1 Grid - confirmation
SO-2494-UP1-34-012323	01-23-2023	75100	6.05	264	89.4	727	1.71	L1578476	UPRR1 Grid - confirmation
SO-2494-UP1-37-012323	01-23-2023	111000	5.95	48.1	77.3	1120	0.0429	L1578898	UPRR1 Grid - confirmation
SO-2494-UP1-39-012023	01-20-2023	21400	11.7	111	21	619	0.158	L1578898	UPRR1 Grid - confirmation

Note:

mg/Kg - milligrams per kilogram

Table 8: UPRR (Side Slope) UP2 Grid Confirmation Sampling Results

UP2 Grid Confirmation Samples									
Sample Id	Sample Date	Al (mg/Kg)	As (mg/Kg)	Ba (mg/Kg)	Cr (total) (mg/Kg)	Cu (mg/Kg)	Hg (mg/Kg)	Lab Report Number	Comment
Remediation Levels		3500000	42	700000	5300000	140000	5.5		
SO-2494-UP2-01-101322	10/13/2022	29300	8.68	169	20.7	119	0.205	L1547731	UPRR2 Grid
SO-2494-UP2-06-101322	10-13-2022	126000	6.47	52.8	68.3	1090	0.0456	L1547731	UPRR2 Grid
SO-2494-UP2-10-101422	10-14-2022	214000	1.19	234	118	1830	0.0685	L1547731	UPRR2 Grid
SO-2494-UP2-14-101722	10-17-2022	30900	5.8	201	19.9	96.2	0.0732	L1547731	UPRR2 Grid
SO-2494-UP2-18-101722	10-17-2022	22100	8.8	118	16.3	101	0.128	L1547731	UPRR2 Grid
SO-2494-UP2-19-101722	10-17-2022	70800	9.26	228	62	749	1.45	L1547731	UPRR2 Grid
SO-2494-UP2-20-101722	10-17-2022	141000	10	77.6	82	1370	0.0584	L1547731	UPRR2 Grid
SO-2494-FD01-101722	10-17-2022	169000	9.22	80.7	91.6	1390	0.0689	L1547731	Primary sample SO-2494-UP2-20-101722
SO-2494-UP2-22-101722	10-17-2022	46900	9.67	96.7	33.6	259	1.66	L1547731	UPRR2 Grid
SO-2494-UP2-25-101722	10-17-2022	181000	4.55	92.1	108	1540	0.192	L1547731	UPRR2 Grid
SO-2494-UP2-27-101722	10-17-2022	134000	6.49	143	86.8	1010	0.397	L1547731	UPRR2 Grid
Rinsate Blank		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		
RB-2494-6-010922	1-9-2023	<0.0185	<00018	<0.000381	<0.00124	<0.00151	0.00013	L1574810	

Note:
CUL - Cleanup level
mg/Kg - milligrams per kilogram
mg/L - milligrams per liter

Table 9: Pentzer (and WA Parks) P1 Compliance Unit Evaluation Data Set

Pentzer (P1) Confirmation Samples - Representing Soils Remaining in-Place											
Sample Id	Sample Date	Al	As	Ba	Cr (total)	Cu	Hg	Lab Report Number	Removed* Y/N		Comment
SO-2494-P1-01-012423	1-24-2023	11000	5.9	109	9.49	28	0.107	L1579818	N	1	P1 Grid sample
SO-2494-P1-26-021323	2-13-2023	12300	6.62	100	12.7	24.8	0.0214	L1585661	N	2	P1 Grid sample
SO-2494-EX-2-01B-4.0-022123	2-21-2023	6480	6.98	35.4	8.09	22.8	<0.0182	L1589045	N	4	EX-2 Bottom sample
SO-2494-EX-2-02B-4.0-022123	2-21-2023	9670	5.88	40	10.6	30.5	<0.0182	L1589045	N	4	EX-2 Bottom sample
SO-2494-EX-2-03W-2.0-022123	2-21-2023	9830	6.22	67.4	11.5	22.9	0.0196	L1589045	N	2	EX-2 Sidewall sample
SO-2494-EX-2-04B-6.0-022223	2-22-2023	10200	7.32	46.7	11.3	24	<0.0184	L1589045	N	6	EX-2 Bottom sample
SO-2494-EX-1-01B-6.0-022223	2-22-2023	5190	6.03	47.2	6.24	17	<0.0182	L1589045	N	6	EX-1 Bottom sample
SO-2494-EX-1-02B-4.0-022223	2-22-2023	8590	6.91	60	11	19.7	<0.0180	L1589045	N	4	EX-1 Bottom sample
SO-2494-EX-1-04B-4.0-022423	2-24-2023	16900	7.01	69.3	9.83	35.3	<0.0184	L1589381	N	4	EX-1 Bottom sample
SO-2494-EX-1-05B-4.0-022423	2-24-2023	2320	3.33	25.3	2.37	12	<0.0180	L1589381	N	4	EX-1 Bottom sample
SO-2494-EX-1-06W-2.0-022423	2-24-2023	6960	2.98	61.4	8.86	17.8	<0.0186	L1589381	N	2	EX-1 Sidewall sample
SO-2494-EX-1-07B-4.0-022423	2-24-2023	7310	4.25	95.9	7.38	26.9	<0.0187	L1589381	N	4	EX-1 Bottom sample
SO-2494-EX-1-08B-4.0-030223	3-2-2023	8810	8.36	49	11.1	27.8	<0.0183	L1591638	N	4	EX-1 Bottom sample
SO-2494-EX-1-09W-2.0-030223	3-2-2023	14200	8.41	81.3	14.8	31.9	<0.0185	L1591638	N	2	EX-1 Sidewall sample
SO-2494-EX-2-05B-2.0-030923	3-9-2023	13700	7.22	78.2	14.6	27.3	<0.0188	L1594018	N	2	EX-2 Bottom sample
SO-2494-EX-2-06B-4.0-030923	3-9-2023	7910	6.78	31.3	8.41	23.7	<0.0182	L1594018	N	4	EX-2 Bottom sample
SO-2494-EX-2-07B-2.0-030923	3-9-2023	14000	8	86.8	15.8	22.3	<0.0183	L1594018	N	2	EX-2 Bottom sample
SO-2494-EX-2-08B-4.0-030923	3-9-2023	7940	4.36	47.6	11.2	22.3	<0.0118	L1594018	N	4	EX-2 Bottom sample
SO-2494-EX-2-09B-4.0-030923	3-9-2023	8310	6.63	61.6	7.99	22.7	<0.0181	L1594018	N	4	EX-2 Bottom sample
SO-2494-P1-13-031523	3-15-2023	16600	7.2	96.7	16	28.6	<0.0186	L1596169	N	2	P1 Grid sample
SO-2494-P1-27-031523	3-15-2023	13400	6.92	120	12.5	26.9	<0.0188	L1596169	N	2	P1 Grid sample
SO-2494-P1-45-032223	3-22-2023	5610	10.9	47.7	6.27	18.8	0.0289	L1597478	N	4	P1 Grid sample
SO-2494-EX-2-12B-4.5-032423	3-24-2023	12400	10.7	50.8	14.6	17	<0.0181	L1598332	N	4.5	EX-2 Bottom sample
SO-2494-EX-2-15B-4.0-032423	3-24-2023	16600	6.93	61.5	16.3	23.5	<0.0183	L1598332	N	4	EX-2 Bottom sample
SO-2494-P1-34-032723	3-27-2023	10800	7.71	54.7	11.7	20.2	<0.0181	L1598851	N	6	P1 Grid sample
SO-2494-EX-2-18B-6.0-033123	3-31-2023	15100	8.02	45.1	9.58	97.9	0.0406	L1600677	N	6	EX-2 Bottom sample
SO-2494-P1-08-041023	4-10-2023	12300	5.37	94.1	11.3	33.7	0.0236	L1604229	N	1	P1 Grid sample
SO-2494-P1-4.0-01B-041023	4-10-2023	9030	6.57	45	7.57	24.9	<0.0182	L1604229	N	4	P1 Expolatory sample, NE coner Pentzer
SO-2494-P1-6.0-02B-041023	4-10-2023	11700	6.94	84.9	12.4	25	<0.0182	L1604229	N	6	P1 Expolatory sample, NE coner Pentzer
SO-2494-P1-6.0-04B-041023	4-10-2023	4400	7.58	29.9	4.55	20.6	<0.0181	L1604229	N	6	P1 Expolatory sample, NE coner Pentzer
SO-2494-P1-6.0-08B-041023	4-10-2023	2910	3.63	9.02	2.02	53.7	<0.0181	L1604229	N	6	P1 Expolatory sample, NE coner Pentzer
SO-2494-P1-6.0-14B-041123	4-11-2023	9260	5.91	36.2	6.6	44.7	<0.0181	L1605229	N	6	P1 Expolatory sample, NE coner Pentzer
SO-2494-PRSL-1-031623	3-16-2023	7960	7	73.1	8.62	8.51	<0.0186	L1596169	N	2	P1 Grid sample
SO-2494-PRNL-1-031723	3-17-2023	11200	6.91	111	9.97	23.7	<0.0183	L1596169	N	2	P1 Grid sample
SO-2494-PRNL-2-031723	3/17/2023	9100	8.75	48.9	10.3	26.2	<0.0181	L1596169	N	2	P1 Grid sample
SO-2494-EX-1-03W-2.0-022223	2-22-2023	6615	6.73	42.5	7.405	20	<0.0181	L1589045	N	2	EX-1 Sidewall sample, results averaged with duplicate
SO-2494-EX-2-13S-4.0-032423	3-24-2023	14600	10.345	61.1	14.35	22.8	<0.0181	L1598332	N	4	EX-2 Sidewall sample, results averaged with duplicate
SO-2494-EX-2-16B-6.0-033123	3-31-2023	11600	7.885	46.4	7.76	43.8	<0.0184	L1600677	N	6	EX-2 Bottom sample, results averaged with duplicate
SO-2494-EX-2-20B-6.0-040423	4-4-2023	25050	13.7	62.65	16.65	140	<0.0184	L1602304	N	6	EX-2 Bottom sample, results averaged with duplicate

Note:

CUL - Cleanup level

mg/kg - milligrams per kilogram

Removed* - Soil from which sample was collected was subsequently excavated and removed designated with "Y". Sample is not representative of soil left in place.

Shaded/red text indicates exceedance of respective CUL

Table 10: WSDOT W1 Compliance Unit Evaluation Data Set

WSDOT (W1) Confirmation Samples - Representing Soils Remaining in-Place											
Sample Id	Sample Date	Al	As	Ba	Cr (total)	Cu	Hg	Lab Report Number	Removed* Y/N	Depth (ft bgs)	Comment
SO-2494-EX-9-B6-101922	10-19-2022	18100	11.8	104	17.4	55.5	0.0212 J	L1549698	N	6	EX-9 Bottom sample
SO-2494-EX-7-NW-102422	10-24-2022	8130	8.23	58.7	8	46.4	<0.0187	L1550711	N	2	EX-7 Sidewall sample
SO-2494-EX-7-SW-102422	10-24-2022	9310	5.23	74.5	10.3	33.7	<0.0195	L1550711	N	2	EX-7 Sidewall sample
SO-2494-EX-6-B-102022	10-20-2022	17100	12.9	97	16	49.6	0.0297 J	L1549698	N	6	EX-6 Bottom sample
SO-2494-EX-5-B-102422	10-24-2022	7950	5	96	7.33	20.7	<0.0187	L1550711	N	4	EX-5 Bottom sample
SO-2494-EX-5-WW-102422	10-24-2022	5880	5.44	88.7	5.55	21.4	0.0505	L1550711	N	2	EX-5 Sidewall sample
SO-2494-EX2-7-EW-110422 (SO-2494-EX7-2-EW-110422)	11-04-2022	2070	6.47	45.3	2.77	23.2	<0.018	L1554509	N	3	EX-7 Sidewall sample
SO-2494-EX2-7-WW-110422 (SO-2494-EX7-2-WW-110422)	11-04-2022	2760	2.75	50.9	2.82	18	<0.0185	L1554509	N	4	EX-7 Sidewall sample
SO-2494-EX2-7-BE-110422 (SO-2494-EX7-2-BE-110422)	11-04-2022	3130	7.66	52.2	2.98	47.3	<0.0189	L1554509	N	6	EX-7 Bottom sample
SO-2494-EX2-7-BW-110422 (SO-2494-EX7-2-BW-110422)	11-04-2022	3110	3.64	42.6	4.19	38.5	0.0256	L1554509	N	6	EX-7 Bottom sample
SO-2494-EX2-5-EW-110422 (SO-2494-EX5-2-EW-110422)	11-04-2022	1650	6.87	53.8	1.63	21	<0.0186	L1554509	N	3	EX-5 Sidewall sample
SO-2494-EX2-5-NW-110422 (SO-2494-EX5-2-NW-110422)	11-04-2022	1670	6.37	43.8	1.66	19.6	<0.0187	L1554509	N	3	EX-5 Sidewall sample
SO-2494-EX2-5-SW-110422 (SO-2494-EX5-2-SW-110422)	11-04-2022	3030	0.825	126	2.03	13.2	<0.0182	L1554509	N	3	EX-5 Sidewall sample
SO-2494-EX-6-2-WW-110922	11-08-2022	9040	8.96	89.3	20.2	27.1	0.0403	L1556071	N	4	EX-6 Sidewall sample
SO-2494-W1-48-110222	11-02-2022	2260	2.82	44.7	3.62	19.7	0.0261	L1554509	N	0.5	Grid East Cell 48 East slope
SO-2494-EX-6-2-BW-110922	11-09-2022	4180	8.96	46.1	5.13	17.7	0.037	L1556071	N	6	EX-6 Bottom sample
SO-2494-EX-6-2-BE-110922	11-09-2022	5310	6.2	37.4	5.87	28.7	0.0512	L1556071	N	6	EX-6 Bottom sample
SO-2494-EX-8-2-B-110922	11-09-2022	2500	4.14	24.9	2.61	9.58	0.0386	L1556071	N	6	EX-8 Bottom sample
SO-2494-EX-9-2-S2-02-111422	11-14-2022	10600	14.4	73.6	11.6	26.9	<0.0181	L1559016	N	4	EX-9 Sidewall sample - upon final grade 6ft bgs
SO-2494-EX-9-3-S1-111522	11-15-2022	17500	11.5	74.8	15.1	30.0	<0.0181	L1559016	N	4	EX-9 Sidewall sample - upon final grade 6ft bgs
SO-2494-EX-9-S4-4-112922	11-29-2022	7180	10.1	57.1	7.67	24.2	<0.0183	L1562957	N	4	EX-9 Sidewall sample
SO-2494-EX-9-S5-2-112922	11-29-2022	8460	8.03	64.5	8.49	25.1	<0.0184	L1562957	N	4	EX-9 Sidewall sample
SO-2494-EX-6-EW-3-112922	11-29-2022	3450	6.65	31.2	7.17	11.6	<0.0201	L1562957	N	4	EX-6 Sidewall sample
SO-2494-EX-6-SW-3-112922	11-29-2022	4280	8.23	39.1	4.41	13.9	<0.0181	L1562957	N	4	EX-6 Sidewall sample
SO-2494-EX-6-NW-3-112922	11-29-2022	6150	6.99	73.1	7.04	21.8	<0.0202	L1562957	N	4	EX-6 Sidewall sample
SO-2494-EX-6-WSW-120722	12-7-2022	11800	11.1	69.9	13.7	21.4	<0.0181	L1565584	N	4	EX-6 Sidewall sample
SO-2494-EX-6-WNW-120722	12-7-2022	11200	6.73	92.4	17	17.7	<0.0190	L1565584	N	4	EX-6 Sidewall sample
SO-2494-EX-6-B-2-120722	12-7-2022	11800	8.42	66.3	13.1	43.9	<0.0192	L1565584	N	6	EX-6 Bottom sample
SO-2494-EX-8-S3-2-120822	12-8-2022	12500	13.6	79.9	15.1	26.6	<0.0181	L1568651	N	4	EX-8 Sidewall sample
SO-2494-EX-8-S6-2-120822	12-8-2022	9400	9.16	58.2	10.3	16.8	<0.0183	L1568651	N	4	EX-8 Sidewall sample
SO-2494-EX-5-NWW-121522	12-15-2022	11900	10.8	77.5	13.6	22.4	<0.0184	L1568651	N	3	EX-5 Sidewall sample
SO-2404-EX-8-SEW-121922	12-19-2022	9840	13.8	79	10.9	34.3	0.0416	L1570129	N	4	EX-8 Sidewall sample
SO2404-EX-8-WW-121922	12-20-2022	12100	7.8	120	17.4	27.9	0.0525	L1570129	N	4	EX-8 Sidewall sample
SO2404-EX-5-BSE-121922	12-20-2022	9400	9.72	81.6	10.6	24.8	0.0333 J	L1570129	N	6	EX-5 Bottom sample
SO2404-EX-5-SEW-121922	12-20-2022	12400	4.2	176	8.37	15.3	0.0424 J	L1570129	N	3	EX-5 Sidewall sample
SO-2494-W1-4.0-01B-012423	1-24-2023	6330	12.2	59.5	6.83	24.5	<0.0181	L1579818	N	4	EX-6 Bottom sample
SO-2494-W1-4.0-02W-012423	1-24-2023	6040	8.66	54.3	5.75	27.3	<0.0181	L1579818	N	4	EX-6 Sidewall sample
SO-2494-W1-4.0-03B-012423	1-24-2023	5270	10.1	66.9	6.12	20	<0.0180	L1579818	N	4	EX-8 Bottom sample
SO-2494-W1-4.0-04W-012423	1-24-2023	4420	7.67	46.4	5.04	17.9	<0.0181	L1579818	N	4	EX-8 Sidewall sample
SO-2494-W1-46-012423	1-24-2023	8200	8.81	66.4	7.68	18.8	<0.0184	L1579818	N	2	W1 Grid (East)
SO-2494-W1-07-012723	1-27-2023	15400	11.5	55.8	12.1	83.5	<0.0181	L1582227	N	2	W1 Grid (East)
SO-2494-W1-23-020123	2-1-2023	7490	12.1	59.6	9.6	21.8	<0.0181	L1582227	N	4	W1 Grid (East)
SO-2494-W1-31-020723	2-7-2023	11800	9.34	76.9	12.9	52.7	0.051	L1583723	N	2	W1 Grid (West)
SO-2494-W1-28-021023	2-10-2023	11500	12.2	103	12.3	39.7	0.023	L1585200	N	2	W1 Grid (East)

Table 10: WSDOT W1 Compliance Unit Evaluation Data Set

WSDOT (W1) Confirmation Samples - Representing Soils Remaining in-Place											
Sample Id	Sample Date	Al	As	Ba	Cr (total)	Cu	Hg	Lab Report Number	Removed* Y/N	Depth (ft bgs)	Comment
SO-2494-W1-14-021423	2-14-2023	6000	15	44.9	6.82	31.1	<0.0197	L1585661	N	4	W1 Grid (East)
SO-2494-W1-05-021423	2-14-2023	5170	14.3	48.1	6.97	25.7	<0.0187	L1585661	N	2	W1 Grid (West)
SO-2494-W1-19-021423	2-14-2023	5840	13.7	64.6	6.92	24.4	<0.0181	L1585661	N	2	W1 Grid (West)
SO-2494-W1-41-021423	2-14-2023	10300	8.88	69.4	12.3	15.3	<0.0182	L1585661	N	2	W1 Grid (West)
SO-2494-W1-40-021723	2-17-2023	11300	10.6	75.2	11.2	31.7	0.0384	L1587163	N	4	W1 Grid (East)
SO-2494-W1-33-3.0-022023	2-20-2023	5180	11	56.4	5.96	20.5	<0.0181	L1587995	N	3	W1 Grid (East)
SO-2494-W1-05-4.0-022023	2-20-2023	5610	14.6	61.7	7.05	26.6	<0.0182	L1589780	N	4	W1 Grid (East)
SO-2494-EX-4-01B-6.0-030623	3-6-2023	17100	8.91	109	14.5	59.9	0.0716	L1592493	N	6	EX-4 Bottom sample
SO-2494-EX-4-05B-6.0-030623	3-6-2023	17600	13.5	88.9	14.7	136	0.0214	L1592492	N	6	EX-4 Bottom sample
SO-2494-EX-4-07W-3.0-030623	3-6-2023	10900	8.94	90.5	10.6	29.3	0.0234	L1592493	N	3	EX-4 Sidewall sample
SO-2494-EX-4-08B-4.0-030623	3-6-2023	17600	10.5	110	16.3	63	0.0866	L1592493	N	4	EX-4 Bottom sample
SO-2494-EX-4-11B-6.0-030623	3-6-2023	16600	14	102	16	52	0.0366	L1592492	N	6	EX-4 Bottom sample
SO-2494-EX-3-04W-3.0-030723	3-7-2023	16700	7.63	110	13.8	68.1	0.0519	L1593050	N	3	EX-3 Sidewall sample
SO-2494-W1-02-030723	3-7-2023	8510	10.5	59.5	9.34	34	<0.0182	L1593050	N	6	W1 Grid (West)
SO-2494-W1-18-030823	3-8-2023	8000	11.9	69.4	8.91	25.8	<0.0181	L1593050	N	6	W1 Grid (West)
SO-2494-W1-05-030723	3-7-2023	5530	13.7	61.3	6.13	30.1	<0.0183	L1594018	N	6	W1 Grid (West)
SO-2494-W1-06-030723	3-7-2023	5310	10.2	52	6.93	45.4	<0.0182	L1594018	N	6	W1 Grid (West)
SO-2494-W1-11-031423	3-14-2023	6990	14.6	67	7.89	31.6	<0.0184	L1596169	N	6	W1 Grid (East)
SO-2494-EX-4-17S-4.0-031723	3-17-2023	11900	11.3	89.7	12	63.2	0.0572	L1596169	N	4	EX-4 Sidewall sample
SO-2494-EX-4-18B-4.0-031723	3-17-2023	6470	13.3	68.3	7.85	24.3	<0.018	L1596169	N	4	EX-4 Bottom sample
SO-2494-EX-4-19S-4.0-031723	3-17-2023	5820	12.3	59.6	6.38	24.6	<0.0181	L1596169	N	4	EX-4 Sidewall sample
SO-2494-EX-3-17B-4.0-032123	3-21-2023	5200	8.34	43.3	5.54	22.4	<0.0185	L1597478	N	4	EX-3 Bottom sample
SO-2494-EX-3-18B-4.0-032123	3-21-2023	7860	9.37	40.4	7.78	30	0.0299	L1597478	N	4	EX-3 Bottom sample
SO-2494-EX-3-20S-4.0-032123	3-21-2023	12800	8.33	101	11.7	60.7	0.0769	L1597478	N	4	EX-3 Sidewall sample
SO-2494-EX-4-21B-4.0-032123	3-21-2023	6020	12.7	70.7	6.84	26.1	<0.0183	L1597478	N	4	EX-4 Bottom sample
SO-2494-EX-3-23S-5.0-032223	3-22-2023	10600	8.24	86.7	10.9	48.2	0.0361	L1597478	N	5	EX-3 Sidewall sample
SO-2494-EX-3-24B-6.0-032223	3-22-2023	16100	10.3	88.6	12.4	94.4	0.0967	L1597478	N	6	EX-3 Bottom sample
SO-2494-EX-3-25B-4.0-032223	3-22-2023	11000	7.72	70.8	10.4	43.3	0.0372	L1597478	N	4	EX-3 Bottom sample
SO-2494-EX-4-22S-4.0-032223	3-22-2023	4050	6.7	44.3	4.8	16.9	<0.0182	L1597478	N	4	EX-4 Sidewall sample
SO-2494-EX-3-14B-6.0-032123	3-21-2023	20700	10.1	110	16	133	0.302	L1597478	N	6	EX-3 Bottom sample
SO-2494-EX-3-15B-6.0-032123	3-21-2023	19700	8.27	130	14.3	111	0.211	L1597478	N	6	EX-3 Bottom sample
SO-2494-EX-3-16B-6.0-032123	3-21-2023	12900	9.24	92.8	10.2	74.2	0.158	L1597478	N	6	EX-3 Bottom sample
SO-2494-EX-3-21S-4.0-032123	3-21-2023	9040	7.15	48.3	10.8	22	<0.0182	L1597478	N	4	EX-3 Sidewall sample
SO-2494-EX-3-22S-4.0-032123	3-21-2023	14300	8.43	84	10.9	75.4	0.027	L1597478	N	4	EX-3 Sidewall sample
SO-2494-EX-9-2-B-110922	11-09-2022	7995	8.185	51.9	7.265	41.2	0.0582	L1556071	n	6	EX-9 Bottom sample, results averaged with duplicate
SO-2494-EX-6-SWW-120722	12-7-2022	13500	13.15	85.6	14.35	29.35	<0.0181	L1565584	n	4	EX-6 Sidewall sample, results averaged with duplicate
SO-2494-EX-3-01B-4.0-030723	3-7-2023	16850	7.295	97.45	15.15	82.7	0.113	L1593050	n	4	EX-3 Bottom sample, results averaged with duplicate
SO-2494-EX-3-26B-6.0-032723	3-27-2023	24400	9.75	136	18	64.3	0.0531	L1598851	n	6	EX-3 Bottom sample, results averaged with duplicate

Note:
CUL - Cleanup level
mg/Kg - milligrams per kilogram
Shaded/red text indicates exceedance of respective CUL
Sample IDs in parentheses are correct; the ID will be addressed during data validation.

Table 11: Stormwater Discharge/Infiltration Area

Stormwater Discharge/Infiltration Area											
Sample Id	Sample Date	Al (mg/Kg)	As (mg/Kg)	Ba (mg/Kg)	Cr (total) (mg/Kg)	Cu (mg/Kg)	Hg (mg/Kg)	Lab Report Number	Removed	Depth (ft)	Comment
Site CUL		21400	10	102	42	50	0.1				
SO-2494-W1-48-110222	11-02-2022	2260	2.82	44.7	3.62	19.7	0.0261	L1554509	N	0.5	South of east end UPRR Slope stormwater area
SO-2494-UP2-32-110222	11-02-2022	2160	1.97	65	2.5	20.8	<0.0185	L1554509	N	0.5	East end UPRR Slope stormwater area
SO-2494-UP2-33-110222	11-02-2022	30700	1.92	69.2	23.4	441	0.456	L1554509	Y	0.5	East end UPRR Slope stormwater area
SO-2494-UP2-34-110222	11-02-2022	3100	3.07	44.4	3.48	28.2	<0.0181	L1554509	N	0.5	East end UPRR Slope stormwater area
SO-2494-UP2-35-110322	11-03-2022	7710	1.49	77.7	6.9	101	0.631	L1554509	Y	0.5	East end UPRR Slope stormwater area
SO-2494-UP2-36-110322	11-03-2022	2910	7.03	41.1	6.26	42	<0.0181	L1554509	N	0.5	East end UPRR Slope stormwater area
SO-2494-UP2-37-110322	11-03-2022	2480	2.94	46.2	2.57	21	<0.018	L1554509	N	0.5	East end UPRR Slope stormwater area
SO-2494-DUP3-110322	11-03-2022	2540	4.87	48.7	4.17	27.3	0.0195	L1554509	N	0.5	Primary sample SO-2494-UP2-37-110322
SO-2494-UP2-38-010923	01-09-2023	8170	7.32	67.7	9.69	23.1	<0.0181	L1574810	N	1	following exc of 33 and 35 proposed drainage area
SO-2494-UP2-39-010923	01-09-2023	22000	8.15	81.0	12.6	78.7	<0.0184	L1574810	N	1	following exc of 33 and 35 proposed drainage area

Note:

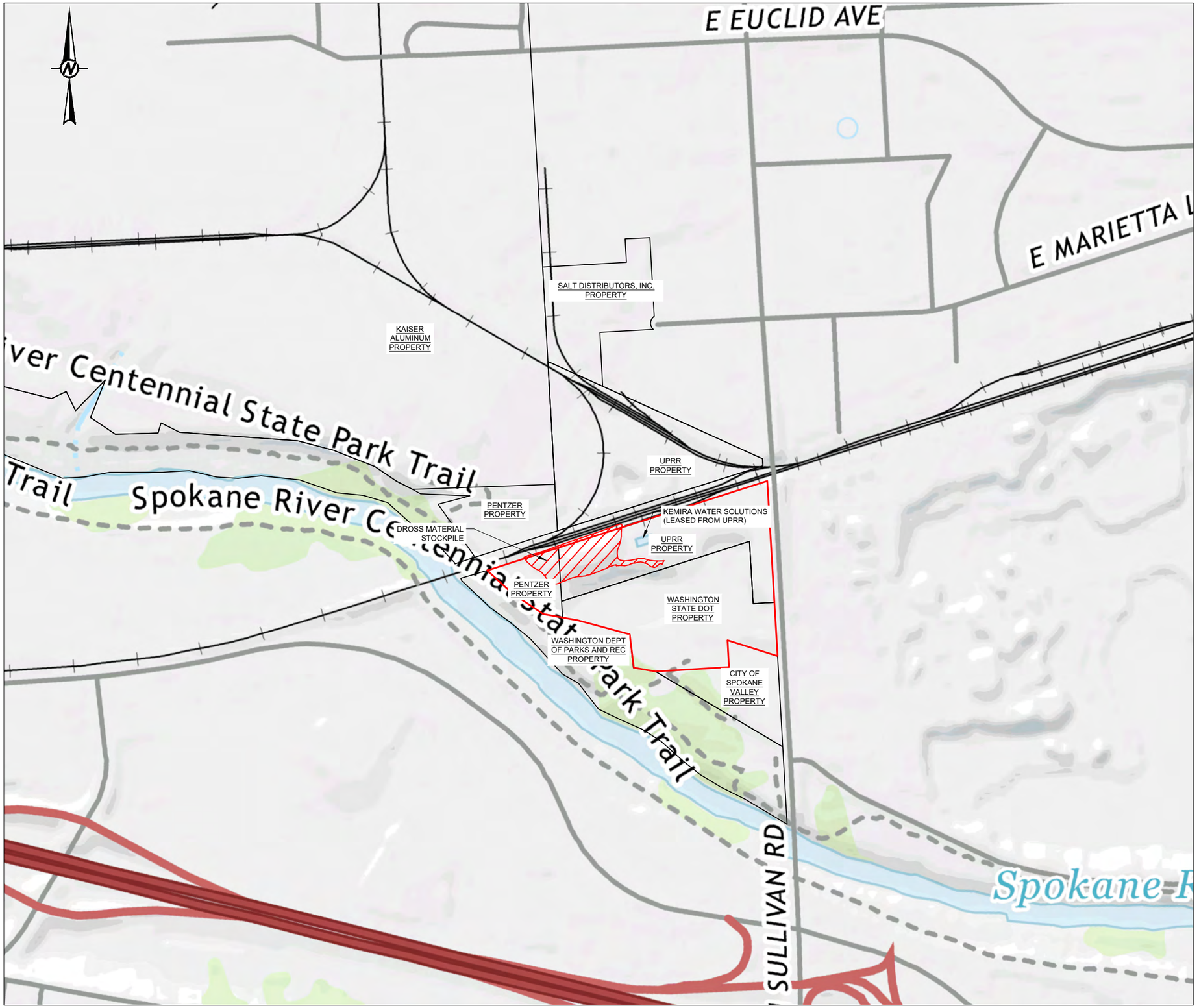
CUL - Cleanup level

mg/Kg - milligrams per kilogram

Removed* - Soil from which sample was collected was subsequently excavated and removed. Sample is not representative of soil left in place.

Shaded/red text indicates exceedance of respective CUL

Figures



LEGEND

- APPROXIMATE MTCA SITE BOUNDARY
- LIMITS OF DROSS STOCKPILE

REFERENCE(S)

BASE MAP TAKEN FROM USGS.GOV, GREENACRES, WASH 7.5 MIN. USGS QUADRANGLE DATED 2020, DOWNLOADED IN PDF FORMAT.

0 300 600
1" = 300' FEET

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
ALUMINUM RECYCLING TRENTWOOD SITE
REMEDIAL ACTION - DROSS REMOVAL PROJECT
SPOKANE VALLEY, WASHINGTON

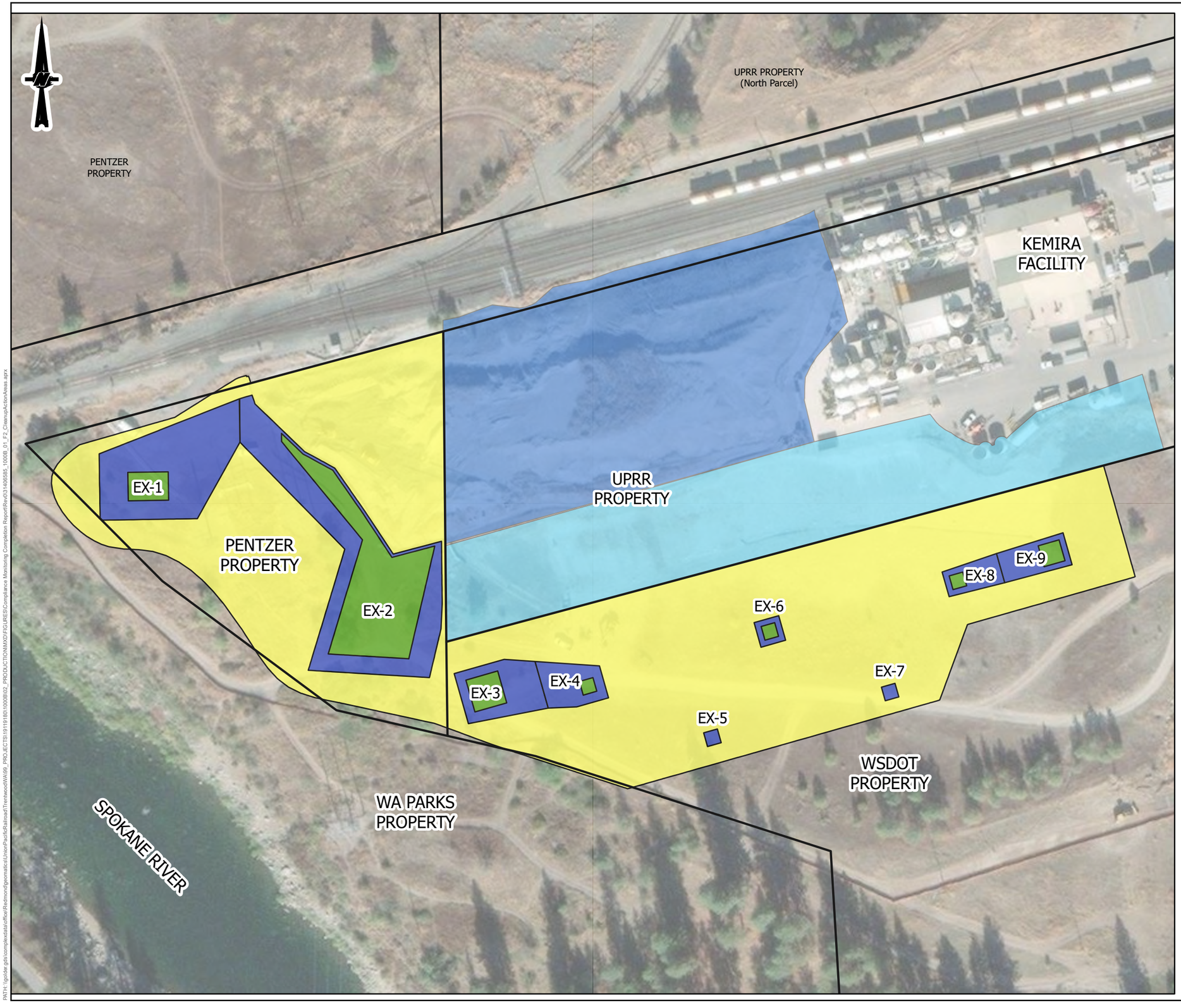
TITLE
SITE LOCATION MAP

CONSULTANT

YYYY-MM-DD	2021-11-19
DESIGNED	CC
PREPARED	REDMOND
REVIEWED	TN
APPROVED	TJN

PROJECT NO.	TASK	REV.	FIGURE
31406585.050	604	A	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D



LEGEND

Property Boundary

Excavation Areas to Achieve Cleanup Levels

- 2-FT Planned Shallow Excavation
- 4-FT Planned Target Excavation
- 6-FT Planned Target Excavation

Removal Areas to Achieve Remediation Levels

- UPRR Flat Platform Surface
- UPRR South Side Slope

0 100 200
Feet

1 inch = 150 feet

REFERENCE(S)

1. COORDINATE SYSTEM: WGS 1984 WORLD MERCATOR
2. SERVICE LAYER CREDITS: WORLD IMAGERY: SPOKANE IMAGE CONSORTIUM, MAXAR, MICROSOFT

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
ALUMINUM RECYCLING TRENTWOOD SITE
REMEDIAL ACTION - DROSS REMOVAL PROJECT
SPOKANE VALLEY, WASHINGTON

TITLE
PLANNED REMEDIAL ACTION AREAS

CONSULTANT

YYYY-MM-DD	2023-09-25
DESIGNED	JR
PREPARED	JR
REVIEWED	TN
APPROVED	TN

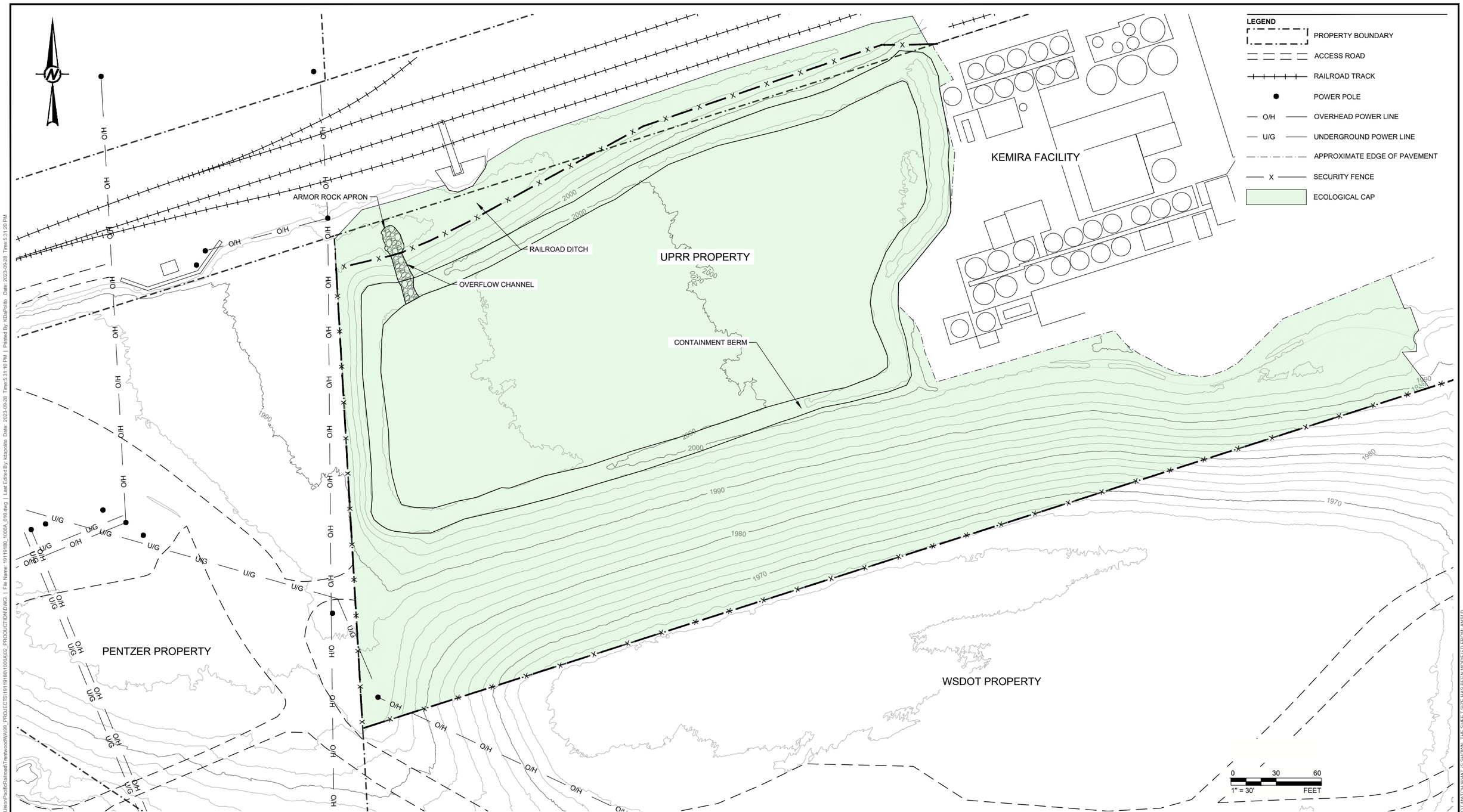
PROJECT NO.	TASK	REV.	FIGURE
31406585.050	604	0	2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0

PATH: \\pnlder.gds\complexdata\office\Redmond\geomatics\UnionPacificRailroad\Trentwood\WA99_PROJECTS\191918018\1000\B02_PRODUCTION\MXD\FIGURES\Compliance Monitoring Completion Report\Rev0\31406585_1000B_01_F2_CleanupActionAreas.aprx



CLIENT
UNION PACIFIC RAILROAD CO.

CONSULTANT
wsp

YYYY-MM-DD	2023-09-27
DESIGNED	VMN
PREPARED	REDMOND
REVIEWED	TJN
APPROVED	TJN

PROJECT
ALUMINUM RECYCLING TRENTWOOD SITE
REMEDIAL ACTION - DROSS REMOVAL PROJECT
SPOKANE VALLEY, WASHINGTON

TITLE
AREA QUALIFYING FOR USE OF REMEDATION LEVELS

PROJECT NO.	PHASE	REV.	FIGURE
19119180	1000	0	3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 1in

Path: \\gobter.gds\comp\estata\office\Redmond\genomatics\UnionPacificRailroadT\trentwood\WA\99_PROJECTS\19119180\1000\A\02_PRODUCT\CNX\DWG\ | File Name: 19119180_1000A_010.dwg | Last Edited By: kdapolito Date: 2023-09-28 Time:5:31:10 PM | Printed By: KDaPolito Date: 2023-09-28 Time:5:31:20 PM

LEGEND

Final Excavation Depth

- 0.1 feet bgs
- 1 feet bgs
- 2 feet bgs
- 4 feet bgs
- 6 feet bgs
- Property Boundary
- Planned Excavation Extents

0 100
Feet

1 inch = 75 feet

REFERENCE(S)

1. COORDINATE SYSTEM: WGS 1984 WORLD MERCATOR
2. SERVICE LAYER CREDITS: WORLD IMAGERY: SPOKANE IMAGE CONSORTIUM, MAXAR, MICROSOFT

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
ALUMINUM RECYCLING TRENTWOOD SITE
REMEDIAL ACTION - DROSS REMOVAL PROJECT
SPOKANE VALLEY, WASHINGTON

TITLE
EXCAVATIONS ON PENTZER PROPERTY AND WA PARKS & REC PROPERTY

CONSULTANT

wsp

YYYY-MM-DD	2023-09-25
DESIGNED	JR
PREPARED	JR
REVIEWED	TN
APPROVED	TN

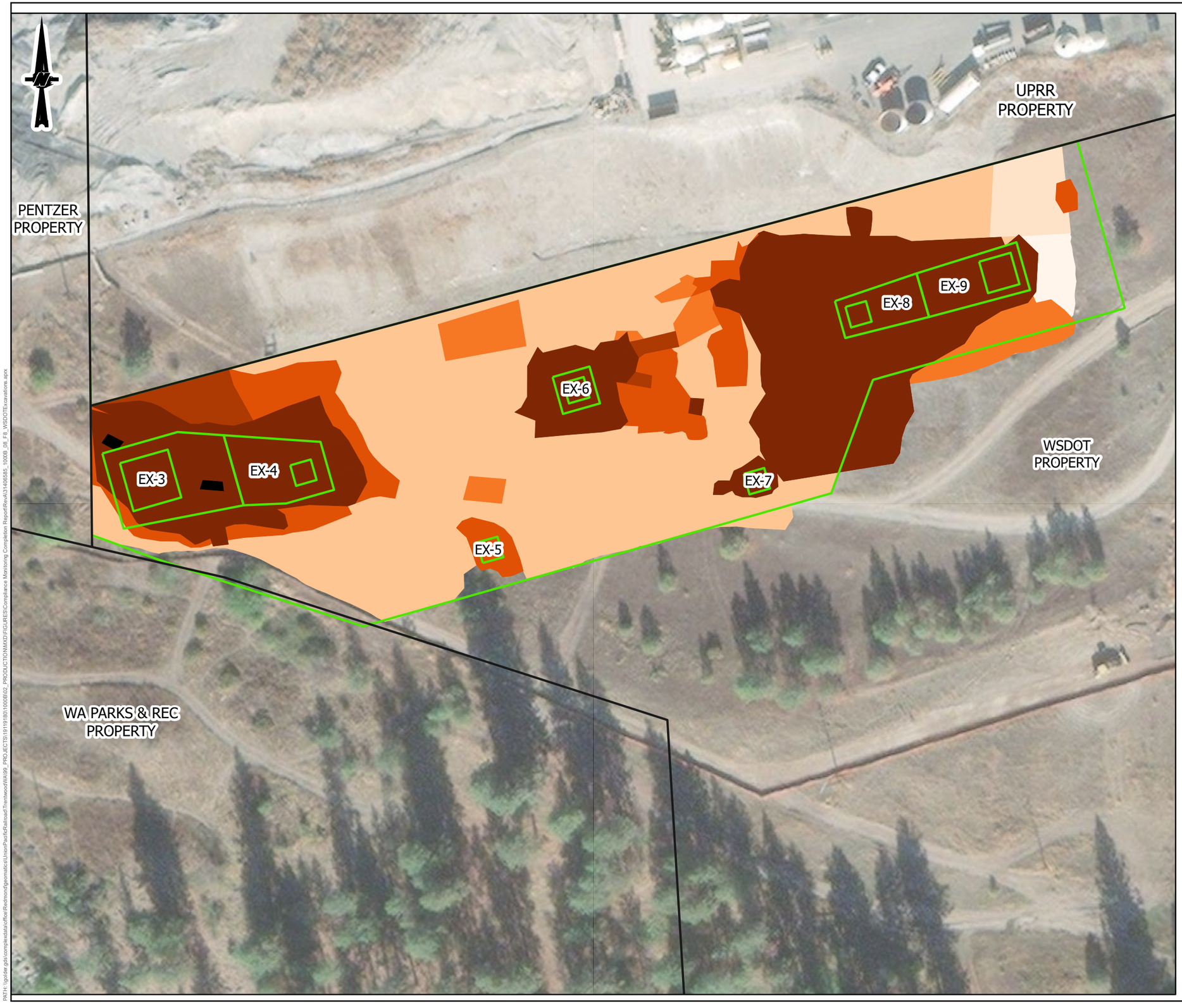
PROJECT NO.	TASK	REV.	FIGURE
31406585.050	604	0	4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0

PATH: \\pridar.gds\complexdata\office\Redmond\gesomatics\UnionPacificRailroad\Trentwood\WA\99_PROJECTS\31911980\1000\B\02_PRODUCTION\MXD\FIGURES\Compliance Monitoring Completion Report\Rev0\31406585_1000B_02_F4_PentzerExcavations.aprx



LEGEND

Final Excavation Depths

- 1 foot bgs
- 1.5 feet bgs
- 2 feet bgs
- 3 feet bgs
- 4 feet bgs
- 5 feet bgs
- 6 feet bgs
- 8 foot bgs
- Planned Excavation Extents
- Property Boundary

0 100 200

Feet

1 inch = 100 feet

REFERENCE(S)

1. COORDINATE SYSTEM: WGS 1984 WORLD MERCATOR
2. SERVICE LAYER CREDITS: WORLD IMAGERY: SPOKANE IMAGE CONSORTIUM, MAXAR, MICROSOFT
WORLD BOUNDARIES AND PLACES: ESRI, HERE, GARMIN, IPC

CLIENT

UNION PACIFIC RAILROAD CO.

PROJECT

ALUMINUM RECYCLING TRENTWOOD SITE
REMEDIAL ACTION - DROSS REMOVAL PROJECT
SPOKANE VALLEY, WASHINGTON

TITLE

EXCAVATIONS ON WSDOT PROPERTY

CONSULTANT

wsp

YYYY-MM-DD	2023-09-25
DESIGNED	JR
PREPARED	JR
REVIEWED	TN
APPROVED	TN

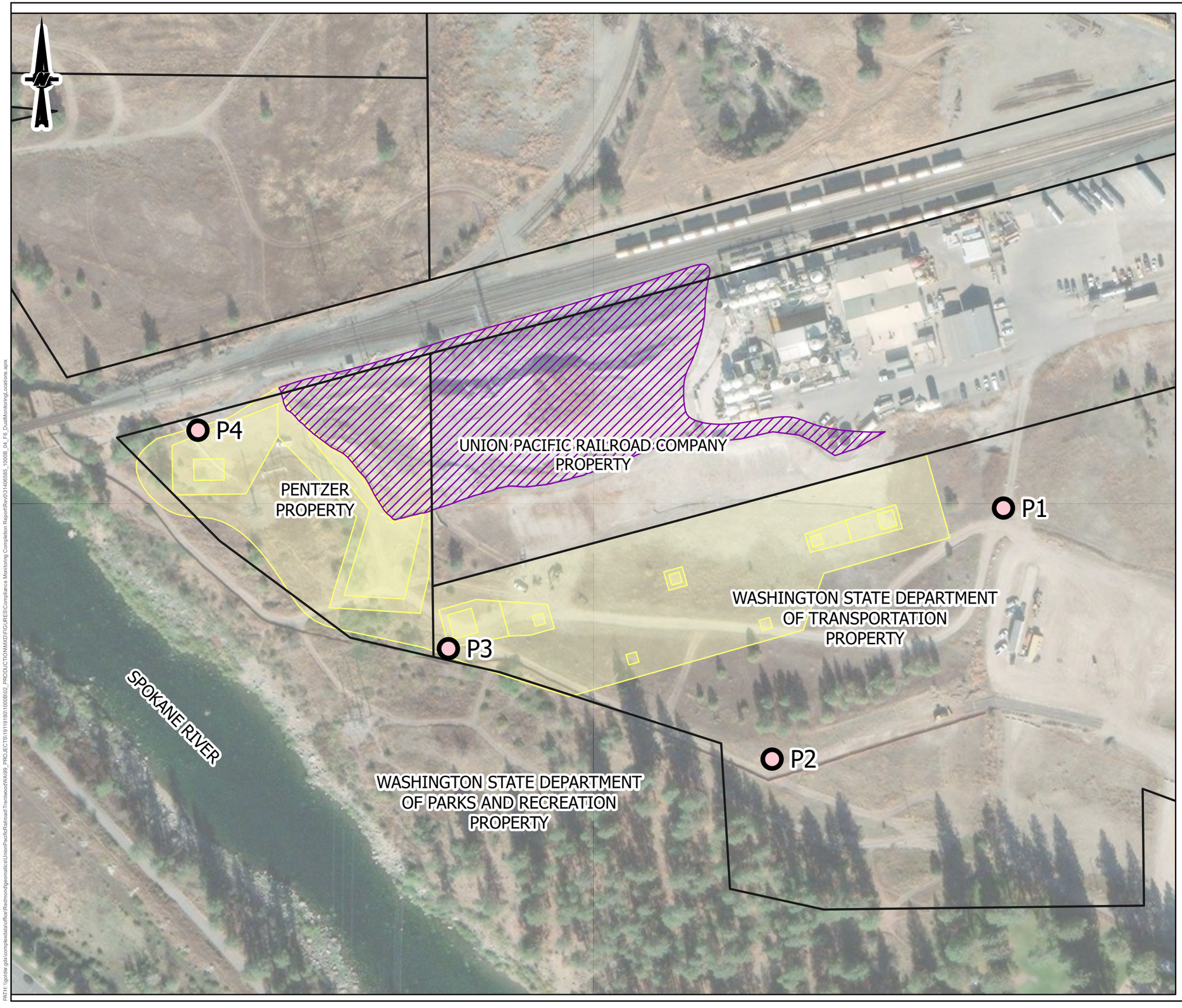
PROJECT NO.	TASK	REV.	FIGURE
31406585.050	604	0	5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0

PATH: \\pldlgr.pds\comlekedata\office\Redmond\geomatics\UnionPacificRailroad\Trentwood\WA99_PROJECT\S1191918\0100B\02_PRODUCTION\MXD\FIGURES\Compliance Monitoring Completion Report\Rev\A31406585_100B_08_F8_WSDOTExcavations.aprx



LEGEND

- Dust Monitoring Location
- Property Boundary
- Dross Stockpile Area
- Planned Excavations

0 100 200
Feet

1 inch = 200 feet

REFERENCE(S)

1. COORDINATE SYSTEM: WGS 1984 WORLD MERCATOR
2. SERVICE LAYER CREDITS: WORLD IMAGERY: SPOKANE IMAGE CONSORTIUM, MAXAR

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
ALUMINUM RECYCLING TRENTWOOD SITE
REMEDIAL ACTION - DROSS REMOVAL PROJECT
SPOKANE VALLEY, WASHINGTON

TITLE
DUST MONITORING LOCATIONS

CONSULTANT

YYYY-MM-DD	2023-09-25
DESIGNED	JR
PREPARED	JR
REVIEWED	TN
APPROVED	TN

PROJECT NO.	TASK	REV.	FIGURE
31406585.050	604	0	6

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25mm

PATH: \\golder.gds\complexdata\office\Redmond\geomatic\UnionPacificRailroad\Trentwood\WA99_PROJECTS\19119180\1000B\02_PRODUCTION\MXD\FIGURES\Compliance Monitoring Completion Report\Rev0\31406585_1000B_04_F6_DustMonitoringLocations.aprx

PENTZER PROPERTY

UPRR PROPERTY (North Parcel)

KEMIRA FACILITY

UPRR PROPERTY

WSDOT PROPERTY

WA PARKS PROPERTY

SPOKANE RIVER

UPRR Industrial 1 (UP1)

UP1-01 UP1-02 UP1-03 UP1-04 UP1-05 UP1-06 UP1-07 UP1-08 UP1-09 UP1-10 UP1-11 UP1-12 UP1-13 UP1-14 UP1-15 UP1-16 UP1-17 UP1-18 UP1-19 UP1-20 UP1-21 UP1-22 UP1-23 UP1-24 UP1-25 UP1-27 UP1-28 UP1-29 UP1-30 UP1-31 UP1-32 UP1-33 UP1-34 UP1-35 UP1-36 UP1-37 UP1-38 UP1-39 UP1-40 UP1-41

UPRR Industrial 2 (UP2)

UP2-01 UP2-02 UP2-03 UP2-04 UP2-05 UP2-06 UP2-07 UP2-08 UP2-09 UP2-10 UP2-11 UP2-12 UP2-13 UP2-14 UP2-15 UP2-16 UP2-17 UP2-18 UP2-19 UP2-20 UP2-21 UP2-22 UP2-23 UP2-24 UP2-25 UP2-26 UP2-27 UP2-28 UP2-29

Pentzer Unrestricted 1 (P1)

P1-01 P1-02 P1-03 P1-04 P1-05 P1-06 P1-07 P1-08 P1-09 P1-10 P1-11 P1-12 P1-13 P1-14 P1-15 P1-16 P1-17 P1-18 P1-19 P1-20 P1-21 P1-22 P1-23 P1-24 P1-25 P1-26 P1-27 P1-28 P1-29 P1-30 P1-31 P1-32 P1-33 P1-34 P1-35 P1-36 P1-37 P1-38 P1-39 P1-40 P1-41 P1-42 P1-43 P1-44 P1-45 P1-46

WSDOT Unrestricted 1 (W1)

W1-01 W1-02 W1-03 W1-04 W1-05 W1-06 W1-07 W1-08 W1-09 W1-10 W1-11 W1-12 W1-13 W1-14 W1-15 W1-16 W1-17 W1-18 W1-19 W1-20 W1-21 W1-22 W1-23 W1-24 W1-25 W1-26 W1-27 W1-28 W1-29 W1-30 W1-31 W1-32 W1-33 W1-34 W1-35 W1-36 W1-37 W1-38 W1-39 W1-40 W1-41 W1-42 W1-43 W1-44 W1-45 W1-46 W1-47

LEGEND

- Property Boundary
- Industrial Use Compliance Unit Grid Cell Boundary
- Unrestricted Use Compliance Unit Grid Cell Boundary

0 100 200

Feet

1 inch = 150 feet

REFERENCE(S)

1. COORDINATE SYSTEM: WGS 1984 WORLD MERCATOR
2. SERVICE LAYER CREDITS: WORLD IMAGERY: SPOKANE IMAGE CONSORTIUM, MAXAR, MICROSOFT

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
ALUMINUM RECYCLING TRENTWOOD SITE
REMEDIAL ACTION - DROSS REMOVAL PROJECT
SPOKANE VALLEY, WASHINGTON

TITLE
COMPLIANCE UNITS

CONSULTANT
wsp

YYYY-MM-DD	2023-09-25
DESIGNED	JR
PREPARED	JR
REVIEWED	TN
APPROVED	TN

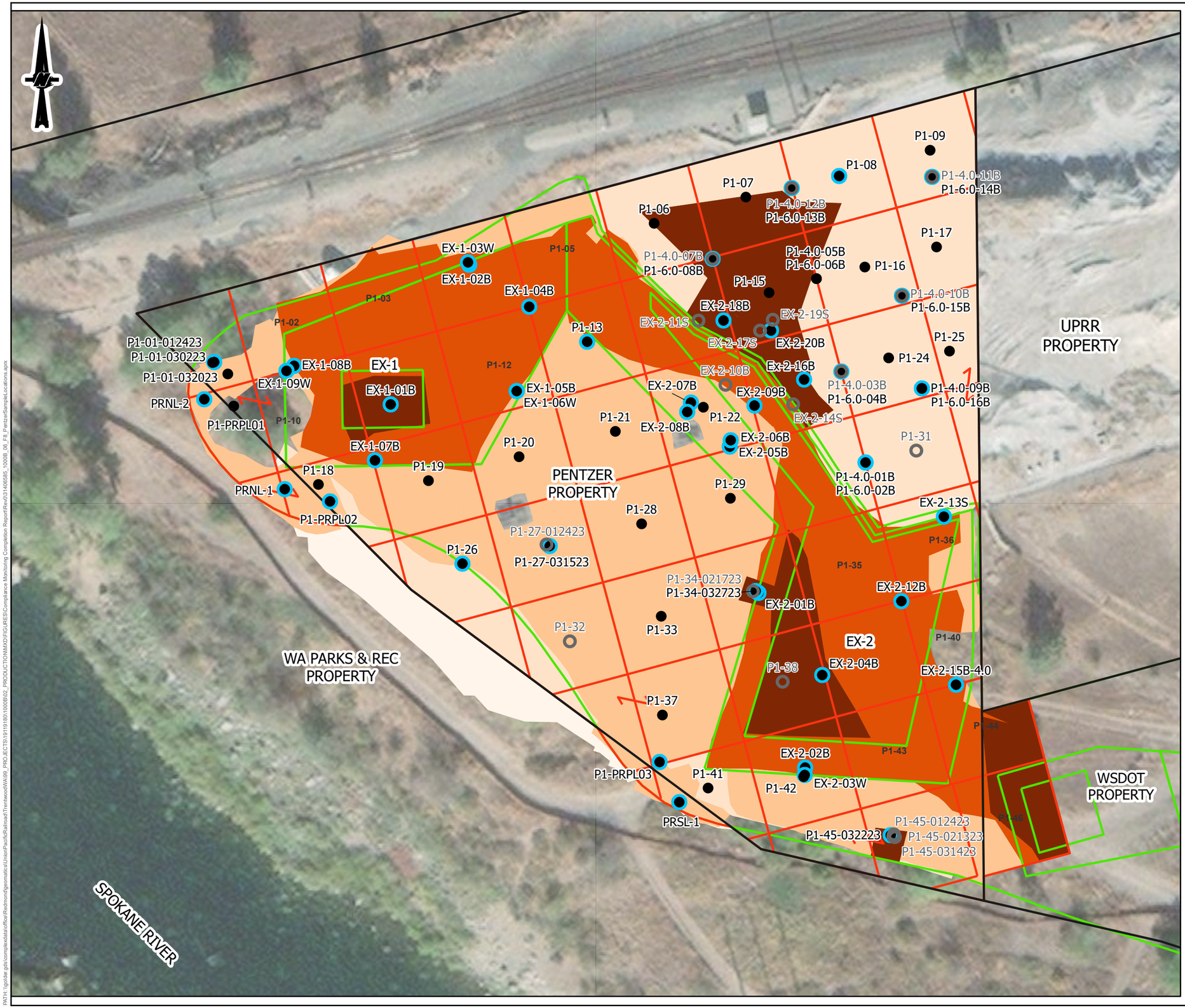
PROJECT NO.	TASK	REV.	FIGURE
31406585.050	604	0	7

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0

PATH: \\golder.gds\complexdata\office\Redmond\gisomatics\UnionPacificRailroadTrentwood\WA\tb_PROJECTS\119119180\10008\B02_PRODUCTION\MXD\FIGURES\Compliance Monitoring Completion Report\Rev0\31406585_10008_10_F3_ComplianceUnitCells.aprx



LEGEND

- Removed Soil Sample Location
- Soil Sample Location for XRF Analysis Only
- Soil Sample Location for XRF Analysis and Lab Submission
- Property Boundary
- Compliance Unit Grid Cell Boundary
- Planned Excavation Extents

Final Excavation Depth

- 0.1 feet bgs
- 1 feet bgs
- 2 feet bgs
- 4 feet bgs
- 6 feet bgs

0 100

Feet

1 inch = 75 feet

REFERENCE(S)

1. COORDINATE SYSTEM: WGS 1984 WORLD MERCATOR
2. SERVICE LAYER CREDITS: WORLD IMAGERY: SPOKANE IMAGE CONSORTIUM, MAXAR, MICROSOFT

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
ALUMINUM RECYCLING TRENTWOOD SITE
REMEDIAL ACTION - DROSS REMOVAL PROJECT
SPOKANE VALLEY, WASHINGTON

TITLE
SOIL SAMPLE LOCATIONS ON PENTZER PROPERTY AND WA PARKS & REC PROPERTY

CONSULTANT
wsp

YYYY-MM-DD	2023-09-28
DESIGNED	JR
PREPARED	JR
REVIEWED	TN
APPROVED	TN

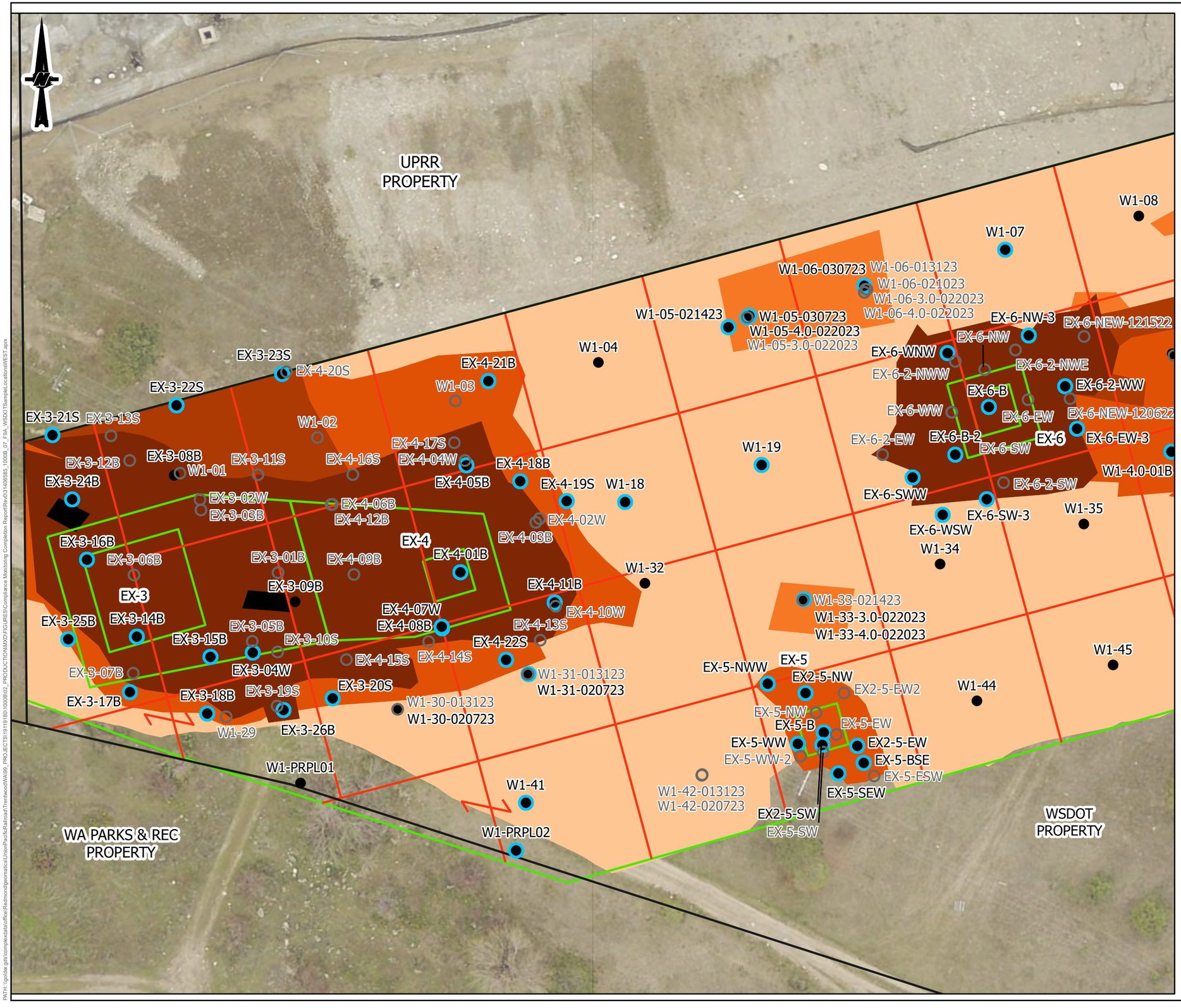
PROJECT NO.	TASK	REV.	FIGURE
31406585.050	604	0	8

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0

PATH: \\gpidar.gds\complexdata\office\Redmond\geomatics\U\Union Pacific Railroad\Trentwood\WA\99_PROJECTS\191918010008\02_PRODUCTION\MXD\FIGURES\Compliance Monitoring Completion Report\Rev0\31406585_1000B_06_F8_PentzerSampleLocations.aprx



LEGEND

- Removed Soil Sample Location
- Soil Sample Location for XRF Analysis Only
- Soil Sample Location for XRF Analysis and Lab Submission
- Property Boundary
- Compliance Unit Grid Cell Boundary
- Planned Excavation Extents

Final Excavation Depth

- 1 foot bgs
- 1.5 feet bgs
- 2 feet bgs
- 3 feet bgs
- 4 feet bgs
- 5 feet bgs
- 6 feet bgs
- 8 foot bgs

0 25 50 75 100

Feet

1 inch = 50 feet

REFERENCE(S)

1. LABORATORY SAMPLE IDS INCLUDE "SO-2494-" AS A PREFIX AND COLLECTION DATE IN THE FORMAT "-MMDDYY" AS A SUFFIX TO THOSE SHOWN IN THE MAP.
2. COORDINATE SYSTEM: WGS 1984 WORLD MERCATOR
3. SERVICE LAYER CREDITS: WORLD IMAGERY: SPOKANE IMAGE CONSORTIUM, MAXAR, MICROSOFT

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
ALUMINUM RECYCLING TRENTWOOD SITE
REMEDIAL ACTION - DROSS REMOVAL PROJECT
SPOKANE VALLEY, WASHINGTON

TITLE
SOIL SAMPLE LOCATIONS ON THE WESTERN SIDE OF THE WSDOT PROPERTY

CONSULTANT

wsp

YYYY-MM-DD	2023-09-27
DESIGNED	JR
PREPARED	JR
REVIEWED	TN
APPROVED	TN

PROJECT NO.	TASK	REV.	FIGURE
31406585.050	604	0	9A

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25mm

PATH: \\pcifder.gds\complexdata\office\Redmond\geomatics\Union Pacific Railroad\Trentwood\WA\99_PROJECTS\191918018\1000\B02_PROD\ACTIONMXD\FIGURES\Compliance Monitoring Completion Report\Rev0\31406585_1000B_07_F9A_WSDOTSampleLocationsWEST.aprx

UPRR PROPERTY

WSDOT PROPERTY

W1-14-012723
W1-14-021423
W1-13
W1-12
W1-11-030923
W1-11-031423
W1-11-020923
W1-4.0-04W
W1-4.0-03B
W1-08
W1-07
W1-28-021023
EX-9-S5
EX-9-S2
EX-9-S1
EX-9
EX-9-B6
EX-9-S5-2
EX-9-B4
EX-9-2-B
EX-9-S4
EX-9-S3-2
W1-40-021023
W1-40-021723
EX-9-S4-4
EX-9-S3-3
EX-9-S3-4
EX-9-S3
EX-9-3-S1
EX-9-2-S2-02
EX-9-2-S2-01
EX-8-3-S1
EX-8-2-S1
EX-8-S1
EX-8-2-B
EX-8-B4
EX-8-B6
EX-8-S2
EX-8-S3
EX-8
EX-8-S4-2
EX-8-S6
EX-8-S3-2
EX-8-WW
EX-8-SEW
EX-8-SW
W1-23-020123
W1-23-012423
W1-22-021023
W1-22-020323
EX-6-WNW
EX-6-2-NWW
EX-6-NW-3
EX-6-NEW-121522
EX-6-2-NWE
EX-6-NW
EX-6-B
EX-6-2-WW
EX-6-NEW-120622
EX-6-EW
EX-6-EW-3
EX-6-WW
EX-6-SW
EX-6
W1-4.0-01B
W1-37
W1-4.0-02W
EX-6-B-2
EX-6-2-SW
W1-36-021023
W1-36-020323
EX-6-SW-3
W1-35
EX-6-WSW
W1-34
EX-7
EX-7-NW
EX-7-EW-3
EX2-7-BW
EX2-7-BE
EX2-7-WW
EX2-7-EW
W1-46
EX-7-WW
EX-5-SW-3
EX-7-B
EX-7-SW
EX-7-SW-3
W1-45
W1-44

LEGEND

- Removed Soil Sample Location
- Soil Sample Location for XRF Analysis Only
- Soil Sample Location for XRF Analysis and Lab Submission
- Property Boundary
- Compliance Unit Grid Cell Boundary
- Planned Excavation Extents

Final Excavation Depth

- 1 foot bgs
- 1.5 feet bgs
- 2 feet bgs
- 3 feet bgs
- 4 feet bgs
- 5 feet bgs
- 6 feet bgs
- 8 foot bgs

0 25 50 75 100
Feet
1 inch = 50 feet

REFERENCE(S)

1. LABORATORY SAMPLE IDS INCLUDE "SO-2494-" AS A PREFIX AND COLLECTION DATE IN THE FORMAT "-MMDDYY" AS A SUFFIX TO THOSE SHOWN IN THE MAP.
2. COORDINATE SYSTEM: WGS 1984 WORLD MERCATOR
3. SERVICE LAYER CREDITS: WORLD IMAGERY: SPOKANE IMAGE CONSORTIUM, MAXAR, MICROSOFT

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
ALUMINUM RECYCLING TRENTWOOD SITE
REMEDIAL ACTION - DROSS REMOVAL PROJECT
SPOKANE VALLEY, WASHINGTON

TITLE
SOIL SAMPLE LOCATIONS ON THE EASTERN SIDE OF THE WSDOT PROPERTY

CONSULTANT

YYYY-MM-DD	2023-09-27
DESIGNED	JR
PREPARED	JR
REVIEWED	TN
APPROVED	TN

PROJECT NO.	TASK	REV.	FIGURE
31406585.050	604	0	9B

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0

PATH: \\gis\der gds\complexdata\office\Redmond\gismatics\UnionPacificRailroad\Trentwood\WA\99_PROJECTS\191191801\1000B\02_PRODUCTION\MXD\FIGURES\Compliance Monitoring Completion Report\Rev0\31406585_1000B_07_F9B_WSDOTSampleLocationsEAST.aprx

UNION PACIFIC RAILROAD COMPANY PROPERTY

KEMIRA FACILITY

UNION PACIFIC RAILROAD COMPANY PROPERTY

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION PROPERTY

UP1-01 UP1-02 UP1-03 UP1-04 UP1-05 UP1-06 UP1-07 UP1-08 UP1-09 UP1-10 UP1-11 UP1-12 UP1-13 UP1-14 UP1-15 UP1-16 UP1-17 UP1-18 UP1-19 UP1-20 UP1-21 UP1-22 UP1-23 UP1-24 UP1-25 UP1-26 UP1-27 UP1-28 UP1-29 UP1-30 UP1-31 UP1-32 UP1-33 UP1-34 UP1-35 UP1-36 UP1-37 UP1-38 UP1-39 UP1-40 UP1-41

UP2-01 UP2-02 UP2-03 UP2-04 UP2-05 UP2-06 UP2-07 UP2-08 UP2-09 UP2-10 UP2-11 UP2-12 UP2-13 UP2-14 UP2-15 UP2-16 UP2-17 UP2-18 UP2-19 UP2-20 UP2-21 UP2-22 UP2-23 UP2-24 UP2-25 UP2-26 UP2-27 UP2-28 UP2-29

LEGEND

- Soil Sample Location
- Laboratory Submission
- Compliance Unit Grid Cell Boundary
- Property Boundary
- UP1 Compliance Unit
- UP2 Compliance Unit

0 100 200
Feet

1 inch = 100 feet

REFERENCE(S)

1. COORDINATE SYSTEM: WGS 1984 WORLD MERCATOR
2. SERVICE LAYER CREDITS: WORLD IMAGERY: SPOKANE IMAGE CONSORTIUM, MAXAR, MICROSOFT
WORLD BOUNDARIES AND PLACES: ESRI, HERE, GARMIN, IPC

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
ALUMINUM RECYCLING TRENTWOOD SITE
REMEDIAL ACTION - DROSS REMOVAL PROJECT
SPOKANE VALLEY, WASHINGTON

TITLE
SOIL SAMPLE LOCATIONS IN THE UPRR INDUSTRIAL USE COMPLIANCE UNITS (U1 AND U2)

CONSULTANT

YYYY-MM-DD	2023-09-26
DESIGNED	JR
PREPARED	JR
REVIEWED	TN
APPROVED	TN

PROJECT NO.	TASK	REV.	FIGURE
31406585.050	604	0	10

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25mm

PATH: \\polder.gds\complexdata\office\Redmond\geomatics\UnionPacificRailroad\Trentwood\WA99 PROJECTS\19119180\100\B02 PRODUCTION\MXD\FIGURES\Compliance Monitoring Completion Report\Rev0\31406585_100\B_08_F10_UPRRSampleLocations.aprx

LEGEND

- Soil Sample Location
- Property Boundary

Final Excavation Depth

- 1.5 feet bgs
- 2 feet bgs, Immediately Backfilled

0 100 200

Feet

1 inch = 75 feet

NOTES

1. LABORATORY SOIL SAMPLE IDS INCLUDE "SO-2494-" AS A PREFIX AND "-011223" AS A SUFFIX.
2. COORDINATE SYSTEM: WGS 1984 WORLD MERCATOR
3. SERVICE LAYER CREDITS: WORLD IMAGERY: SPOKANE IMAGE CONSORTIUM, MAXAR, MICROSOFT

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
ALUMINUM RECYCLING TRENTWOOD SITE
REMEDIAL ACTION - DROSS REMOVAL PROJECT
SPOKANE VALLEY, WASHINGTON

TITLE
EXCAVATIONS AND SOIL SAMPLE LOCATIONS AT THE KEMIRA FACILITY

CONSULTANT

wsp

YYYY-MM-DD	2023-09-28
DESIGNED	JR
PREPARED	JR
REVIEWED	TN
APPROVED	TN

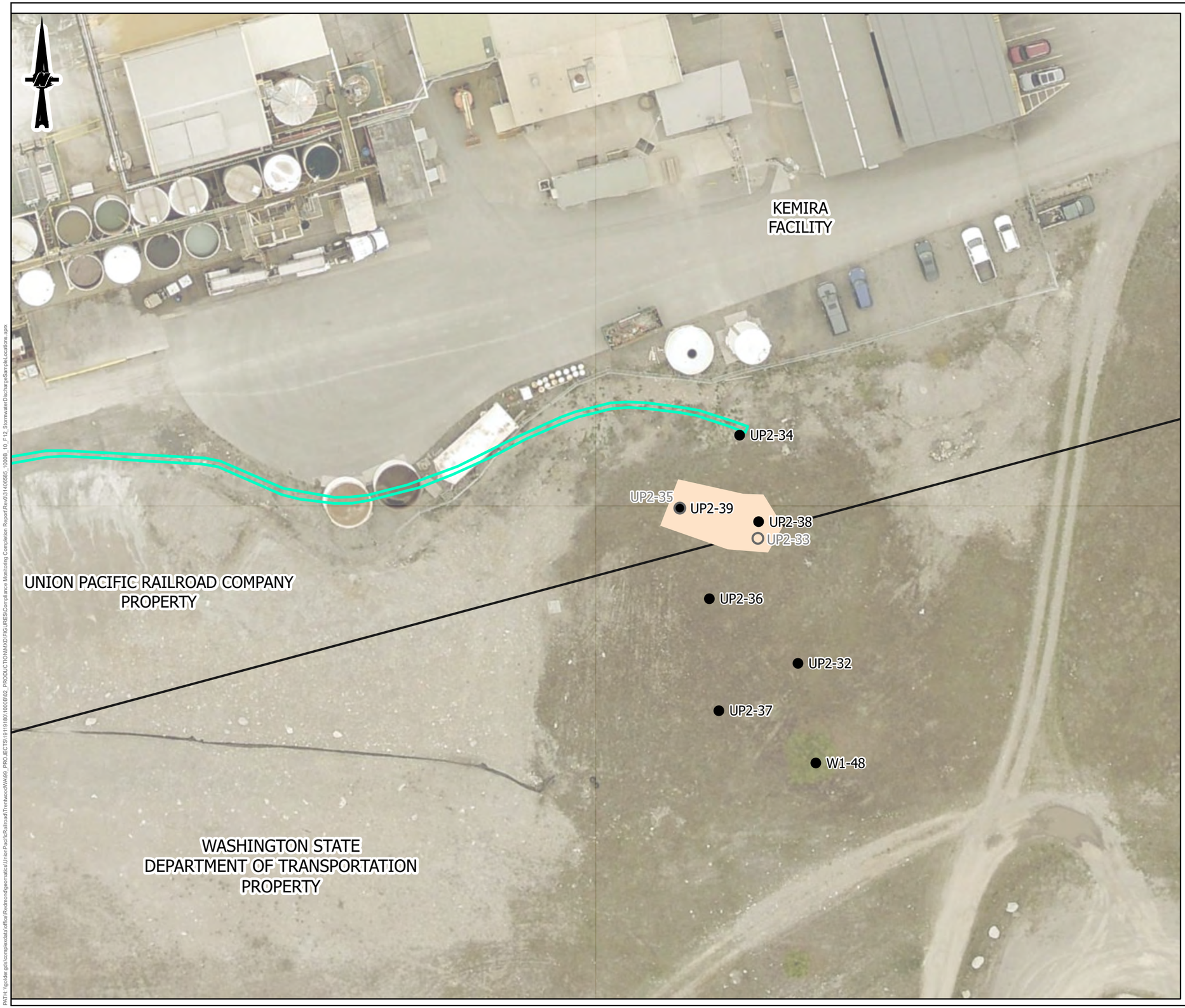
PROJECT NO.	TASK	REV.	FIGURE
31406585.050	604	0	11

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0

PATH: \\golder.gds\comp\exdata\ofice\Redmond\gisomatics\Union\PacificRailroad\Trentwood\WA99_PROJECT\S\1911918\01900B\02_PRODUCTION\MXD\FIGURES\Compliance Monitoring Completion Report\Rev0\31406585_1000B_09_F11_KemiraSampleLocations.aprx



LEGEND

- Removed Soil Sample Location
- Soil Sample Location for XRF Analysis and Lab Submission
- Ecology Block Stormwater Feature
- Property Boundary

Final Excavation Depth

- 1.5 foot bgs

0 25 50 75 100
Feet

1 inch = 50 feet

NOTES

1. LABORATORY SOIL SAMPLE IDS INCLUDE "SO-2494-" AS A PREFIX AND "-011223" AS A SUFFIX.
2. COORDINATE SYSTEM: WGS 1984 WORLD MERCATOR
3. SERVICE LAYER CREDITS: WORLD IMAGERY: SPOKANE IMAGE CONSORTIUM, MAXAR, MICROSOFT

CLIENT
UNION PACIFIC RAILROAD CO.

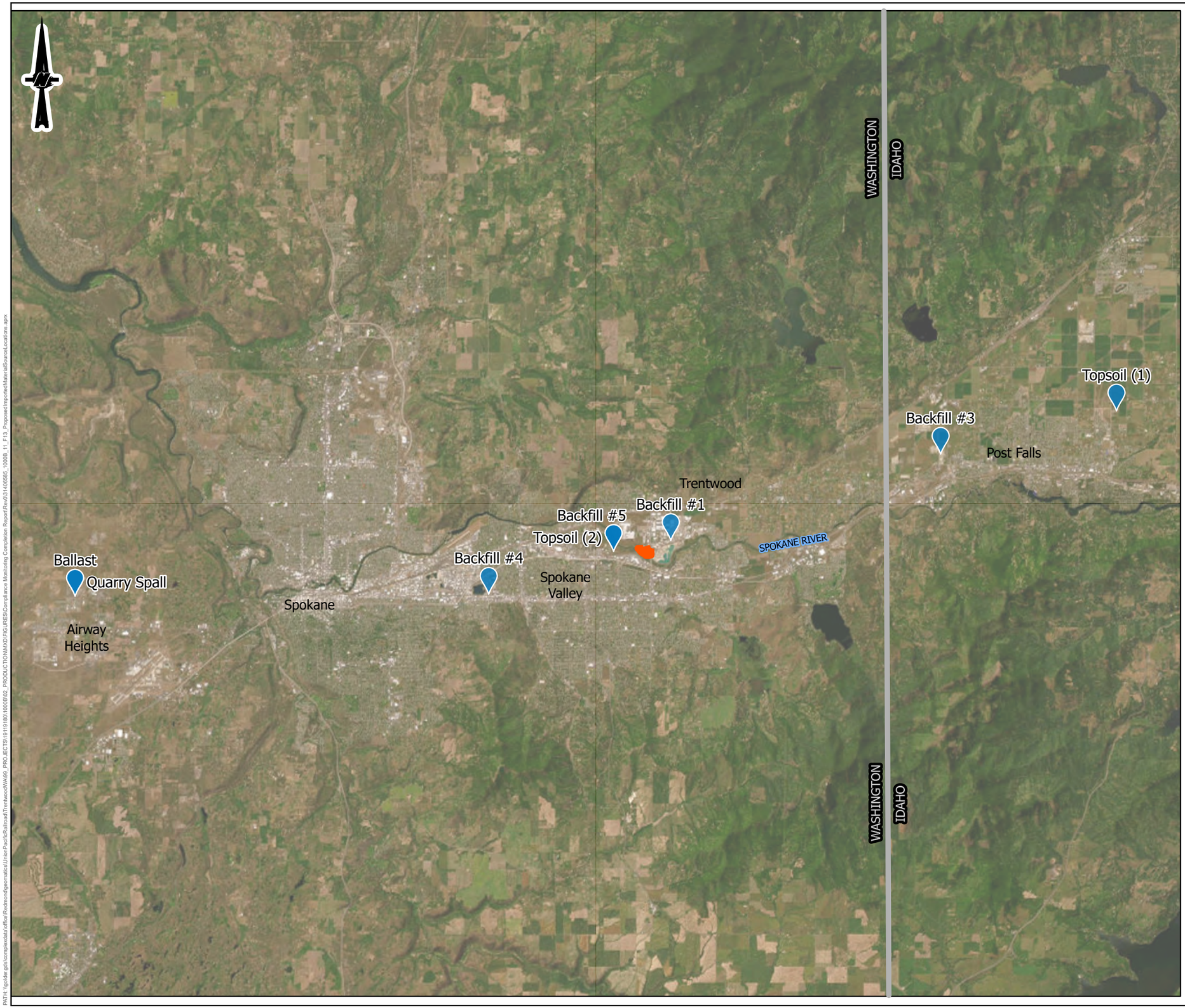
PROJECT
ALUMINUM RECYCLING TRENTWOOD SITE
REMEDIAL ACTION - DROSS REMOVAL PROJECT
SPOKANE VALLEY, WASHINGTON

TITLE
SOIL SAMPLE LOCATIONS AT THE STORMWATER INFILTRATION AREA

CONSULTANT
wsp

YYYY-MM-DD	2023-09-28
DESIGNED	JR
PREPARED	JR
REVIEWED	TN
APPROVED	TN

PROJECT NO.	TASK	REV.	FIGURE
31406585.050	604	0	12



LEGEND

- Imported Material Source Location
- Site

0 5 10
Miles

REFERENCE(S)

1. COORDINATE SYSTEM: WGS 1984 WORLD MERCATOR
2. SERVICE LAYER CREDITS: WORLD IMAGERY: EARTHSTAR GEOGRAPHICS

CLIENT
UNION PACIFIC RAILROAD CO.

PROJECT
ALUMINUM RECYCLING TRENTWOOD SITE
REMEDIAL ACTION - DROSS REMOVAL PROJECT
SPOKANE VALLEY, WASHINGTON

TITLE
PROPOSED IMPORTED MATERIAL SOURCE LOCATIONS

CONSULTANT

YYYY-MM-DD	2023-09-28
DESIGNED	JR
PREPARED	JR
REVIEWED	TN
APPROVED	TN

PROJECT NO.	TASK	REV.	FIGURE
31406585.050	604	0	13

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

PATH: \\gpidir.gds\corp\kedata\office\Redmond\gisomatic\s\UnionPacificRailroad\Trentwood\WA\09_PROJECTS\119191980\10008\02_PRODUCTION\MXD\FIGURES\Compliance Monitoring Completion Report\Rev0\31406585_1008_11_F13_ProposedImportedMaterialSourceLocations.aprx

ATTACHMENT A

Select Figures - Cleanup Action Plan

Figure 2: Site Map

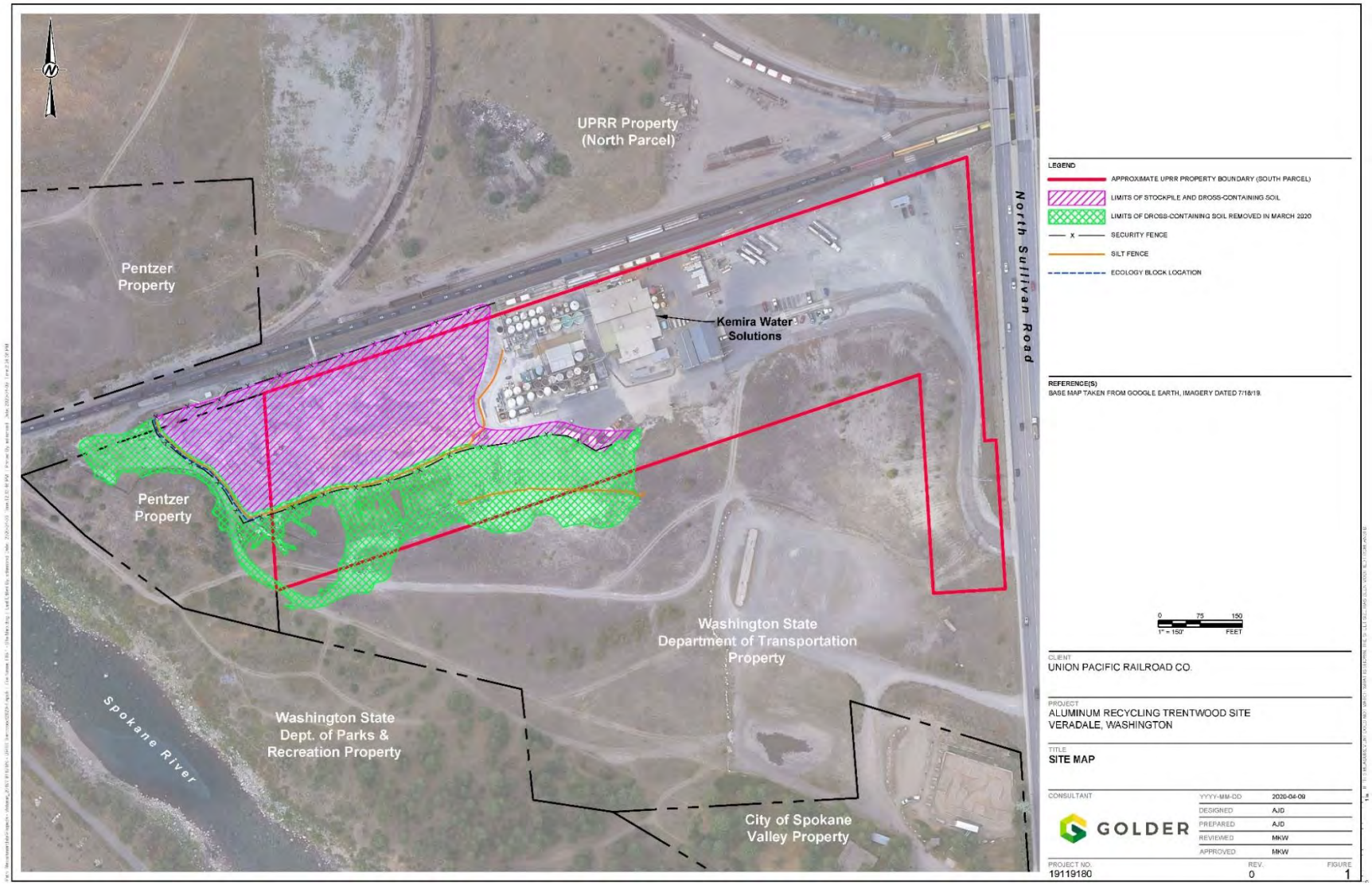


Figure 4: Post-Independent Cleanup Action Sample Locations

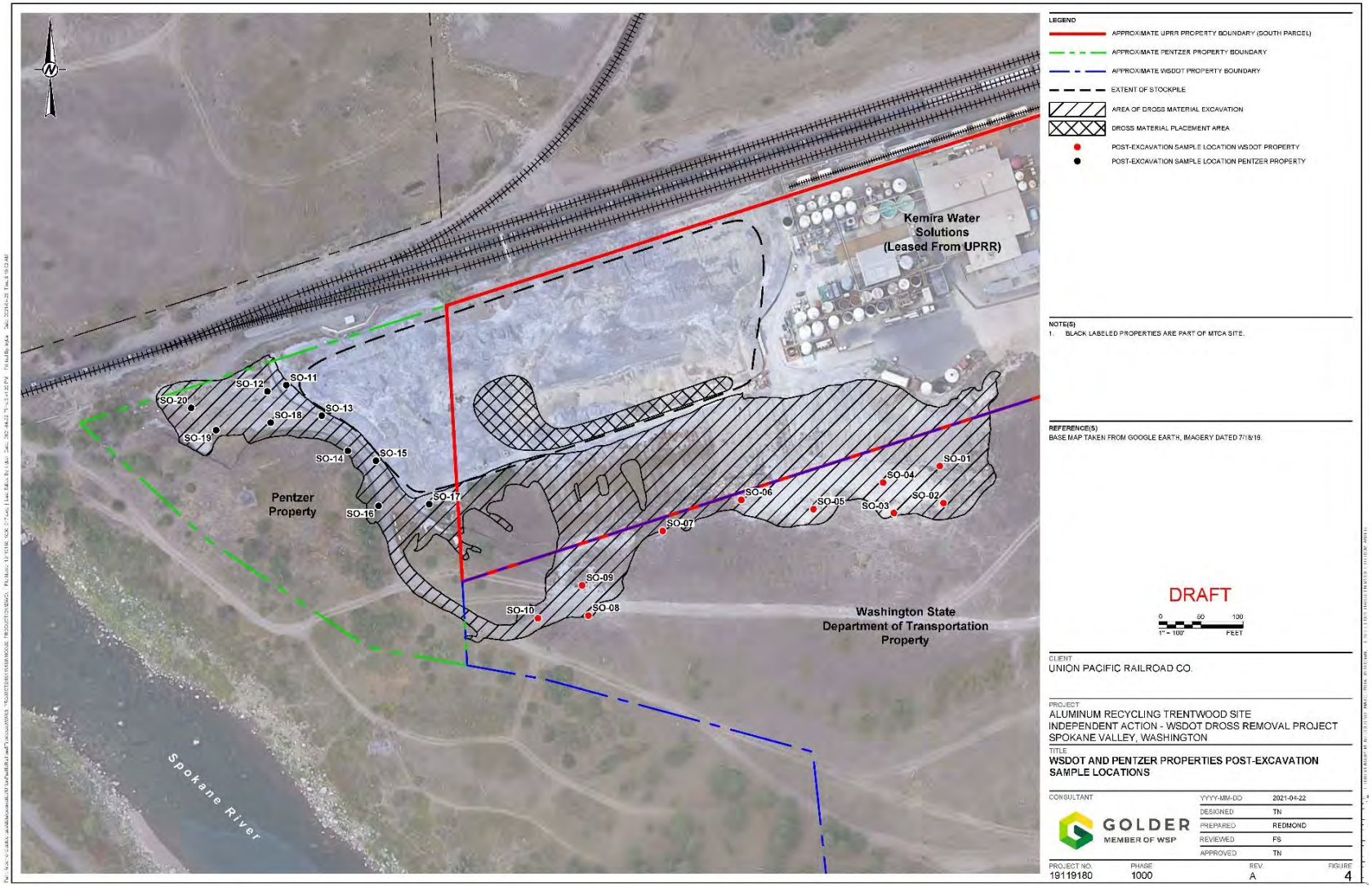


Figure 5: PDI Sample Locations

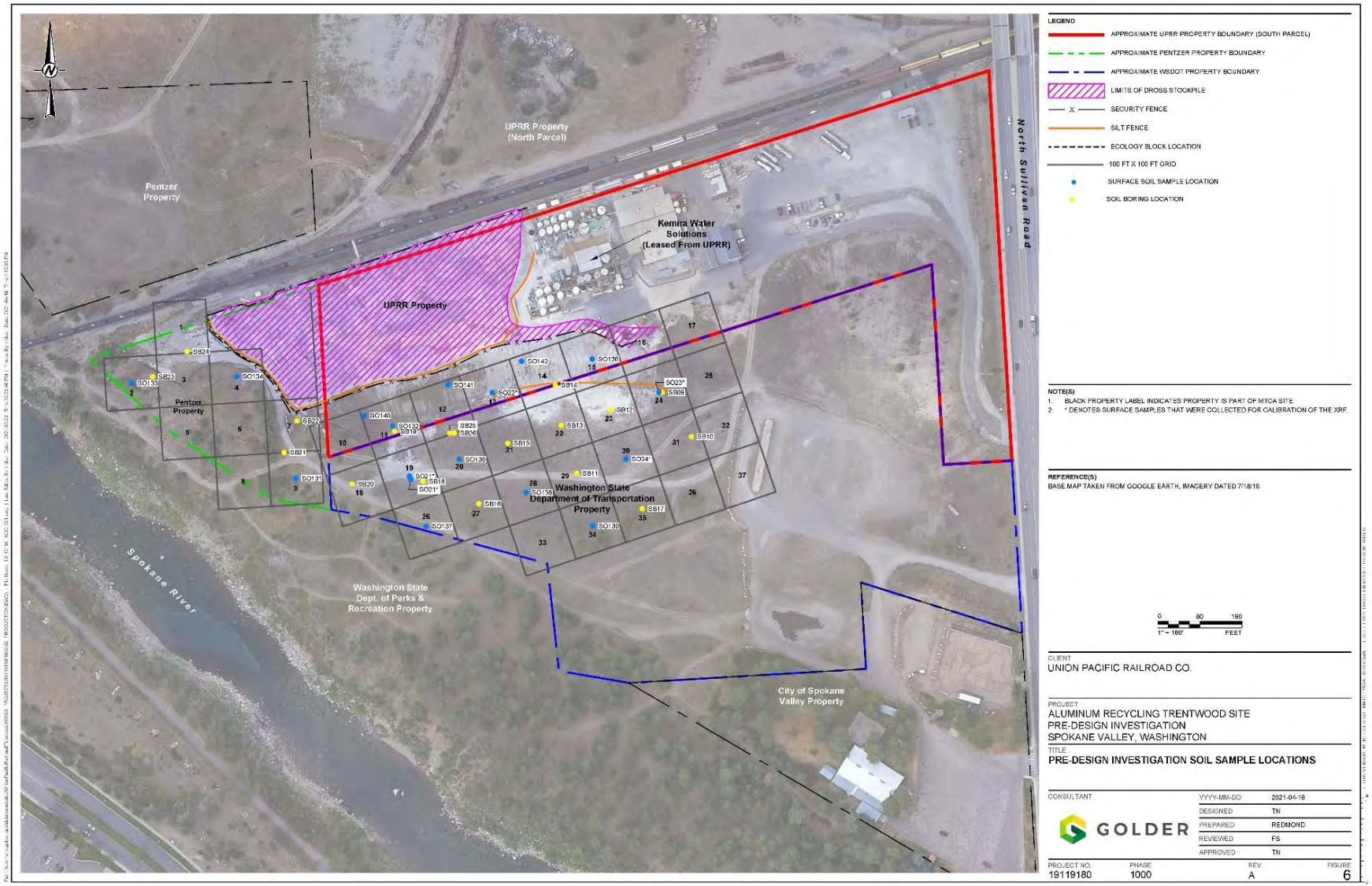
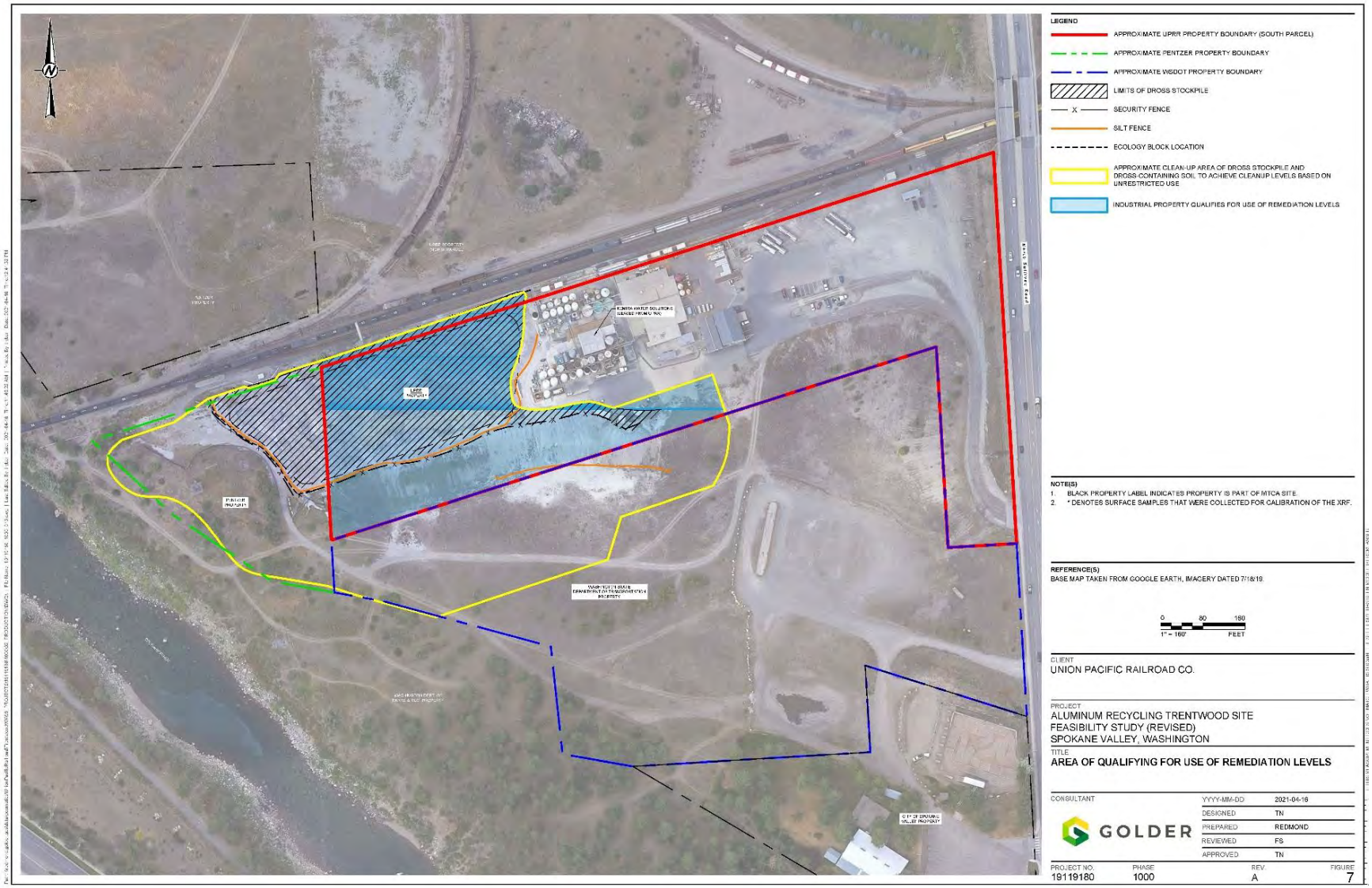


Figure 6: Selected Remedial Action Areas



ATTACHMENT B

Select Tables – Cleanup Action Plan

Table 5: Soil Cleanup Levels

Analyte	Maximum Value	Method A Unrestricted	Method B Unrestricted, carcinogen	Method B Unrestricted, non-carcinogen	Ecological Indicator Values [a]	Detected in Groundwater?	Protection of Groundwater [b]	Back-ground	Cleanup Level	Indicator?	Basis
Aluminum	70,000			80,000	50	yes	6,900,000	**21,400**	21,400	yes	background
Arsenic	16	20	0.67	24	**10**	no	42	9	10	yes	ecological
Barium	160			16,000	**102**	yes	24,000		102	yes	ecological
Chromium (total)	86 [c]	2,000 [d]		120,000	**42**	yes	6,900,000	18	42	yes	ecological
Copper	980			3,200	**50**	no	4,100	22	50	yes	ecological
Lead	40	250			**50**	yes	43,000	15	50	no	C_m<CUL
Mercury	5.2	2			**0.1**	yes	30	0.02	0.1	yes	ecological
Nitrate	101			**130,000**		yes	no value		130,000	no	C_m<CUL
Nitrite	4.2 [d]			**8,000**		yes	no value		8,000	no	C_m<CUL
Silver	0.36 [d]			400	**2**	no	190		2	no	C_m<CUL

All values are milligrams per kilogram.

a = value represents the most conservative ecological receptor for each contaminant from Table 1

b = protective of unsaturated zone of groundwater, using site specific groundwater flow and infiltration values

c = this concentration represents total chromium; site data shows that over 98 percent of chromium is present as trivalent chromium; therefore, total chromium values are appropriate to use

d = analyte concentration is only an estimated value

bold = applicable value selected as cleanup level

C_m = maximum concentration

CUL = cleanup level

Table 6: Soil Remediation Levels

Analyte	Method C Industrial, carcinogen	Method C Industrial, non-carcinogen	Ecological Indicator Concentrations [a]	Protection of Groundwater [b]	Remediation Level	Basis
Aluminum	NR	**3,500,000**		6,900,000	3,500,000	human health
Arsenic	88	1,100	132	**42**	42	gw protection
Barium	NR	**700,000**	102	24,000	700,000	human health
Chromium (total)	NR	**5,300,000**	67	6,900,000	5,300,000	human health
Copper	NR	**140,000**	217	4,100	140,000	human health
Mercury	NR	NR	**5.5**	30	5.5	ecological

All values are milligrams per kilogram.

a = value represents exposure to wildlife in Table 749-3 for industrial site use; since a cap protective of ecological receptors will be placed over all contamination exceeding unrestrictive cleanup levels, these values won't drive remediation levels (unless no other appropriate values exist)

b = protective of unsaturated zone of groundwater, using site specific groundwater flow and infiltration values

NR = not researched; no value exists for this parameter

bold = applicable value selected as remediation level

ATTACHMENT C

Summary – Sampling Procedures

Attachment C
Summary - Performance Monitoring Procedures.

This performance monitoring summary is provided as Attachment C to the Compliance Monitoring Report, Union Pacific Railroad, Aluminum Recycling Trentwood Site (CMR), which is Appendix F to the Corrective Action Report, Union Pacific Railroad, Aluminum Recycling Trentwood Site (CAR). Reference to specific sections or attachments will be to the CMR unless otherwise specified.

C-1. Performance Monitoring

Performance monitoring of removal actions for dross and dross-impacted soil consisted of visual observation for dross, XRF screening, and confirmatory soil sampling for chemical analysis by an analytical laboratory in accordance with the Engineering Design Report, Union Pacific Railroad, Aluminum Recycling Trentwood Site (EDR) (Golder 2022). During excavation activities, visual observations of soils were recorded as prescribed in Appendix E of the EDR. Photographs of soil conditions were also obtained, select photographs are provided in Appendix A; and Daily Field Reports in Appendix B of the CAR.

A portable handheld XRF analyzer was used to screen concentrations of indicator parameters (a subset of the Site's metal constituents of concern [COCs], primarily copper) in Site soil samples collected during or following excavation activities. Use of the XRF analyzer proved useful for screening purposes based on the correlation of copper XRF measurements and laboratory analytical results. Correlation of copper XRF measurements are in Section 5.2.1.

Performance monitoring was conducted in support of two general excavation scenarios.

1) XRF screening and discrete soil sampling were conducted to support targeted excavations 1 through 9 (Figure 3). The number and location of soil samples were collected from excavations in general accordance with the Site Assessment Guidance for Underground Storage Tank Systems (Ecology 2021a) for excavations e.g., 5 and 7. Other excavations that extended substantially beyond the anticipated excavations limits were incorporated into a property-wide compliance application.

2) The site was divided into four compliance units (Figure 5). XRF screening of broad excavation areas was based on a systematic grid sampling approach on the WSDOT, Pentzer, and UPRR property removal areas based on a random grid sampling approach within the compliance units (Figure 7). Select samples with elevated XRF readings were also submitted to the analytical laboratory for chemical analysis to evaluate the correlation between analytical results and XRF readings.

Compliance units were evaluated to determine if the removal actions had statistically been successful in attaining applicable cleanup criteria (Section 6.0).

C-2. Soil Collection Methods

The methods used to collect soil samples were the same for the collection of XRF testing or chemical analyses at the analytical laboratory (or both).

C-2-1 Soil Sample Collection

The following provides the general procedures for collecting XRF and confirmatory samples:

- Following excavation of an area or target excavation, discrete soil samples were collected from target location soils with a trowel or stainless-steel spoon. No more than 6 inches (in depth) of soil were removed for any one sample. Disposable gloves were worn and changed between the collection of each sample.
- A global positioning system (GPS) unit was used to identify the coordinates of each location.
- Soil material was placed directly into a Ziploc® bag and thoroughly homogenized. The test location, depth and date were written on the bag. The gravel and larger fractions of soil were not placed in the Ziploc® bags.
- The soil samples were examined for visual evidence of dross. Relevant soil sample information was recorded on the Soil Sample Record Form and UPRR Field Electronic Data Deliverable forms. Data and information required to complete the forms included Location, Sample ID, Sample Date, Sample Time, Soil Description, Sample Type, Depth, Latitude (NAD 83), and Longitude (NAD 83).

C-2-2 Soil Sample Processing

Soil from the Ziploc® bags collected in accordance with the previous section was processed in a temporary field laboratory to produce a sieved and dried soil sample for XRF testing and/or chemical analysis. The soil contained in Ziploc® bags from representative grid or excavation locations was partitioned to allow processing material. Homogenizing before the partitioning step identified in the previous section is essential and was completed thoroughly.

The portion used to process the XRF was placed onto a paper plate (the CMP indicated Pyrex® would be used) and microwaved, using a commercially available unit, for up to 5 minutes. At this point, moisture was reduced, the sample was free-flowing and passed through a 10-mesh sieve (2 mm opening sieve) to remove cobble, pebbles, and material not expected to respond accurately to XRF (i.e., organics, deleterious materials, etc.). The material was significantly reduced in volume but remained representative.

C-2-3 Sample Handling Requirements

The procedures described below address sample handling requirements after soil sample materials have been placed in the laboratory-supplied containers.

- After soil sample material was placed in the appropriate sample container, sample labels were completed using the nomenclature outlined in Appendix E of the EDR and included sample numbers, locations, and time of sample collection. Sample nomenclature was not maintained as prescribed. Sample labels were completed with permanent ink.
- Completed sample labels were affixed to the individual sample containers at the time of sampling.
- The sample labels affixed to the containers were inspected to confirm that all the required information was provided.
- One or more sample containers were sealed in a Ziploc® plastic bag, wrapped in bubble pack, and packed in a cooler containing ice in a manner to minimize shifting or movement. Coolers contained ample ice to maintain samples at a temperature between 2˚C and 6˚C until they were received by the analytical laboratory.

- For each cooler sent to the laboratory, a chain-of-custody form was completed. Information on the chain-of-custody form and the sample container labels were checked against the field logbook entries and the samples were recounted.

Quality Assurance/Quality Control (QA/QC) samples were collected in conjunction with all field sampling activities. All soil and QA/QC samples were assigned a unique identification number that was used on sample labels, chain of custody sheets, field logbooks, and in the project database.

C 3. XRF Testing

Analyses conducted with the XRF analyzer were conducted in general accordance with the procedures outlined in Section 5.2.1 of Appendix E of the EDR.

C-3-1 XRF Field Testing Procedures

After sample processing was completed, the processing personnel placed a portion of the processed soil into an XRF-dedicated sample cup with mylar covering to secure XRF results. The XRF analyzer was positioned directly over the sample contained in the mylar cover cup for direct reading of XRF fluorescence. Each reading lasted 120 seconds, to register and record element response. The results were matched with a daily routine of calibration and instrument checks to ensure proper operation of the XRF and later compared to any associated analytical laboratory confirmation sample results as applicable.

C 4. XRF Data Evaluation and Confirmation Samples

One of three options were taken based on the evaluation of XRF results.

1) If XRF readings indicated contamination remained at concentrations that significantly exceed cleanup levels (CULs) on the non-UPRR properties, additional excavation was conducted.

2) If XRF readings indicated concentrations slightly exceeding the CULs, the soil sample may have been shipped for chemical analysis at the field leader's discretion.

3) If the sample could be reasonably expected to meet the CUL, the remaining sample material was placed in laboratory supplied sample containers, labeled, and placed in a refrigerator or ice chest on ice pending shipment to the analytical laboratory for chemical analysis for Site COCs as a confirmation sample.

ATTACHMENT D

XRF-Analytical Results Correlation – Copper

Attachment D

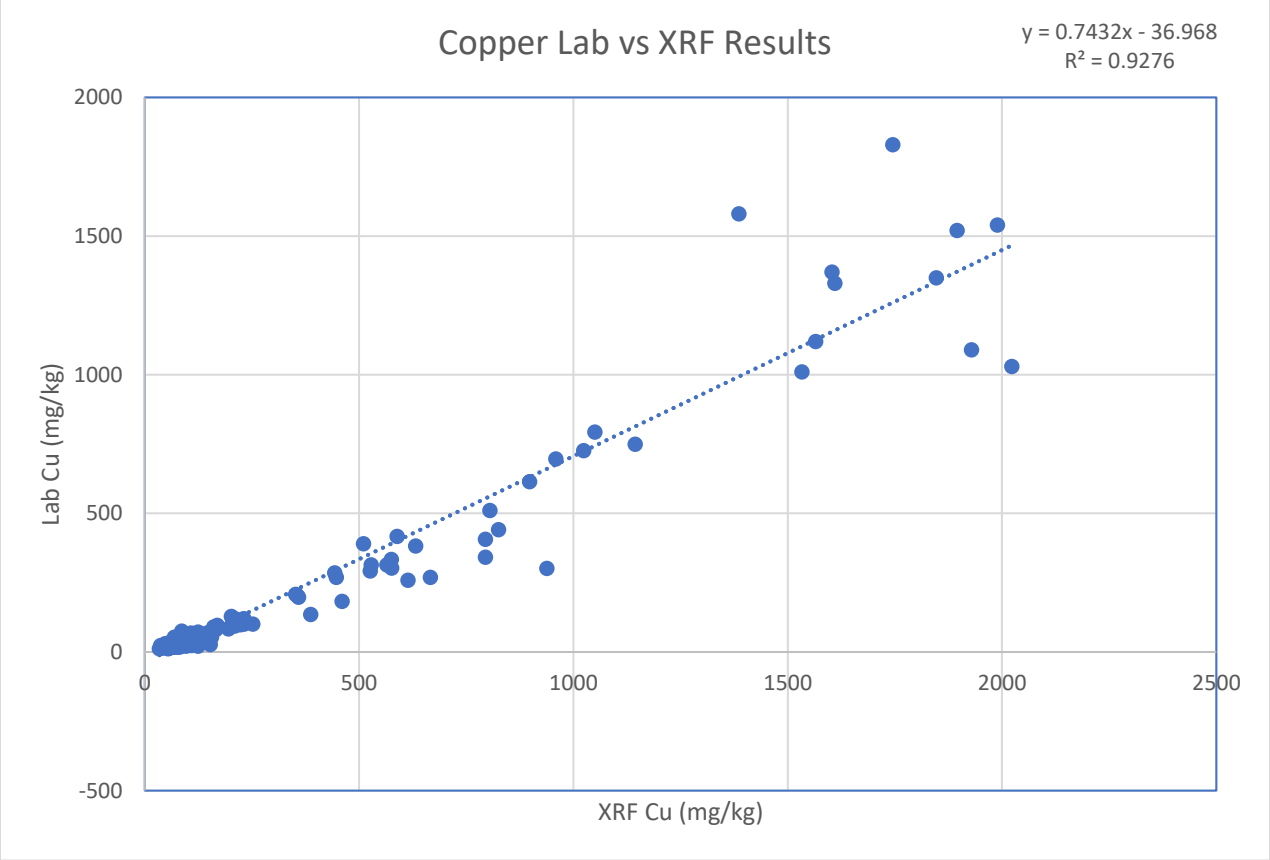


Table D-1: XRF - Analytical Results Copper Correlation Data

Sitewide Confirmation Samples With Both XRF Measurements and Analytical Laboratory Results (Copper)		
Sample Id	XRF Cu (mg/Kg)	Lab Cu (mg/Kg)
SO-2494-UP1-04-012023	1386	1580
SO-2494-UP1-06-011923	1050	793
SO-2494-UP1-09-012323	795	342
SO-2494-UP1-10-012323	666	270
SO-2494-UP1-13-012323	1610	1330
SO-2494-UP1-19-012323	1847	1350
SO-2494-UP1-24-011923	1895	1520
SO-2494-UP1-30-012323	959	696
SO-2494-UP1-34-012323	1024	727
SO-2494-UP1-37-012323	1565	1120
SO-2494-UP2-01-101322	212	119
SO-2494-UP2-06-101322	1929	1090
SO-2494-UP2-10-101422	1745	1830
SO-2494-UP2-14-101722	169	96.2
SO-2494-UP2-18-101722	232	101
SO-2494-UP2-19-101722	1144	749
SO-2494-UP2-20-101722	1603	1370
SO-2494-UP2-22-101722	614	259
SO-2494-UP2-25-101722	1989	1540
SO-2494-UP2-27-101722	1533	1010
S0-2494-UP2-32-110222	97	20.8
SO-2494-UP2-33-110222	825	441
SO-2494-UP2-34-110222	91	28.2
SO-2494-UP2-35-110322	252	101
SO-2494-UP2-36-110322	130	42
SO-2494-UP2-37-110322	124	21
SO-2494-UP1-K01-011223	938	302
SO-2494-UP1-K02-011223	2023	1030
SO-2494-EX-1-03W-2.0-022223	56	18.5
SO-2494-P1-08-041023	77	33.7
SO-2494-EX-1-06W-2.0-022423	69	17.8
SO-2494-P1-13-031523	64	28.6
SO-2494-P1-26-021323	63	24.8
SO-2494-P1-4.0-01B-041023	72	24.9
SO-2494-P1-6.0-02B-041023	54	25
SO-2494-P1-6.0-04B-041023	60	20.6
SO-2494-P1-6.0-08B-041023	156	53.7
SO-2494-P1-6.0-14B-041023	129	44.7
SO-2494-P1-6.0-15B-041023	232	115
SO-2494-W1-02-030723	84	34
SO-2494-W1-05-021423	53	25.7

Table D-1: XRF - Analytical Results Copper Correlation Data

Sitewide Confirmation Samples With Both XRF Measurements and Analytical Laboratory Results (Copper)		
Sample Id	XRF Cu (mg/Kg)	Lab Cu (mg/Kg)
SO-2494-W1-05-4.0-022023	59	26.6
SO-2494-W1-05-6.0-030723	75	30.1
SO-2494-W1-06-6.0-030723	113	45.4
SO-2494-W1-07-012723	195	83.5
SO-2494-W1-11-031423	57	31.6
SO-2494-W1-18-030823	70	25.8
SO-2494-W1-19-021423	63	24.4
SO-2494-W1-23-020123	61	21.8
SO-2494-W1-28-021023	90	39.7
SO-2494-W1-31-020723	104	52.7
SO-2494-W1-33-3.0-022023	56	20.58
SO-2494-W1-40-021023	101	55.6
SO-2494-W1-40-021723	80	31.7
SO-2494-W1-41-021423	48	15.3
SO-2494-W1-46-012423	57	18.8
SO-2494-W1-48-110222	85	19.7
SO-2494-W1-4.0-01B-012423	69	24.5
SO-2494-W1-4.0-02W-012423	65	27.3
SO-2494-W1-4.0-03B-012423	62	20
SO-2494-W1-4.0-04W-012423	76	17.9
SO-2494-EX-9-B6-101922	102	55.5
SO-2494-EX-9-B4-101922	526	293
SO-2494-EX-9-S1-102022	443	286
SO-2494-EX-9-S2-102022	575	334
SO-2494-EX-9-S3-102022	805	511
SO-2494-EX-9-S4-102022	356	204
SO-2494-EX-9-S5-102122	447	270
SO-2494-EX-8-B6-101922	565	315
SO-2494-EX-8-B4-101922	576	303
SO-2494-EX-8-S1-102022	632	383
SO-2494-EX-8-S2-102022	589	417
SO-2494-EX-8-S3-102022	528	315
SO-2494-EX-7-NW-102422	104	46.4
SO-2494-EX-7-B-102422	898	615
SO-2494-EX-7-SW-102422	58	33.7
SO-2494-EX-7-EW-102422	352	208
SO-2494-EX-7-WW-102422	510	391
SO-2494-EX-6-WW-102022	124	72.1
SO-2494-EX-6-SW-102022	66	28.2
SO-2494-EX-6-EW-102022	108	68.9
SO-2494-EX-6-B-102022	119	49.6

Table D-1: XRF - Analytical Results Copper Correlation Data

Sitewide Confirmation Samples With Both XRF Measurements and Analytical Laboratory Results (Copper)		
Sample Id	XRF Cu (mg/Kg)	Lab Cu (mg/Kg)
SO-2494-EX-6-NW-102022	107	64.4
SO-2494-EX-5-B-102422	59	20.7
SO-2494-EX-5-NW-102422	66	24.6
SO-2494-EX-5-EW-102422	71	24.8
SO-2494-EX-5-SW-102422	63	19.7
SO-2494-EX-5-WW-102422	62	21.4
SO-2494-EX2-7-EW-110422	109	23.2
SO-2494-EX2-7-WW-110422	51	18
SO-2494-EX2-7-BE-110422	84	47.3
SO-2494-EX2-7-BW-110422	116	38.5
SO-2494-EX2-5-EW-110422	62	21
SO-2494-EX2-5-NW-110422	62	19.6
SO-2494-EX2-5-SW-110422	56	13.2
SO-2494-EX2-5-EW2-110422	53	15.7
SO-2494-EX-6-2-WW-110922	153	27.1
SO-2494-EX-6-2-SW-110822	54	24.5
SO-2494-EX-6-2-EW-110922	86	75.6
SO-2494-EX-6-2-NWE-110922	95	38
SO-2494-EX-6-2-NWW-110922	132	53.6
SO-2494-EX-9-3-S1-111522	65	30
SO-2494-EX-8-3-S1-111622	60	21.9
SO-2494-EX-9-S4-4-112922	46	24.2
SO-2494-EX-9-S5-2-112922	59	25.1
SO-2494-EX-5-SW-3-112922	57	14.9
SO-2494-EX-6-EW-3-112922	34	11.6
SO-2494-EX-6-SW-3-112922	39	13.9
SO-2494-EX-6-NW-3-112922	59	21.8
SO-2494-EX-9-S3-4-120222	69	53.8
SO-2494-EX-5-WW-2-120622	37	24.1
SO-2494-EX-6-WSW-120722	66	21.4
SO-2494-EX-6-SWW-120722	63	29.5
SO-2494-EX-6-NEW-120722	48	30.6
SO-2494-EX-6-WNW-120722	80	17.7
SO-2494-EX-6-B-2-120722	137	43.9
SO-2494-EX-8-S3-2-120822	62	26.6
SO-2494-EX-8-S6-2-120822	50	16.8
SO-2494-EX-6-NEW-121522	65	29.6
SO-2494-EX-5-ESW-121522	61	23.5
SO-2494-EX-5-NWW-121522	53	22.4
SO-2404-EX-8-SW-121922	224	98.1
SO-2404-EX-8-SEW-121922	59	34.3

Table D-1: XRF - Analytical Results Copper Correlation Data

Sitewide Confirmation Samples With Both XRF Measurements and Analytical Laboratory Results (Copper)		
Sample Id	XRF Cu (mg/Kg)	Lab Cu (mg/Kg)
SO2404-EX-8-WW-121922	62	27.9
SO-2494-EX-4-01B-6.0-030623	147	59.9
SO-2494-EX-4-02W-3.0-030623	71	30.4
SO-2494-EX-4-03B-4.0-030623	66	27.2
SO-2494-EX-4-04W-4.0-030623	74	28.9
SO-2494-EX-4-05B-6.0-030623	387	136
SO-2494-EX-4-06B-4.0-030623	202	129
SO-2494-EX-4-07W-3.0-030623	77	29.3
SO-2494-EX-4-08B-4.0-030623	131	63
SO-2494-EX-4-09B-4.0-030623	460	183
SO-2494-EX-4-10W-4.0-030623	153	70.8
SO-2494-EX-4-11B-6.0-030623	94	52
SO-2494-EX-3-01B-4.0-030723	161	90.3
SO-2494-EX-3-02W-3.0-030723	231	121
SO-2494-EX-3-03B-4.0-030723	210	94.6
SO-2494-EX-3-04W-3.0-030723	145	68.1
SO-2494-EX-3-05B-4.0-030723	166	81.1
SO-2494-EX-3-06B-6.0-030823	795	407
SO-2494-EX-3-07B-4.0-030823	359	198
SO-2494-EX-1-01B-6.0-022223	49	17
SO-2494-EX-1-02B-4.0-022223	61	19.7
SO-2494-EX-1-03W-2.0-022223	56	18.5
SO-2494-Dup-8-022223	64	21.5
SO-2494-EX-1-04B-4.0-022423	84	35.3
SO-2494-EX-1-05B-4.0-022423	54	12
SO-2494-EX-1-06W-2.0-022423	69	17.8
SO-2494-EX-1-07B-4.0-022423	83	26.9
SO-2494-EX-1-08B-4.0-030223	65	27.8
SO-2494-EX-1-09W-2.0-030223	66	31.9
SO-2494-EX-2-01B-4.0-022123	69	22.8
SO-2494-EX-2-02B-4.0-022123	86	30.5
SO-2494-EX-2-03W-2.0-022123	65	22.9
SO-2494-EX-2-04B-6.0-022223	62	24

Note:

mg/Kg - milligrams per kilogram

ATTACHMENT E

Analytical Data Packages and Data Validation

ANALYTICAL REPORT

November 08, 2022

Revised Report

UPRR - Golder Associates

Sample Delivery Group:	L1547731
Samples Received:	10/18/2022
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.6		1	10/21/2022 09:47	WG1946100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0184	0.0410	1	10/24/2022 13:45	WG1945897

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	6190		6.23	10.2	1	10/28/2022 14:21	WG1949312
Arsenic	4.00		0.531	2.05	1	10/28/2022 14:21	WG1949312
Barium	48.7		0.0873	0.512	1	10/28/2022 14:21	WG1949312
Cadmium	0.0825	J	0.0482	0.512	1	10/28/2022 14:21	WG1949312
Chromium	12.0		0.136	1.02	1	10/28/2022 14:21	WG1949312
Copper	7.19		0.410	2.05	1	10/28/2022 14:21	WG1949312
Lead	4.46		0.213	0.512	1	10/28/2022 14:21	WG1949312
Selenium	U		0.783	2.05	1	10/28/2022 14:21	WG1949312
Silver	U		0.130	1.02	1	10/28/2022 14:21	WG1949312

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		0.958	2.83	27	10/26/2022 12:10	WG1948913
(S) a,a,a-Trifluorotoluene(FID)	*100*			*77.0-120*		*10/26/2022 12:10*	WG1948913

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.36	4.10	1	10/25/2022 09:02	WG1947872
Residual Range Organics (RRO)	U		3.41	10.2	1	10/25/2022 09:02	WG1947872
(S) o-Terphenyl	*65.2*			*18.0-148*		*10/25/2022 09:02*	WG1947872

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00552	0.0341	1	10/22/2022 17:21	WG1946831
Acenaphthylene	U		0.00480	0.0341	1	10/22/2022 17:21	WG1946831
Anthracene	U		0.00607	0.0341	1	10/22/2022 17:21	WG1946831
Benzo(a)anthracene	U		0.00601	0.0341	1	10/22/2022 17:21	WG1946831
Benzo(b)fluoranthene	U		0.00636	0.0341	1	10/22/2022 17:21	WG1946831
Benzo(k)fluoranthene	U		0.00606	0.0341	1	10/22/2022 17:21	WG1946831
Benzo(g,h,i)perylene	U		0.00624	0.0341	1	10/22/2022 17:21	WG1946831
Benzo(a)pyrene	U		0.00634	0.0341	1	10/22/2022 17:21	WG1946831
Benzoic acid	U		0.121	1.71	1	10/22/2022 17:21	WG1946831
Benzyl alcohol	U		0.0126	0.341	1	10/22/2022 17:21	WG1946831
Bis(2-chlorethoxy)methane	U		0.0102	0.341	1	10/22/2022 17:21	WG1946831
Bis(2-chloroethyl)ether	U		0.0113	0.341	1	10/22/2022 17:21	WG1946831
2,2-Oxybis(1-Chloropropane)	U		0.0148	0.341	1	10/22/2022 17:21	WG1946831
4-Bromophenyl-phenylether	U		0.0120	0.341	1	10/22/2022 17:21	WG1946831
Carbazole	U		0.0106	0.341	1	10/22/2022 17:21	WG1946831
2-Chloronaphthalene	U		0.00599	0.0341	1	10/22/2022 17:21	WG1946831

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0123	0.341	1	10/22/2022 17:21	WG1946831
4-Chlorophenyl-phenylether	U		0.0119	0.341	1	10/22/2022 17:21	WG1946831
Chrysene	U		0.00678	0.0341	1	10/22/2022 17:21	WG1946831
Dibenz(a,h)anthracene	U		0.00945	0.0341	1	10/22/2022 17:21	WG1946831
Dibenzofuran	U		0.0112	0.341	1	10/22/2022 17:21	WG1946831
3,3-Dichlorobenzidine	U		0.0126	0.341	1	10/22/2022 17:21	WG1946831
2,4-Dinitrotoluene	U		0.00978	0.341	1	10/22/2022 17:21	WG1946831
2,6-Dinitrotoluene	U		0.0112	0.341	1	10/22/2022 17:21	WG1946831
Fluoranthene	U		0.00616	0.0341	1	10/22/2022 17:21	WG1946831
Fluorene	U		0.00555	0.0341	1	10/22/2022 17:21	WG1946831
Hexachlorobenzene	U		0.0121	0.341	1	10/22/2022 17:21	WG1946831
Hexachloro-1,3-butadiene	U		0.0115	0.341	1	10/22/2022 17:21	WG1946831
Hexachlorocyclopentadiene	U		0.0179	0.341	1	10/22/2022 17:21	WG1946831
Hexachloroethane	U		0.0134	0.341	1	10/22/2022 17:21	WG1946831
Indeno(1,2,3-cd)pyrene	U		0.00964	0.0341	1	10/22/2022 17:21	WG1946831
Isophorone	U		0.0104	0.341	1	10/22/2022 17:21	WG1946831
2-Methylnaphthalene	U		0.00443	0.0341	1	10/22/2022 17:21	WG1946831
Naphthalene	U		0.00856	0.0341	1	10/22/2022 17:21	WG1946831
2-Nitroaniline	U		0.0110	0.341	1	10/22/2022 17:21	WG1946831
3-Nitroaniline	U		0.0109	0.341	1	10/22/2022 17:21	WG1946831
4-Nitroaniline	U		0.00995	0.341	1	10/22/2022 17:21	WG1946831
Nitrobenzene	U		0.0119	0.341	1	10/22/2022 17:21	WG1946831
n-Nitrosodimethylamine	U		0.0506	0.341	1	10/22/2022 17:21	WG1946831
n-Nitrosodiphenylamine	U		0.0258	0.341	1	10/22/2022 17:21	WG1946831
n-Nitrosodi-n-propylamine	U		0.0114	0.341	1	10/22/2022 17:21	WG1946831
Phenanthrene	U		0.00677	0.0341	1	10/22/2022 17:21	WG1946831
Benzylbutyl phthalate	U		0.0107	0.341	1	10/22/2022 17:21	WG1946831
Bis(2-ethylhexyl)phthalate	U		0.0432	0.341	1	10/22/2022 17:21	WG1946831
Di-n-butyl phthalate	U		0.0117	0.341	1	10/22/2022 17:21	WG1946831
Diethyl phthalate	U		0.0113	0.341	1	10/22/2022 17:21	WG1946831
Dimethyl phthalate	U		0.0723	0.341	1	10/22/2022 17:21	WG1946831
Di-n-octyl phthalate	U		0.0230	0.341	1	10/22/2022 17:21	WG1946831
Pyrene	U		0.00664	0.0341	1	10/22/2022 17:21	WG1946831
Pyridine	U		0.0225	0.341	1	10/22/2022 17:21	WG1946831
1,2,4-Trichlorobenzene	U		0.0107	0.341	1	10/22/2022 17:21	WG1946831
4-Chloro-3-methylphenol	U		0.0111	0.341	1	10/22/2022 17:21	WG1946831
2-Chlorophenol	U		0.0113	0.341	1	10/22/2022 17:21	WG1946831
2,4-Dichlorophenol	U		0.00994	0.341	1	10/22/2022 17:21	WG1946831
2,4-Dimethylphenol	U		0.00891	0.341	1	10/22/2022 17:21	WG1946831
4,6-Dinitro-2-methylphenol	U		0.0773	0.341	1	10/22/2022 17:21	WG1946831
2,4-Dinitrophenol	U		0.0798	0.341	1	10/22/2022 17:21	WG1946831
2-Methylphenol	U		0.0102	0.341	1	10/22/2022 17:21	WG1946831
3&4-Methyl Phenol	U		0.0107	0.341	1	10/22/2022 17:21	WG1946831
2-Nitrophenol	U		0.0122	0.341	1	10/22/2022 17:21	WG1946831
4-Nitrophenol	U		0.0107	0.341	1	10/22/2022 17:21	WG1946831
Pentachlorophenol	U		0.00918	0.341	1	10/22/2022 17:21	WG1946831
Phenol	U		0.0137	0.341	1	10/22/2022 17:21	WG1946831
2,4,5-Trichlorophenol	U		0.0116	0.341	1	10/22/2022 17:21	WG1946831
2,4,6-Trichlorophenol	U		0.0110	0.341	1	10/22/2022 17:21	WG1946831
(S) 2-Fluorophenol	*80.1*			*12.0-120*		*10/22/2022 17:21*	WG1946831
(S) Phenol-d5	*69.4*			*10.0-120*		*10/22/2022 17:21*	WG1946831
(S) Nitrobenzene-d5	*80.3*			*10.0-122*		*10/22/2022 17:21*	WG1946831
(S) 2-Fluorobiphenyl	*71.7*			*15.0-120*		*10/22/2022 17:21*	WG1946831
(S) 2,4,6-Tribromophenol	*83.9*			*10.0-127*		*10/22/2022 17:21*	WG1946831
(S) p-Terphenyl-d14	*88.5*			*10.0-120*		*10/22/2022 17:21*	WG1946831

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00236	0.00615	1	10/22/2022 16:22	WG1947266
Acenaphthene	U		0.00214	0.00615	1	10/22/2022 16:22	WG1947266
Acenaphthylene	U		0.00221	0.00615	1	10/22/2022 16:22	WG1947266
Benzo(a)anthracene	U		0.00177	0.00615	1	10/22/2022 16:22	WG1947266
Benzo(a)pyrene	U		0.00183	0.00615	1	10/22/2022 16:22	WG1947266
Benzo(b)fluoranthene	U		0.00157	0.00615	1	10/22/2022 16:22	WG1947266
Benzo(g,h,i)perylene	U		0.00181	0.00615	1	10/22/2022 16:22	WG1947266
Benzo(k)fluoranthene	U		0.00220	0.00615	1	10/22/2022 16:22	WG1947266
Chrysene	U		0.00238	0.00615	1	10/22/2022 16:22	WG1947266
Dibenz(a,h)anthracene	U		0.00176	0.00615	1	10/22/2022 16:22	WG1947266
Dibenzofuran	U		0.00218	0.00615	1	10/22/2022 16:22	WG1947266
Fluoranthene	U		0.00233	0.00615	1	10/22/2022 16:22	WG1947266
Fluorene	U		0.00210	0.00615	1	10/22/2022 16:22	WG1947266
Indeno(1,2,3-cd)pyrene	U		0.00185	0.00615	1	10/22/2022 16:22	WG1947266
Naphthalene	U		0.00418	0.0205	1	10/22/2022 16:22	WG1947266
Phenanthrene	U		0.00237	0.00615	1	10/22/2022 16:22	WG1947266
Pyrene	U		0.00205	0.00615	1	10/22/2022 16:22	WG1947266
1-Methylnaphthalene	U		0.00460	0.0205	1	10/22/2022 16:22	WG1947266
2-Methylnaphthalene	U		0.00437	0.0205	1	10/22/2022 16:22	WG1947266
2-Chloronaphthalene	U		0.00477	0.0205	1	10/22/2022 16:22	WG1947266
(S) Nitrobenzene-d5	*85.0*			*14.0-149*		*10/22/2022 16:22*	WG1947266
(S) 2-Fluorobiphenyl	*86.6*			*34.0-125*		*10/22/2022 16:22*	WG1947266
(S) p-Terphenyl-d14	*93.8*			*23.0-120*		*10/22/2022 16:22*	WG1947266

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.8		1	10/21/2022 09:47	WG1946100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0405	1	10/24/2022 13:47	WG1945897

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8910		6.15	10.1	1	10/28/2022 14:24	WG1949312
Arsenic	4.72		0.524	2.02	1	10/28/2022 14:24	WG1949312
Barium	96.6		0.0862	0.506	1	10/28/2022 14:24	WG1949312
Cadmium	0.117	J	0.0477	0.506	1	10/28/2022 14:24	WG1949312
Chromium	13.4		0.135	1.01	1	10/28/2022 14:24	WG1949312
Copper	10.2		0.405	2.02	1	10/28/2022 14:24	WG1949312
Lead	9.65		0.210	0.506	1	10/28/2022 14:24	WG1949312
Selenium	U		0.773	2.02	1	10/28/2022 14:24	WG1949312
Silver	U		0.128	1.01	1	10/28/2022 14:24	WG1949312

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		0.868	2.56	25	10/26/2022 12:33	WG1948913
(S) a,a,a-Trifluorotoluene(FID)	*100*			*77.0-120*		*10/26/2022 12:33*	WG1948913

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.35	4.05	1	10/25/2022 09:17	WG1947872
Residual Range Organics (RRO)	U		3.37	10.1	1	10/25/2022 09:17	WG1947872
(S) o-Terphenyl	*69.1*			*18.0-148*		*10/25/2022 09:17*	WG1947872

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00545	0.0337	1	10/22/2022 18:22	WG1946831
Acenaphthylene	U		0.00474	0.0337	1	10/22/2022 18:22	WG1946831
Anthracene	U		0.00600	0.0337	1	10/22/2022 18:22	WG1946831
Benzo(a)anthracene	U		0.00594	0.0337	1	10/22/2022 18:22	WG1946831
Benzo(b)fluoranthene	U		0.00628	0.0337	1	10/22/2022 18:22	WG1946831
Benzo(k)fluoranthene	U		0.00599	0.0337	1	10/22/2022 18:22	WG1946831
Benzo(g,h,i)perylene	U		0.00616	0.0337	1	10/22/2022 18:22	WG1946831
Benzo(a)pyrene	U		0.00626	0.0337	1	10/22/2022 18:22	WG1946831
Benzoic acid	U		0.119	1.69	1	10/22/2022 18:22	WG1946831
Benzyl alcohol	U		0.0124	0.337	1	10/22/2022 18:22	WG1946831
Bis(2-chlorethoxy)methane	U		0.0101	0.337	1	10/22/2022 18:22	WG1946831
Bis(2-chloroethyl)ether	U		0.0111	0.337	1	10/22/2022 18:22	WG1946831
2,2-Oxybis(1-Chloropropane)	U		0.0146	0.337	1	10/22/2022 18:22	WG1946831
4-Bromophenyl-phenylether	U		0.0118	0.337	1	10/22/2022 18:22	WG1946831
Carbazole	U		0.0104	0.337	1	10/22/2022 18:22	WG1946831
2-Chloronaphthalene	U		0.00592	0.0337	1	10/22/2022 18:22	WG1946831

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0121	0.337	1	10/22/2022 18:22	WG1946831
4-Chlorophenyl-phenylether	U		0.0117	0.337	1	10/22/2022 18:22	WG1946831
Chrysene	U		0.00670	0.0337	1	10/22/2022 18:22	WG1946831
Dibenz(a,h)anthracene	U		0.00934	0.0337	1	10/22/2022 18:22	WG1946831
Dibenzofuran	U		0.0110	0.337	1	10/22/2022 18:22	WG1946831
3,3-Dichlorobenzidine	U		0.0124	0.337	1	10/22/2022 18:22	WG1946831
2,4-Dinitrotoluene	U		0.00966	0.337	1	10/22/2022 18:22	WG1946831
2,6-Dinitrotoluene	U		0.0110	0.337	1	10/22/2022 18:22	WG1946831
Fluoranthene	U		0.00608	0.0337	1	10/22/2022 18:22	WG1946831
Fluorene	U		0.00548	0.0337	1	10/22/2022 18:22	WG1946831
Hexachlorobenzene	U		0.0119	0.337	1	10/22/2022 18:22	WG1946831
Hexachloro-1,3-butadiene	U		0.0113	0.337	1	10/22/2022 18:22	WG1946831
Hexachlorocyclopentadiene	U		0.0177	0.337	1	10/22/2022 18:22	WG1946831
Hexachloroethane	U		0.0133	0.337	1	10/22/2022 18:22	WG1946831
Indeno(1,2,3-cd)pyrene	U		0.00952	0.0337	1	10/22/2022 18:22	WG1946831
Isophorone	U		0.0103	0.337	1	10/22/2022 18:22	WG1946831
2-Methylnaphthalene	U		0.00437	0.0337	1	10/22/2022 18:22	WG1946831
Naphthalene	U		0.00846	0.0337	1	10/22/2022 18:22	WG1946831
2-Nitroaniline	U		0.0108	0.337	1	10/22/2022 18:22	WG1946831
3-Nitroaniline	U		0.0107	0.337	1	10/22/2022 18:22	WG1946831
4-Nitroaniline	U		0.00982	0.337	1	10/22/2022 18:22	WG1946831
Nitrobenzene	U		0.0117	0.337	1	10/22/2022 18:22	WG1946831
n-Nitrosodimethylamine	U		0.0500	0.337	1	10/22/2022 18:22	WG1946831
n-Nitrosodiphenylamine	U		0.0255	0.337	1	10/22/2022 18:22	WG1946831
n-Nitrosodi-n-propylamine	U		0.0112	0.337	1	10/22/2022 18:22	WG1946831
Phenanthrene	U		0.00669	0.0337	1	10/22/2022 18:22	WG1946831
Benzylbutyl phthalate	U		0.0105	0.337	1	10/22/2022 18:22	WG1946831
Bis(2-ethylhexyl)phthalate	U		0.0427	0.337	1	10/22/2022 18:22	WG1946831
Di-n-butyl phthalate	U		0.0115	0.337	1	10/22/2022 18:22	WG1946831
Diethyl phthalate	U		0.0111	0.337	1	10/22/2022 18:22	WG1946831
Dimethyl phthalate	U		0.0714	0.337	1	10/22/2022 18:22	WG1946831
Di-n-octyl phthalate	U		0.0228	0.337	1	10/22/2022 18:22	WG1946831
Pyrene	U		0.00656	0.0337	1	10/22/2022 18:22	WG1946831
Pyridine	U		0.0223	0.337	1	10/22/2022 18:22	WG1946831
1,2,4-Trichlorobenzene	U		0.0105	0.337	1	10/22/2022 18:22	WG1946831
4-Chloro-3-methylphenol	U		0.0109	0.337	1	10/22/2022 18:22	WG1946831
2-Chlorophenol	U		0.0111	0.337	1	10/22/2022 18:22	WG1946831
2,4-Dichlorophenol	U		0.00981	0.337	1	10/22/2022 18:22	WG1946831
2,4-Dimethylphenol	U		0.00880	0.337	1	10/22/2022 18:22	WG1946831
4,6-Dinitro-2-methylphenol	U		0.0764	0.337	1	10/22/2022 18:22	WG1946831
2,4-Dinitrophenol	U		0.0788	0.337	1	10/22/2022 18:22	WG1946831
2-Methylphenol	U		0.0101	0.337	1	10/22/2022 18:22	WG1946831
3&4-Methyl Phenol	U		0.0105	0.337	1	10/22/2022 18:22	WG1946831
2-Nitrophenol	U		0.0120	0.337	1	10/22/2022 18:22	WG1946831
4-Nitrophenol	U		0.0105	0.337	1	10/22/2022 18:22	WG1946831
Pentachlorophenol	U		0.00906	0.337	1	10/22/2022 18:22	WG1946831
Phenol	U		0.0136	0.337	1	10/22/2022 18:22	WG1946831
2,4,5-Trichlorophenol	U		0.0114	0.337	1	10/22/2022 18:22	WG1946831
2,4,6-Trichlorophenol	U		0.0108	0.337	1	10/22/2022 18:22	WG1946831
(S) 2-Fluorophenol	*82.2*			*12.0-120*		*10/22/2022 18:22*	WG1946831
(S) Phenol-d5	*71.1*			*10.0-120*		*10/22/2022 18:22*	WG1946831
(S) Nitrobenzene-d5	*79.9*			*10.0-122*		*10/22/2022 18:22*	WG1946831
(S) 2-Fluorobiphenyl	*68.2*			*15.0-120*		*10/22/2022 18:22*	WG1946831
(S) 2,4,6-Tribromophenol	*83.6*			*10.0-127*		*10/22/2022 18:22*	WG1946831
(S) p-Terphenyl-d14	*89.9*			*10.0-120*		*10/22/2022 18:22*	WG1946831

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00233	0.00607	1	10/22/2022 16:40	WG1947266
Acenaphthene	U		0.00211	0.00607	1	10/22/2022 16:40	WG1947266
Acenaphthylene	U		0.00219	0.00607	1	10/22/2022 16:40	WG1947266
Benzo(a)anthracene	U		0.00175	0.00607	1	10/22/2022 16:40	WG1947266
Benzo(a)pyrene	U		0.00181	0.00607	1	10/22/2022 16:40	WG1947266
Benzo(b)fluoranthene	U		0.00155	0.00607	1	10/22/2022 16:40	WG1947266
Benzo(g,h,i)perylene	U		0.00179	0.00607	1	10/22/2022 16:40	WG1947266
Benzo(k)fluoranthene	U		0.00218	0.00607	1	10/22/2022 16:40	WG1947266
Chrysene	U		0.00235	0.00607	1	10/22/2022 16:40	WG1947266
Dibenz(a,h)anthracene	U		0.00174	0.00607	1	10/22/2022 16:40	WG1947266
Dibenzofuran	U		0.00215	0.00607	1	10/22/2022 16:40	WG1947266
Fluoranthene	U		0.00230	0.00607	1	10/22/2022 16:40	WG1947266
Fluorene	U		0.00207	0.00607	1	10/22/2022 16:40	WG1947266
Indeno(1,2,3-cd)pyrene	U		0.00183	0.00607	1	10/22/2022 16:40	WG1947266
Naphthalene	U		0.00413	0.0202	1	10/22/2022 16:40	WG1947266
Phenanthrene	U		0.00234	0.00607	1	10/22/2022 16:40	WG1947266
Pyrene	U		0.00202	0.00607	1	10/22/2022 16:40	WG1947266
1-Methylnaphthalene	U		0.00454	0.0202	1	10/22/2022 16:40	WG1947266
2-Methylnaphthalene	U		0.00432	0.0202	1	10/22/2022 16:40	WG1947266
2-Chloronaphthalene	U		0.00471	0.0202	1	10/22/2022 16:40	WG1947266
(S) Nitrobenzene-d5	*93.2*			*14.0-149*		*10/22/2022 16:40*	WG1947266
(S) 2-Fluorobiphenyl	*93.7*			*34.0-125*		*10/22/2022 16:40*	WG1947266
(S) p-Terphenyl-d14	*99.8*			*23.0-120*		*10/22/2022 16:40*	WG1947266

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.3		1	10/21/2022 09:47	WG1946100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0185	0.0411	1	10/24/2022 13:49	WG1945897

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9420		6.25	10.3	1	10/28/2022 14:27	WG1949312
Arsenic	4.87		0.532	2.06	1	10/28/2022 14:27	WG1949312
Barium	74.3		0.0876	0.514	1	10/28/2022 14:27	WG1949312
Cadmium	0.116	J	0.0484	0.514	1	10/28/2022 14:27	WG1949312
Chromium	11.3		0.137	1.03	1	10/28/2022 14:27	WG1949312
Copper	10.3		0.411	2.06	1	10/28/2022 14:27	WG1949312
Lead	7.69		0.214	0.514	1	10/28/2022 14:27	WG1949312
Selenium	U		0.785	2.06	1	10/28/2022 14:27	WG1949312
Silver	U		0.131	1.03	1	10/28/2022 14:27	WG1949312

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.02	3.02	28.7	10/25/2022 13:08	WG1947632
(S) a,a,a-Trifluorotoluene(FID)	*91.4*			*77.0-120*		*10/25/2022 13:08*	WG1947632

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.37	4.11	1	10/25/2022 09:31	WG1947872
Residual Range Organics (RRO)	U		3.42	10.3	1	10/25/2022 09:31	WG1947872
(S) o-Terphenyl	*70.5*			*18.0-148*		*10/25/2022 09:31*	WG1947872

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00554	0.0342	1	10/22/2022 17:01	WG1946831
Acenaphthylene	U		0.00482	0.0342	1	10/22/2022 17:01	WG1946831
Anthracene	U		0.00609	0.0342	1	10/22/2022 17:01	WG1946831
Benzo(a)anthracene	U		0.00603	0.0342	1	10/22/2022 17:01	WG1946831
Benzo(b)fluoranthene	U		0.00638	0.0342	1	10/22/2022 17:01	WG1946831
Benzo(k)fluoranthene	U		0.00608	0.0342	1	10/22/2022 17:01	WG1946831
Benzo(g,h,i)perylene	U		0.00626	0.0342	1	10/22/2022 17:01	WG1946831
Benzo(a)pyrene	U		0.00636	0.0342	1	10/22/2022 17:01	WG1946831
Benzoic acid	U		0.121	1.72	1	10/22/2022 17:01	WG1946831
Benzyl alcohol	U		0.0126	0.342	1	10/22/2022 17:01	WG1946831
Bis(2-chlorethoxy)methane	U		0.0103	0.342	1	10/22/2022 17:01	WG1946831
Bis(2-chloroethyl)ether	U		0.0113	0.342	1	10/22/2022 17:01	WG1946831
2,2-Oxybis(1-Chloropropane)	U		0.0148	0.342	1	10/22/2022 17:01	WG1946831
4-Bromophenyl-phenylether	U		0.0120	0.342	1	10/22/2022 17:01	WG1946831
Carbazole	U		0.0106	0.342	1	10/22/2022 17:01	WG1946831
2-Chloronaphthalene	U		0.00601	0.0342	1	10/22/2022 17:01	WG1946831

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0123	0.342	1	10/22/2022 17:01	WG1946831
4-Chlorophenyl-phenylether	U		0.0119	0.342	1	10/22/2022 17:01	WG1946831
Chrysene	U		0.00680	0.0342	1	10/22/2022 17:01	WG1946831
Dibenz(a,h)anthracene	U		0.00948	0.0342	1	10/22/2022 17:01	WG1946831
Dibenzofuran	U		0.0112	0.342	1	10/22/2022 17:01	WG1946831
3,3-Dichlorobenzidine	U		0.0126	0.342	1	10/22/2022 17:01	WG1946831
2,4-Dinitrotoluene	U		0.00981	0.342	1	10/22/2022 17:01	WG1946831
2,6-Dinitrotoluene	U		0.0112	0.342	1	10/22/2022 17:01	WG1946831
Fluoranthene	U		0.00618	0.0342	1	10/22/2022 17:01	WG1946831
Fluorene	U		0.00557	0.0342	1	10/22/2022 17:01	WG1946831
Hexachlorobenzene	U		0.0121	0.342	1	10/22/2022 17:01	WG1946831
Hexachloro-1,3-butadiene	U		0.0115	0.342	1	10/22/2022 17:01	WG1946831
Hexachlorocyclopentadiene	U		0.0180	0.342	1	10/22/2022 17:01	WG1946831
Hexachloroethane	U		0.0135	0.342	1	10/22/2022 17:01	WG1946831
Indeno(1,2,3-cd)pyrene	U		0.00967	0.0342	1	10/22/2022 17:01	WG1946831
Isophorone	U		0.0105	0.342	1	10/22/2022 17:01	WG1946831
2-Methylnaphthalene	U		0.00444	0.0342	1	10/22/2022 17:01	WG1946831
Naphthalene	U		0.00859	0.0342	1	10/22/2022 17:01	WG1946831
2-Nitroaniline	U		0.0110	0.342	1	10/22/2022 17:01	WG1946831
3-Nitroaniline	U		0.0109	0.342	1	10/22/2022 17:01	WG1946831
4-Nitroaniline	U		0.00998	0.342	1	10/22/2022 17:01	WG1946831
Nitrobenzene	U		0.0119	0.342	1	10/22/2022 17:01	WG1946831
n-Nitrosodimethylamine	U		0.0508	0.342	1	10/22/2022 17:01	WG1946831
n-Nitrosodiphenylamine	U		0.0259	0.342	1	10/22/2022 17:01	WG1946831
n-Nitrosodi-n-propylamine	U		0.0114	0.342	1	10/22/2022 17:01	WG1946831
Phenanthrene	U		0.00679	0.0342	1	10/22/2022 17:01	WG1946831
Benzylbutyl phthalate	U		0.0107	0.342	1	10/22/2022 17:01	WG1946831
Bis(2-ethylhexyl)phthalate	U		0.0434	0.342	1	10/22/2022 17:01	WG1946831
Di-n-butyl phthalate	U		0.0117	0.342	1	10/22/2022 17:01	WG1946831
Diethyl phthalate	U		0.0113	0.342	1	10/22/2022 17:01	WG1946831
Dimethyl phthalate	U		0.0725	0.342	1	10/22/2022 17:01	WG1946831
Di-n-octyl phthalate	U		0.0231	0.342	1	10/22/2022 17:01	WG1946831
Pyrene	U		0.00666	0.0342	1	10/22/2022 17:01	WG1946831
Pyridine	U		0.0226	0.342	1	10/22/2022 17:01	WG1946831
1,2,4-Trichlorobenzene	U		0.0107	0.342	1	10/22/2022 17:01	WG1946831
4-Chloro-3-methylphenol	U		0.0111	0.342	1	10/22/2022 17:01	WG1946831
2-Chlorophenol	U		0.0113	0.342	1	10/22/2022 17:01	WG1946831
2,4-Dichlorophenol	U		0.00997	0.342	1	10/22/2022 17:01	WG1946831
2,4-Dimethylphenol	U		0.00894	0.342	1	10/22/2022 17:01	WG1946831
4,6-Dinitro-2-methylphenol	U		0.0776	0.342	1	10/22/2022 17:01	WG1946831
2,4-Dinitrophenol	U		0.0801	0.342	1	10/22/2022 17:01	WG1946831
2-Methylphenol	U		0.0103	0.342	1	10/22/2022 17:01	WG1946831
3&4-Methyl Phenol	U		0.0107	0.342	1	10/22/2022 17:01	WG1946831
2-Nitrophenol	U		0.0122	0.342	1	10/22/2022 17:01	WG1946831
4-Nitrophenol	U		0.0107	0.342	1	10/22/2022 17:01	WG1946831
Pentachlorophenol	U		0.00921	0.342	1	10/22/2022 17:01	WG1946831
Phenol	U		0.0138	0.342	1	10/22/2022 17:01	WG1946831
2,4,5-Trichlorophenol	U		0.0116	0.342	1	10/22/2022 17:01	WG1946831
2,4,6-Trichlorophenol	U		0.0110	0.342	1	10/22/2022 17:01	WG1946831
(S) 2-Fluorophenol	*77.6*			*12.0-120*		*10/22/2022 17:01*	WG1946831
(S) Phenol-d5	*66.7*			*10.0-120*		*10/22/2022 17:01*	WG1946831
(S) Nitrobenzene-d5	*74.1*			*10.0-122*		*10/22/2022 17:01*	WG1946831
(S) 2-Fluorobiphenyl	*66.0*			*15.0-120*		*10/22/2022 17:01*	WG1946831
(S) 2,4,6-Tribromophenol	*76.1*			*10.0-127*		*10/22/2022 17:01*	WG1946831
(S) p-Terphenyl-d14	*82.7*			*10.0-120*		*10/22/2022 17:01*	WG1946831

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00236	0.00617	1	10/23/2022 16:52	WG1947267
Acenaphthene	U		0.00215	0.00617	1	10/23/2022 16:52	WG1947267
Acenaphthylene	U		0.00222	0.00617	1	10/23/2022 16:52	WG1947267
Benzo(a)anthracene	U		0.00178	0.00617	1	10/23/2022 16:52	WG1947267
Benzo(a)pyrene	U		0.00184	0.00617	1	10/23/2022 16:52	WG1947267
Benzo(b)fluoranthene	U		0.00157	0.00617	1	10/23/2022 16:52	WG1947267
Benzo(g,h,i)perylene	U		0.00182	0.00617	1	10/23/2022 16:52	WG1947267
Benzo(k)fluoranthene	U		0.00221	0.00617	1	10/23/2022 16:52	WG1947267
Chrysene	U		0.00238	0.00617	1	10/23/2022 16:52	WG1947267
Dibenz(a,h)anthracene	U		0.00177	0.00617	1	10/23/2022 16:52	WG1947267
Dibenzofuran	U		0.00219	0.00617	1	10/23/2022 16:52	WG1947267
Fluoranthene	U		0.00233	0.00617	1	10/23/2022 16:52	WG1947267
Fluorene	U		0.00211	0.00617	1	10/23/2022 16:52	WG1947267
Indeno(1,2,3-cd)pyrene	U		0.00186	0.00617	1	10/23/2022 16:52	WG1947267
Naphthalene	U		0.00419	0.0206	1	10/23/2022 16:52	WG1947267
Phenanthrene	U		0.00237	0.00617	1	10/23/2022 16:52	WG1947267
Pyrene	U		0.00206	0.00617	1	10/23/2022 16:52	WG1947267
1-Methylnaphthalene	U		0.00461	0.0206	1	10/23/2022 16:52	WG1947267
2-Methylnaphthalene	U		0.00439	0.0206	1	10/23/2022 16:52	WG1947267
2-Chloronaphthalene	U		0.00479	0.0206	1	10/23/2022 16:52	WG1947267
(S) Nitrobenzene-d5	*88.9*			*14.0-149*		*10/23/2022 16:52*	WG1947267
(S) 2-Fluorobiphenyl	*90.1*			*34.0-125*		*10/23/2022 16:52*	WG1947267
(S) p-Terphenyl-d14	*96.5*			*23.0-120*		*10/23/2022 16:52*	WG1947267

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.4		1	10/21/2022 09:47	WG1946100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0193	0.0428	1	10/24/2022 13:52	WG1945897

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10200		6.51	10.7	1	10/28/2022 14:35	WG1949312
Arsenic	5.11		0.555	2.14	1	10/28/2022 14:35	WG1949312
Barium	113		0.0912	0.535	1	10/28/2022 14:35	WG1949312
Cadmium	0.101	J	0.0504	0.535	1	10/28/2022 14:35	WG1949312
Chromium	11.7		0.142	1.07	1	10/28/2022 14:35	WG1949312
Copper	17.8		0.428	2.14	1	10/28/2022 14:35	WG1949312
Lead	6.23		0.223	0.535	1	10/28/2022 14:35	WG1949312
Selenium	U		0.818	2.14	1	10/28/2022 14:35	WG1949312
Silver	U		0.136	1.07	1	10/28/2022 14:35	WG1949312

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.07	3.15	27.8	10/25/2022 16:10	WG1947632
(S) a,a,a-Trifluorotoluene(FID)	*92.0*			*77.0-120*		*10/25/2022 16:10*	WG1947632

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.42	4.28	1	10/25/2022 09:59	WG1947872
Residual Range Organics (RRO)	U		3.57	10.7	1	10/25/2022 09:59	WG1947872
(S) o-Terphenyl	*68.1*			*18.0-148*		*10/25/2022 09:59*	WG1947872

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00577	0.0357	1	10/22/2022 19:03	WG1946831
Acenaphthylene	U		0.00502	0.0357	1	10/22/2022 19:03	WG1946831
Anthracene	U		0.00635	0.0357	1	10/22/2022 19:03	WG1946831
Benzo(a)anthracene	U		0.00629	0.0357	1	10/22/2022 19:03	WG1946831
Benzo(b)fluoranthene	U		0.00665	0.0357	1	10/22/2022 19:03	WG1946831
Benzo(k)fluoranthene	U		0.00634	0.0357	1	10/22/2022 19:03	WG1946831
Benzo(g,h,i)perylene	U		0.00652	0.0357	1	10/22/2022 19:03	WG1946831
Benzo(a)pyrene	U		0.00663	0.0357	1	10/22/2022 19:03	WG1946831
Benzoic acid	U		0.126	1.79	1	10/22/2022 19:03	WG1946831
Benzyl alcohol	U		0.0132	0.357	1	10/22/2022 19:03	WG1946831
Bis(2-chlorethoxy)methane	U		0.0107	0.357	1	10/22/2022 19:03	WG1946831
Bis(2-chloroethyl)ether	U		0.0118	0.357	1	10/22/2022 19:03	WG1946831
2,2-Oxybis(1-Chloropropane)	U		0.0154	0.357	1	10/22/2022 19:03	WG1946831
4-Bromophenyl-phenylether	U		0.0125	0.357	1	10/22/2022 19:03	WG1946831
Carbazole	U		0.0110	0.357	1	10/22/2022 19:03	WG1946831
2-Chloronaphthalene	U		0.00626	0.0357	1	10/22/2022 19:03	WG1946831

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0129	0.357	1	10/22/2022 19:03	WG1946831
4-Chlorophenyl-phenylether	U		0.0124	0.357	1	10/22/2022 19:03	WG1946831
Chrysene	U		0.00709	0.0357	1	10/22/2022 19:03	WG1946831
Dibenz(a,h)anthracene	U		0.00988	0.0357	1	10/22/2022 19:03	WG1946831
Dibenzofuran	U		0.0117	0.357	1	10/22/2022 19:03	WG1946831
3,3-Dichlorobenzidine	U		0.0132	0.357	1	10/22/2022 19:03	WG1946831
2,4-Dinitrotoluene	U		0.0102	0.357	1	10/22/2022 19:03	WG1946831
2,6-Dinitrotoluene	U		0.0117	0.357	1	10/22/2022 19:03	WG1946831
Fluoranthene	U		0.00644	0.0357	1	10/22/2022 19:03	WG1946831
Fluorene	U		0.00580	0.0357	1	10/22/2022 19:03	WG1946831
Hexachlorobenzene	U		0.0126	0.357	1	10/22/2022 19:03	WG1946831
Hexachloro-1,3-butadiene	U		0.0120	0.357	1	10/22/2022 19:03	WG1946831
Hexachlorocyclopentadiene	U		0.0187	0.357	1	10/22/2022 19:03	WG1946831
Hexachloroethane	U		0.0140	0.357	1	10/22/2022 19:03	WG1946831
Indeno(1,2,3-cd)pyrene	U		0.0101	0.0357	1	10/22/2022 19:03	WG1946831
Isophorone	U		0.0109	0.357	1	10/22/2022 19:03	WG1946831
2-Methylnaphthalene	U		0.00463	0.0357	1	10/22/2022 19:03	WG1946831
Naphthalene	U		0.00895	0.0357	1	10/22/2022 19:03	WG1946831
2-Nitroaniline	U		0.0115	0.357	1	10/22/2022 19:03	WG1946831
3-Nitroaniline	U		0.0114	0.357	1	10/22/2022 19:03	WG1946831
4-Nitroaniline	U		0.0104	0.357	1	10/22/2022 19:03	WG1946831
Nitrobenzene	U		0.0124	0.357	1	10/22/2022 19:03	WG1946831
n-Nitrosodimethylamine	U		0.0529	0.357	1	10/22/2022 19:03	WG1946831
n-Nitrosodiphenylamine	U		0.0270	0.357	1	10/22/2022 19:03	WG1946831
n-Nitrosodi-n-propylamine	U		0.0119	0.357	1	10/22/2022 19:03	WG1946831
Phenanthrene	U		0.00708	0.0357	1	10/22/2022 19:03	WG1946831
Benzylbutyl phthalate	U		0.0111	0.357	1	10/22/2022 19:03	WG1946831
Bis(2-ethylhexyl)phthalate	U		0.0452	0.357	1	10/22/2022 19:03	WG1946831
Di-n-butyl phthalate	U		0.0122	0.357	1	10/22/2022 19:03	WG1946831
Diethyl phthalate	U		0.0118	0.357	1	10/22/2022 19:03	WG1946831
Dimethyl phthalate	U		0.0756	0.357	1	10/22/2022 19:03	WG1946831
Di-n-octyl phthalate	U		0.0241	0.357	1	10/22/2022 19:03	WG1946831
Pyrene	U		0.00694	0.0357	1	10/22/2022 19:03	WG1946831
Pyridine	U		0.0236	0.357	1	10/22/2022 19:03	WG1946831
1,2,4-Trichlorobenzene	U		0.0111	0.357	1	10/22/2022 19:03	WG1946831
4-Chloro-3-methylphenol	U		0.0116	0.357	1	10/22/2022 19:03	WG1946831
2-Chlorophenol	U		0.0118	0.357	1	10/22/2022 19:03	WG1946831
2,4-Dichlorophenol	U		0.0104	0.357	1	10/22/2022 19:03	WG1946831
2,4-Dimethylphenol	U		0.00932	0.357	1	10/22/2022 19:03	WG1946831
4,6-Dinitro-2-methylphenol	U		0.0809	0.357	1	10/22/2022 19:03	WG1946831
2,4-Dinitrophenol	U		0.0834	0.357	1	10/22/2022 19:03	WG1946831
2-Methylphenol	U		0.0107	0.357	1	10/22/2022 19:03	WG1946831
3&4-Methyl Phenol	U		0.0111	0.357	1	10/22/2022 19:03	WG1946831
2-Nitrophenol	U		0.0127	0.357	1	10/22/2022 19:03	WG1946831
4-Nitrophenol	U		0.0111	0.357	1	10/22/2022 19:03	WG1946831
Pentachlorophenol	U		0.00960	0.357	1	10/22/2022 19:03	WG1946831
Phenol	U		0.0144	0.357	1	10/22/2022 19:03	WG1946831
2,4,5-Trichlorophenol	U		0.0121	0.357	1	10/22/2022 19:03	WG1946831
2,4,6-Trichlorophenol	U		0.0115	0.357	1	10/22/2022 19:03	WG1946831
(S) 2-Fluorophenol	*72.6*			*12.0-120*		*10/22/2022 19:03*	WG1946831
(S) Phenol-d5	*68.7*			*10.0-120*		*10/22/2022 19:03*	WG1946831
(S) Nitrobenzene-d5	*77.5*			*10.0-122*		*10/22/2022 19:03*	WG1946831
(S) 2-Fluorobiphenyl	*68.7*			*15.0-120*		*10/22/2022 19:03*	WG1946831
(S) 2,4,6-Tribromophenol	*73.9*			*10.0-127*		*10/22/2022 19:03*	WG1946831
(S) p-Terphenyl-d14	*89.1*			*10.0-120*		*10/22/2022 19:03*	WG1946831

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00246	0.00643	1	10/23/2022 17:10	WG1947267
Acenaphthene	U		0.00224	0.00643	1	10/23/2022 17:10	WG1947267
Acenaphthylene	U		0.00231	0.00643	1	10/23/2022 17:10	WG1947267
Benzo(a)anthracene	U		0.00185	0.00643	1	10/23/2022 17:10	WG1947267
Benzo(a)pyrene	U		0.00192	0.00643	1	10/23/2022 17:10	WG1947267
Benzo(b)fluoranthene	U		0.00164	0.00643	1	10/23/2022 17:10	WG1947267
Benzo(g,h,i)perylene	U		0.00190	0.00643	1	10/23/2022 17:10	WG1947267
Benzo(k)fluoranthene	U		0.00230	0.00643	1	10/23/2022 17:10	WG1947267
Chrysene	U		0.00248	0.00643	1	10/23/2022 17:10	WG1947267
Dibenz(a,h)anthracene	U		0.00184	0.00643	1	10/23/2022 17:10	WG1947267
Dibenzofuran	U		0.00228	0.00643	1	10/23/2022 17:10	WG1947267
Fluoranthene	U		0.00243	0.00643	1	10/23/2022 17:10	WG1947267
Fluorene	U		0.00220	0.00643	1	10/23/2022 17:10	WG1947267
Indeno(1,2,3-cd)pyrene	U		0.00194	0.00643	1	10/23/2022 17:10	WG1947267
Naphthalene	U		0.00437	0.0214	1	10/23/2022 17:10	WG1947267
Phenanthrene	U		0.00247	0.00643	1	10/23/2022 17:10	WG1947267
Pyrene	U		0.00214	0.00643	1	10/23/2022 17:10	WG1947267
1-Methylnaphthalene	U		0.00481	0.0214	1	10/23/2022 17:10	WG1947267
2-Methylnaphthalene	U		0.00457	0.0214	1	10/23/2022 17:10	WG1947267
2-Chloronaphthalene	U		0.00499	0.0214	1	10/23/2022 17:10	WG1947267
(S) Nitrobenzene-d5	*92.7*			*14.0-149*		*10/23/2022 17:10*	WG1947267
(S) 2-Fluorobiphenyl	*93.9*			*34.0-125*		*10/23/2022 17:10*	WG1947267
(S) p-Terphenyl-d14	*104*			*23.0-120*		*10/23/2022 17:10*	WG1947267

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.5		1	10/21/2022 09:47	WG1946100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0185	0.0410	1	10/24/2022 13:54	WG1945897

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8360		6.24	10.3	1	10/28/2022 14:37	WG1949312
Arsenic	4.73		0.532	2.05	1	10/28/2022 14:37	WG1949312
Barium	75.9		0.0874	0.513	1	10/28/2022 14:37	WG1949312
Cadmium	0.120	J	0.0483	0.513	1	10/28/2022 14:37	WG1949312
Chromium	11.4		0.136	1.03	1	10/28/2022 14:37	WG1949312
Copper	11.0		0.410	2.05	1	10/28/2022 14:37	WG1949312
Lead	6.38		0.213	0.513	1	10/28/2022 14:37	WG1949312
Selenium	U		0.784	2.05	1	10/28/2022 14:37	WG1949312
Silver	U		0.130	1.03	1	10/28/2022 14:37	WG1949312

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		0.978	2.89	27.5	10/25/2022 16:30	WG1947632
(S) a,a,a-Trifluorotoluene(FID)	*92.2*			*77.0-120*		*10/25/2022 16:30*	WG1947632

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.36	4.10	1	10/25/2022 09:45	WG1947872
Residual Range Organics (RRO)	U		3.42	10.3	1	10/25/2022 09:45	WG1947872
(S) o-Terphenyl	*62.8*			*18.0-148*		*10/25/2022 09:45*	WG1947872

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00553	0.0342	1	10/22/2022 18:42	WG1946831
Acenaphthylene	U		0.00481	0.0342	1	10/22/2022 18:42	WG1946831
Anthracene	U		0.00608	0.0342	1	10/22/2022 18:42	WG1946831
Benzo(a)anthracene	U		0.00602	0.0342	1	10/22/2022 18:42	WG1946831
Benzo(b)fluoranthene	U		0.00637	0.0342	1	10/22/2022 18:42	WG1946831
Benzo(k)fluoranthene	U		0.00607	0.0342	1	10/22/2022 18:42	WG1946831
Benzo(g,h,i)perylene	U		0.00625	0.0342	1	10/22/2022 18:42	WG1946831
Benzo(a)pyrene	U		0.00635	0.0342	1	10/22/2022 18:42	WG1946831
Benzoic acid	U		0.121	1.71	1	10/22/2022 18:42	WG1946831
Benzyl alcohol	U		0.0126	0.342	1	10/22/2022 18:42	WG1946831
Bis(2-chlorethoxy)methane	U		0.0103	0.342	1	10/22/2022 18:42	WG1946831
Bis(2-chloroethyl)ether	U		0.0113	0.342	1	10/22/2022 18:42	WG1946831
2,2-Oxybis(1-Chloropropane)	U		0.0148	0.342	1	10/22/2022 18:42	WG1946831
4-Bromophenyl-phenylether	U		0.0120	0.342	1	10/22/2022 18:42	WG1946831
Carbazole	U		0.0106	0.342	1	10/22/2022 18:42	WG1946831
2-Chloronaphthalene	U		0.00600	0.0342	1	10/22/2022 18:42	WG1946831

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0123	0.342	1	10/22/2022 18:42	WG1946831
4-Chlorophenyl-phenylether	U		0.0119	0.342	1	10/22/2022 18:42	WG1946831
Chrysene	U		0.00679	0.0342	1	10/22/2022 18:42	WG1946831
Dibenz(a,h)anthracene	U		0.00947	0.0342	1	10/22/2022 18:42	WG1946831
Dibenzofuran	U		0.0112	0.342	1	10/22/2022 18:42	WG1946831
3,3-Dichlorobenzidine	U		0.0126	0.342	1	10/22/2022 18:42	WG1946831
2,4-Dinitrotoluene	U		0.00980	0.342	1	10/22/2022 18:42	WG1946831
2,6-Dinitrotoluene	U		0.0112	0.342	1	10/22/2022 18:42	WG1946831
Fluoranthene	U		0.00617	0.0342	1	10/22/2022 18:42	WG1946831
Fluorene	U		0.00556	0.0342	1	10/22/2022 18:42	WG1946831
Hexachlorobenzene	U		0.0121	0.342	1	10/22/2022 18:42	WG1946831
Hexachloro-1,3-butadiene	U		0.0115	0.342	1	10/22/2022 18:42	WG1946831
Hexachlorocyclopentadiene	U		0.0180	0.342	1	10/22/2022 18:42	WG1946831
Hexachloroethane	U		0.0134	0.342	1	10/22/2022 18:42	WG1946831
Indeno(1,2,3-cd)pyrene	U		0.00966	0.0342	1	10/22/2022 18:42	WG1946831
Isophorone	U		0.0105	0.342	1	10/22/2022 18:42	WG1946831
2-Methylnaphthalene	U		0.00443	0.0342	1	10/22/2022 18:42	WG1946831
Naphthalene	U		0.00858	0.0342	1	10/22/2022 18:42	WG1946831
2-Nitroaniline	U		0.0110	0.342	1	10/22/2022 18:42	WG1946831
3-Nitroaniline	U		0.0109	0.342	1	10/22/2022 18:42	WG1946831
4-Nitroaniline	U		0.00996	0.342	1	10/22/2022 18:42	WG1946831
Nitrobenzene	U		0.0119	0.342	1	10/22/2022 18:42	WG1946831
n-Nitrosodimethylamine	U		0.0507	0.342	1	10/22/2022 18:42	WG1946831
n-Nitrosodiphenylamine	U		0.0259	0.342	1	10/22/2022 18:42	WG1946831
n-Nitrosodi-n-propylamine	U		0.0114	0.342	1	10/22/2022 18:42	WG1946831
Phenanthrene	U		0.00678	0.0342	1	10/22/2022 18:42	WG1946831
Benzylbutyl phthalate	U		0.0107	0.342	1	10/22/2022 18:42	WG1946831
Bis(2-ethylhexyl)phthalate	U		0.0433	0.342	1	10/22/2022 18:42	WG1946831
Di-n-butyl phthalate	U		0.0117	0.342	1	10/22/2022 18:42	WG1946831
Diethyl phthalate	U		0.0113	0.342	1	10/22/2022 18:42	WG1946831
Dimethyl phthalate	U		0.0724	0.342	1	10/22/2022 18:42	WG1946831
Di-n-octyl phthalate	U		0.0231	0.342	1	10/22/2022 18:42	WG1946831
Pyrene	U		0.00665	0.0342	1	10/22/2022 18:42	WG1946831
Pyridine	U		0.0226	0.342	1	10/22/2022 18:42	WG1946831
1,2,4-Trichlorobenzene	U		0.0107	0.342	1	10/22/2022 18:42	WG1946831
4-Chloro-3-methylphenol	U		0.0111	0.342	1	10/22/2022 18:42	WG1946831
2-Chlorophenol	U		0.0113	0.342	1	10/22/2022 18:42	WG1946831
2,4-Dichlorophenol	U		0.00995	0.342	1	10/22/2022 18:42	WG1946831
2,4-Dimethylphenol	U		0.00893	0.342	1	10/22/2022 18:42	WG1946831
4,6-Dinitro-2-methylphenol	U		0.0775	0.342	1	10/22/2022 18:42	WG1946831
2,4-Dinitrophenol	U		0.0799	0.342	1	10/22/2022 18:42	WG1946831
2-Methylphenol	U		0.0103	0.342	1	10/22/2022 18:42	WG1946831
3&4-Methyl Phenol	U		0.0107	0.342	1	10/22/2022 18:42	WG1946831
2-Nitrophenol	U		0.0122	0.342	1	10/22/2022 18:42	WG1946831
4-Nitrophenol	U		0.0107	0.342	1	10/22/2022 18:42	WG1946831
Pentachlorophenol	U		0.00919	0.342	1	10/22/2022 18:42	WG1946831
Phenol	U		0.0137	0.342	1	10/22/2022 18:42	WG1946831
2,4,5-Trichlorophenol	U		0.0116	0.342	1	10/22/2022 18:42	WG1946831
2,4,6-Trichlorophenol	U		0.0110	0.342	1	10/22/2022 18:42	WG1946831
(S) 2-Fluorophenol	*73.9*			*12.0-120*		*10/22/2022 18:42*	WG1946831
(S) Phenol-d5	*65.1*			*10.0-120*		*10/22/2022 18:42*	WG1946831
(S) Nitrobenzene-d5	*77.7*			*10.0-122*		*10/22/2022 18:42*	WG1946831
(S) 2-Fluorobiphenyl	*65.7*			*15.0-120*		*10/22/2022 18:42*	WG1946831
(S) 2,4,6-Tribromophenol	*66.1*			*10.0-127*		*10/22/2022 18:42*	WG1946831
(S) p-Terphenyl-d14	*82.3*			*10.0-120*		*10/22/2022 18:42*	WG1946831

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00236	0.00616	1	10/23/2022 17:27	WG1947267
Acenaphthene	U		0.00214	0.00616	1	10/23/2022 17:27	WG1947267
Acenaphthylene	U		0.00222	0.00616	1	10/23/2022 17:27	WG1947267
Benzo(a)anthracene	U		0.00178	0.00616	1	10/23/2022 17:27	WG1947267
Benzo(a)pyrene	U		0.00184	0.00616	1	10/23/2022 17:27	WG1947267
Benzo(b)fluoranthene	U		0.00157	0.00616	1	10/23/2022 17:27	WG1947267
Benzo(g,h,i)perylene	U		0.00182	0.00616	1	10/23/2022 17:27	WG1947267
Benzo(k)fluoranthene	U		0.00221	0.00616	1	10/23/2022 17:27	WG1947267
Chrysene	U		0.00238	0.00616	1	10/23/2022 17:27	WG1947267
Dibenz(a,h)anthracene	U		0.00176	0.00616	1	10/23/2022 17:27	WG1947267
Dibenzofuran	U		0.00219	0.00616	1	10/23/2022 17:27	WG1947267
Fluoranthene	U		0.00233	0.00616	1	10/23/2022 17:27	WG1947267
Fluorene	U		0.00210	0.00616	1	10/23/2022 17:27	WG1947267
Indeno(1,2,3-cd)pyrene	U		0.00186	0.00616	1	10/23/2022 17:27	WG1947267
Naphthalene	U		0.00419	0.0205	1	10/23/2022 17:27	WG1947267
Phenanthrene	U		0.00237	0.00616	1	10/23/2022 17:27	WG1947267
Pyrene	U		0.00205	0.00616	1	10/23/2022 17:27	WG1947267
1-Methylnaphthalene	U		0.00461	0.0205	1	10/23/2022 17:27	WG1947267
2-Methylnaphthalene	U		0.00438	0.0205	1	10/23/2022 17:27	WG1947267
2-Chloronaphthalene	U		0.00478	0.0205	1	10/23/2022 17:27	WG1947267
(S) Nitrobenzene-d5	*97.6*			*14.0-149*		*10/23/2022 17:27*	WG1947267
(S) 2-Fluorobiphenyl	*98.4*			*34.0-125*		*10/23/2022 17:27*	WG1947267
(S) p-Terphenyl-d14	*112*			*23.0-120*		*10/23/2022 17:27*	WG1947267

ANALYTICAL REPORT

November 08, 2022

UPRR - Golder Associates

Sample Delivery Group:	L1549698
Samples Received:	10/22/2022
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-EX-6-WW-102022 L1549698-01 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/20/22 14:00 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949053	1	10/26/22 14:46	10/26/22 15:11	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949679	1	10/27/22 07:27	10/28/22 08:30	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949312	1	10/27/22 09:34	10/28/22 15:13	JDG	Mt. Juliet, TN

SO-2494-EX-6-SW-102022 L1549698-02 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/20/22 14:15 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949053	1	10/26/22 14:46	10/26/22 15:11	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949679	1	10/27/22 07:27	10/28/22 08:38	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949312	1	10/27/22 09:34	10/28/22 15:16	JDG	Mt. Juliet, TN

SO-2494-EX-9-B4-101922 L1549698-03 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/19/22 16:00 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949053	1	10/26/22 14:46	10/26/22 15:11	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949679	1	10/27/22 07:27	10/28/22 08:40	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949312	1	10/27/22 09:34	10/28/22 15:18	JDG	Mt. Juliet, TN

SO-2494-EX-8-B4-101922 L1549698-04 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/19/22 15:50 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949053	1	10/26/22 14:46	10/26/22 15:11	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949679	1	10/27/22 07:27	10/28/22 08:43	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949312	1	10/27/22 09:34	10/28/22 15:21	JDG	Mt. Juliet, TN

SO-2494-EX-9-B6-101922 L1549698-05 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/19/22 15:30 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949053	1	10/26/22 14:46	10/26/22 15:11	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949679	1	10/27/22 07:27	10/28/22 08:45	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	1	10/26/22 17:07	10/28/22 01:01	JDG	Mt. Juliet, TN

SO-2494-EX-8-B6-101922 L1549698-06 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/19/22 16:15 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949053	1	10/26/22 14:46	10/26/22 15:11	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949679	1	10/27/22 07:27	10/28/22 08:48	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	1	10/26/22 17:07	10/28/22 01:03	JDG	Mt. Juliet, TN

SO-2494-EX-9-S1-102022 L1549698-07 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/20/22 10:00 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949053	1	10/26/22 14:46	10/26/22 15:11	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949112	1	10/26/22 10:52	10/27/22 12:21	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	1	10/26/22 17:07	10/28/22 01:11	JDG	Mt. Juliet, TN

SO-2494-EX-9-S2-102022 L1549698-08 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/20/22 10:15 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949254	1	10/26/22 17:07	10/26/22 17:21	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949112	1	10/26/22 10:52	10/27/22 12:24	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	1	10/26/22 17:07	10/28/22 01:14	JDG	Mt. Juliet, TN

SO-2494-EX-9-S3-102022 L1549698-09 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/20/22 10:30 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949254	1	10/26/22 17:07	10/26/22 17:21	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949112	1	10/26/22 10:52	10/27/22 12:26	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	1	10/26/22 17:07	10/28/22 01:16	JDG	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	5	10/26/22 17:07	11/03/22 01:47	CCE	Mt. Juliet, TN

SO-2494-EX-9-S4-102022 L1549698-10 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/20/22 10:45 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949254	1	10/26/22 17:07	10/26/22 17:21	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949112	1	10/26/22 10:52	10/27/22 12:29	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	1	10/26/22 17:07	10/28/22 01:19	JDG	Mt. Juliet, TN

SO-2494-EX-8-S1-102022 L1549698-11 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/20/22 13:00 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949254	1	10/26/22 17:07	10/26/22 17:21	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949112	1	10/26/22 10:52	10/27/22 12:31	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	1	10/26/22 17:07	10/28/22 01:22	JDG	Mt. Juliet, TN

SO-2494-EX-8-S2-102022 L1549698-12 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/20/22 13:15 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949254	1	10/26/22 17:07	10/26/22 17:21	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949112	1	10/26/22 10:52	10/27/22 12:34	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	1	10/26/22 17:07	10/28/22 01:24	JDG	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	5	10/26/22 17:07	11/03/22 01:50	CCE	Mt. Juliet, TN

SO-2494-EX-6-NW-102022 L1549698-13 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/20/22 15:00 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949254	1	10/26/22 17:07	10/26/22 17:21	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949112	1	10/26/22 10:52	10/27/22 12:37	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	1	10/26/22 17:07	10/28/22 01:27	JDG	Mt. Juliet, TN

SO-2494-EX-6-EW-102022 L1549698-14 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/20/22 14:30 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949254	1	10/26/22 17:07	10/26/22 17:21	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949112	1	10/26/22 10:52	10/27/22 12:47	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	1	10/26/22 17:07	10/28/22 01:29	JDG	Mt. Juliet, TN

SO-2494-EX-6-B-102022 L1549698-15 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/20/22 14:45 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949254	1	10/26/22 17:07	10/26/22 17:21	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949112	1	10/26/22 10:52	10/27/22 12:56	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	1	10/26/22 17:07	10/28/22 01:32	JDG	Mt. Juliet, TN

SO-2494-EX-8-S3-102022 L1549698-16 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/20/22 13:30 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949254	1	10/26/22 17:07	10/26/22 17:21	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949112	1	10/26/22 10:52	10/27/22 12:59	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	1	10/26/22 17:07	10/28/22 01:35	JDG	Mt. Juliet, TN

SO-2494-DUP2-102022 L1549698-17 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/20/22 00:00 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949254	1	10/26/22 17:07	10/26/22 17:21	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949112	1	10/26/22 10:52	10/27/22 13:01	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	1	10/26/22 17:07	10/28/22 01:43	JDG	Mt. Juliet, TN

RB-2494-2-102022 L1549698-18 GW

Collected by: Andrew Guglielmo | Collected date/time: 10/20/22 00:00 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1951472	1	10/30/22 12:56	10/31/22 10:35	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1948021	1	11/07/22 08:24	11/07/22 23:10	JDG	Mt. Juliet, TN

SO-2494-EX-9-S5-102122 L1549698-19 Solid

Collected by: Andrew Guglielmo | Collected date/time: 10/21/22 09:00 | Received date/time: 10/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949255	1	10/27/22 08:52	10/27/22 09:09	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1949112	1	10/26/22 10:52	10/27/22 13:04	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1949318	1	10/26/22 17:07	10/28/22 01:45	JDG	Mt. Juliet, TN

CASE NARRATIVE

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

Mark W. Beasley
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.9		1	10/26/2022 15:11	WG1949053

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0186	0.0413	1	10/28/2022 08:30	WG1949679

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	17600		6.27	10.3	1	10/28/2022 15:13	WG1949312
Arsenic	13.3		0.534	2.06	1	10/28/2022 15:13	WG1949312
Barium	90.3		0.0879	0.516	1	10/28/2022 15:13	WG1949312
Chromium	18.2		0.137	1.03	1	10/28/2022 15:13	WG1949312
Copper	72.1		0.413	2.06	1	10/28/2022 15:13	WG1949312

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.1		1	10/26/2022 15:11	WG1949053

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0187	0.0416	1	10/28/2022 08:38	WG1949679

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12400		6.33	10.4	1	10/28/2022 15:16	WG1949312
Arsenic	14.6		0.539	2.08	1	10/28/2022 15:16	WG1949312
Barium	81.8		0.0887	0.520	1	10/28/2022 15:16	WG1949312
Chromium	14.6		0.138	1.04	1	10/28/2022 15:16	WG1949312
Copper	28.2		0.416	2.08	1	10/28/2022 15:16	WG1949312

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.9		1	10/26/2022 15:11	WG1949053

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.199		0.0188	0.0417	1	10/28/2022 08:40	WG1949679

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	41100		6.34	10.4	1	10/28/2022 15:18	WG1949312
Arsenic	11.6		0.540	2.09	1	10/28/2022 15:18	WG1949312
Barium	111		0.0889	0.521	1	10/28/2022 15:18	WG1949312
Chromium	30.7		0.139	1.04	1	10/28/2022 15:18	WG1949312
Copper	293		0.417	2.09	1	10/28/2022 15:18	WG1949312

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.8		1	10/26/2022 15:11	WG1949053

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.126		0.0198	0.0441	1	10/28/2022 08:43	WG1949679

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	43400		6.70	11.0	1	10/28/2022 15:21	WG1949312
Arsenic	9.35		0.571	2.20	1	10/28/2022 15:21	WG1949312
Barium	119		0.0939	0.551	1	10/28/2022 15:21	WG1949312
Chromium	36.6		0.147	1.10	1	10/28/2022 15:21	WG1949312
Copper	303		0.441	2.20	1	10/28/2022 15:21	WG1949312

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.5		1	10/26/2022 15:11	WG1949053

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0212	J	0.0186	0.0414	1	10/28/2022 08:45	WG1949679

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	18100		6.30	10.4	1	10/28/2022 01:01	WG1949318
Arsenic	11.8		0.537	2.07	1	10/28/2022 01:01	WG1949318
Barium	104		0.0883	0.518	1	10/28/2022 01:01	WG1949318
Chromium	17.4		0.138	1.04	1	10/28/2022 01:01	WG1949318
Copper	55.5		0.414	2.07	1	10/28/2022 01:01	WG1949318

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.1		1	10/26/2022 15:11	WG1949053

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0982		0.0198	0.0439	1	10/28/2022 08:48	WG1949679

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	45900		6.67	11.0	1	10/28/2022 01:03	WG1949318
Arsenic	10.6		0.568	2.19	1	10/28/2022 01:03	WG1949318
Barium	114		0.0935	0.549	1	10/28/2022 01:03	WG1949318
Chromium	37.0		0.146	1.10	1	10/28/2022 01:03	WG1949318
Copper	315		0.439	2.19	1	10/28/2022 01:03	WG1949318

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.7		1	10/26/2022 15:11	WG1949053

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.148		0.0190	0.0422	1	10/27/2022 12:21	WG1949112

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	43400		6.42	10.6	1	10/28/2022 01:11	WG1949318
Arsenic	13.6		0.547	2.11	1	10/28/2022 01:11	WG1949318
Barium	132		0.0900	0.528	1	10/28/2022 01:11	WG1949318
Chromium	36.2		0.140	1.06	1	10/28/2022 01:11	WG1949318
Copper	286		0.422	2.11	1	10/28/2022 01:11	WG1949318

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.6		1	10/26/2022 17:21	WG1949254

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.134		0.0186	0.0414	1	10/27/2022 12:24	WG1949112

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	48700		6.29	10.3	1	10/28/2022 01:14	WG1949318
Arsenic	12.1		0.536	2.07	1	10/28/2022 01:14	WG1949318
Barium	110		0.0882	0.517	1	10/28/2022 01:14	WG1949318
Chromium	36.8		0.138	1.03	1	10/28/2022 01:14	WG1949318
Copper	334		0.414	2.07	1	10/28/2022 01:14	WG1949318

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.6		1	10/26/2022 17:21	WG1949254

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.847		0.0190	0.0423	1	10/27/2022 12:26	WG1949112

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	70300		32.1	52.9	5	11/03/2022 01:47	WG1949318
Arsenic	12.1		0.548	2.11	1	10/28/2022 01:16	WG1949318
Barium	170		0.0901	0.529	1	10/28/2022 01:16	WG1949318
Chromium	50.3		0.141	1.06	1	10/28/2022 01:16	WG1949318
Copper	511		0.423	2.11	1	10/28/2022 01:16	WG1949318

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.7		1	10/26/2022 17:21	WG1949254

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0951		0.0188	0.0418	1	10/27/2022 12:29	WG1949112

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	32600		6.35	10.4	1	10/28/2022 01:19	WG1949318
Arsenic	23.8		0.541	2.09	1	10/28/2022 01:19	WG1949318
Barium	104		0.0890	0.522	1	10/28/2022 01:19	WG1949318
Chromium	36.4		0.139	1.04	1	10/28/2022 01:19	WG1949318
Copper	204		0.418	2.09	1	10/28/2022 01:19	WG1949318

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.0		1	10/26/2022 17:21	WG1949254

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.178		0.0189	0.0421	1	10/27/2022 12:31	WG1949112

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	49000		6.40	10.5	1	10/28/2022 01:22	WG1949318
Arsenic	11.1		0.545	2.11	1	10/28/2022 01:22	WG1949318
Barium	139		0.0897	0.526	1	10/28/2022 01:22	WG1949318
Chromium	38.5		0.140	1.05	1	10/28/2022 01:22	WG1949318
Copper	383		0.421	2.11	1	10/28/2022 01:22	WG1949318

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.3		1	10/26/2022 17:21	WG1949254

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.145		0.0189	0.0420	1	10/27/2022 12:34	WG1949112

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	56300		31.9	52.5	5	11/03/2022 01:50	WG1949318
Arsenic	15.1		0.544	2.10	1	10/28/2022 01:24	WG1949318
Barium	130		0.0894	0.525	1	10/28/2022 01:24	WG1949318
Chromium	43.3		0.140	1.05	1	10/28/2022 01:24	WG1949318
Copper	417		0.420	2.10	1	10/28/2022 01:24	WG1949318

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.8		1	10/26/2022 17:21	WG1949254

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0424		0.0186	0.0413	1	10/27/2022 12:37	WG1949112

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	15200		6.28	10.3	1	10/28/2022 01:27	WG1949318
Arsenic	14.2		0.535	2.07	1	10/28/2022 01:27	WG1949318
Barium	92.2		0.0880	0.517	1	10/28/2022 01:27	WG1949318
Chromium	16.4		0.137	1.03	1	10/28/2022 01:27	WG1949318
Copper	64.4		0.413	2.07	1	10/28/2022 01:27	WG1949318

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.8		1	10/26/2022 17:21	WG1949254

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0186	0.0413	1	10/27/2022 12:47	WG1949112

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	17100		6.28	10.3	1	10/28/2022 01:29	WG1949318
Arsenic	15.6		0.535	2.07	1	10/28/2022 01:29	WG1949318
Barium	106		0.0880	0.516	1	10/28/2022 01:29	WG1949318
Chromium	19.1		0.137	1.03	1	10/28/2022 01:29	WG1949318
Copper	68.9		0.413	2.07	1	10/28/2022 01:29	WG1949318

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.3		1	10/26/2022 17:21	WG1949254

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0297	J	0.0189	0.0420	1	10/27/2022 12:56	WG1949112

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	17100		6.38	10.5	1	10/28/2022 01:32	WG1949318
Arsenic	12.9		0.543	2.10	1	10/28/2022 01:32	WG1949318
Barium	97.0		0.0894	0.524	1	10/28/2022 01:32	WG1949318
Chromium	16.0		0.140	1.05	1	10/28/2022 01:32	WG1949318
Copper	49.6		0.420	2.10	1	10/28/2022 01:32	WG1949318

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.8		1	10/26/2022 17:21	WG1949254

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0643		0.0192	0.0426	1	10/27/2022 12:59	WG1949112

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	44400		6.48	10.7	1	10/28/2022 01:35	WG1949318
Arsenic	12.4		0.552	2.13	1	10/28/2022 01:35	WG1949318
Barium	108		0.0908	0.533	1	10/28/2022 01:35	WG1949318
Chromium	47.0		0.142	1.07	1	10/28/2022 01:35	WG1949318
Copper	315		0.426	2.13	1	10/28/2022 01:35	WG1949318

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.7		1	10/26/2022 17:21	WG1949254

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0700		0.0192	0.0427	1	10/27/2022 13:01	WG1949112

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	40200		6.49	10.7	1	10/28/2022 01:43	WG1949318
Arsenic	11.6		0.553	2.13	1	10/28/2022 01:43	WG1949318
Barium	153		0.0909	0.534	1	10/28/2022 01:43	WG1949318
Chromium	33.6		0.142	1.07	1	10/28/2022 01:43	WG1949318
Copper	289		0.427	2.13	1	10/28/2022 01:43	WG1949318

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	U		0.000100	0.000200	1	10/31/2022 10:35	WG1951472

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	U		0.0561	0.200	1	11/07/2022 23:10	WG1948021
Arsenic	0.00508	J	0.00440	0.0100	1	11/07/2022 23:10	WG1948021
Barium	U	J4	0.000736	0.00500	1	11/07/2022 23:10	WG1948021
Chromium	U		0.00140	0.0100	1	11/07/2022 23:10	WG1948021
Copper	U		0.00368	0.0100	1	11/07/2022 23:10	WG1948021

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.3		1	10/27/2022 09:09	WG1949255

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.168		0.0189	0.0420	1	10/27/2022 13:04	WG1949112

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	37900		6.38	10.5	1	10/28/2022 01:45	WG1949318
Arsenic	12.9		0.544	2.10	1	10/28/2022 01:45	WG1949318
Barium	115		0.0894	0.525	1	10/28/2022 01:45	WG1949318
Chromium	27.1		0.140	1.05	1	10/28/2022 01:45	WG1949318
Copper	270		0.420	2.10	1	10/28/2022 01:45	WG1949318

Method Blank (MB)

(MB) R3853592-1 10/26/22 15:11

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1549698-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1549698-07 10/26/22 15:11 • (DUP) R3853592-3 10/26/22 15:11

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	94.7	94.7	1	0.0232		10

Laboratory Control Sample (LCS)

(LCS) R3853592-2 10/26/22 15:11

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

Method Blank (MB)

(MB) R3853698-1 10/26/22 17:21

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00200			

L1549698-17 Original Sample (OS) • Duplicate (DUP)

(OS) L1549698-17 10/26/22 17:21 • (DUP) R3853698-3 10/26/22 17:21

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	93.7	93.8	1	0.127		10

Laboratory Control Sample (LCS)

(LCS) R3853698-2 10/26/22 17:21

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

Method Blank (MB)

(MB) R3853872-1 10/27/22 09:09

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1550290-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1550290-05 10/27/22 09:09 • (DUP) R3853872-3 10/27/22 09:09

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	93.6	94.1	1	0.598		10

Laboratory Control Sample (LCS)

(LCS) R3853872-2 10/27/22 09:09

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	99.9	85.0-115	

Method Blank (MB)

(MB) R3854917-1 10/31/22 10:31

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3854917-2 10/31/22 10:33

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00319	106	80.0-120	

L1549698-18 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1549698-18 10/31/22 10:35 • (MS) R3854917-3 10/31/22 10:37 • (MSD) R3854917-4 10/31/22 10:40

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	U	0.00314	0.00318	105	106	1	75.0-125			1.31	20

Method Blank (MB)

(MB) R3853767-1 10/27/22 11:49

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3853767-2 10/27/22 11:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.454	90.8	80.0-120	

L1549474-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1549474-09 10/27/22 11:54 • (MS) R3853767-3 10/27/22 11:56 • (MSD) R3853767-4 10/27/22 11:59

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.644	0.0887	0.335	0.727	38.2	99.1	1	75.0-125	J6	J3	73.8	20

Method Blank (MB)

(MB) R3854178-1 10/28/22 08:08

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3854178-2 10/28/22 08:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.497	99.4	80.0-120	

L1550274-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1550274-01 10/28/22 08:13 • (MS) R3854178-3 10/28/22 08:15 • (MSD) R3854178-4 10/28/22 08:18

Analyte	Spike Amount (dry) mg/kg	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.556	U	0.538	0.550	96.8	98.8	1	75.0-125			2.13	20

Method Blank (MB)

(MB) R3858092-1 11/07/22 23:18

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aluminum	U		0.0561	0.200
Arsenic	U		0.00440	0.0100
Barium	U		0.000736	0.00500
Chromium	U		0.00140	0.0100
Copper	U		0.00368	0.0100

Laboratory Control Sample (LCS)

(LCS) R3858092-2 11/07/22 23:21

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	10.0	9.53	95.3	80.0-120	
Arsenic	1.00	0.942	94.2	80.0-120	
Barium	1.00	2.77	277	80.0-120	J4
Chromium	1.00	0.960	96.0	80.0-120	
Copper	1.00	0.983	98.3	80.0-120	

L1553534-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1553534-01 11/07/22 23:24 • (MS) R3858092-4 11/07/22 23:29 • (MSD) R3858092-5 11/07/22 23:32

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	10.0	1.25	10.8	10.8	95.8	95.6	1	75.0-125			0.188	20
Arsenic	1.00	U	0.985	0.984	98.5	98.4	1	75.0-125			0.115	20
Chromium	1.00	0.00294	0.957	0.965	95.4	96.2	1	75.0-125			0.873	20
Copper	1.00	U	0.992	1.00	99.2	100	1	75.0-125			1.10	20

Method Blank (MB)

(MB) R3854371-1 10/28/22 14:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.08	10.0
Arsenic	U		0.518	2.00
Barium	U		0.0852	0.500
Chromium	U		0.133	1.00
Copper	U		0.400	2.00

Laboratory Control Sample (LCS)

(LCS) R3854371-2 10/28/22 14:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	985	98.5	80.0-120	
Arsenic	100	94.6	94.6	80.0-120	
Barium	100	101	101	80.0-120	
Chromium	100	96.9	96.9	80.0-120	
Copper	100	99.5	99.5	80.0-120	

L1547731-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1547731-06 10/28/22 14:08 • (MS) R3854371-5 10/28/22 14:16 • (MSD) R3854371-6 10/28/22 14:19

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1030	148000	111000	116000	0.000	0.000	1	75.0-125	E V	E V	4.71	20
Arsenic	103	9.22	85.9	92.0	74.2	80.1	1	75.0-125	J6		6.83	20
Barium	103	80.7	140	149	57.1	66.5	1	75.0-125	J6	J6	6.73	20
Chromium	103	91.6	156	152	62.6	58.2	1	75.0-125	J6	J6	2.97	20
Copper	103	1390	1110	1210	0.000	0.000	1	75.0-125	V	V	9.02	20

Method Blank (MB)

(MB) R3854062-1 10/28/22 00:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.08	10.0
Arsenic	U		0.518	2.00
Barium	U		0.0852	0.500
Chromium	U		0.133	1.00
Copper	U		0.400	2.00

Laboratory Control Sample (LCS)

(LCS) R3854062-2 10/28/22 00:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	1010	101	80.0-120	
Arsenic	100	96.7	96.7	80.0-120	
Barium	100	103	103	80.0-120	
Chromium	100	99.4	99.4	80.0-120	
Copper	100	101	101	80.0-120	

L1549622-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1549622-06 10/28/22 00:45 • (MS) R3854062-5 10/28/22 00:53 • (MSD) R3854062-6 10/28/22 00:55

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	1980	2650	2640	66.7	65.4	1	75.0-125	J6	J6	0.484	20
Arsenic	100	4.07	95.5	99.0	91.4	95.0	1	75.0-125			3.64	20
Barium	100	105	171	188	66.4	82.5	1	75.0-125	J6		8.98	20
Chromium	100	26.7	119	122	92.2	95.4	1	75.0-125			2.61	20
Copper	100	13.4	110	113	96.2	99.2	1	75.0-125			2.66	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Anne Walsh
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle: PT MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Andrew Guglielmo

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 1549698
K212

Acctnum: **UPRRGOLD**
Template: **T217941**
Prelogin: **P956686**
PM: **134 - Mark W. Beasley**
PB: CR 10-11-22
Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MRCRA8 4ozClr-NoPres	Remarks	Sample # (lab only)
SO-2494-Ex-6-WL0-102022	Grab	SS	2	10-20-22	1400	1	X		-01
SO-2494-Ex-6-SW-102022	Grab	SS	2	10-20-22	1415	1	X		-02
SO-2494-Ex-9-B4-101922	Grab	SS	4	10-19-22	1600	1	X		-03
SO-2494-Ex-8-B4-101922	Grab	SS	4	10-19-22	1550	1	X		-04
SO-2494-Ex-9-B6-101922	Grab	SS	6	10-19-22	1530	1	X		-05
SO-2494-Ex-8-B6-101922	Grab	SS	6	10-19-22	1615	1	X		-06
SO-2494-Ex-9-S1-102022	Grab	SS	2	10-20-22	1000	1	X		-07
SO-2494-Ex-9-S2-102022	Grab	SS	2	10-20-22	1015	1	X		-08
SO-2494-Ex-9-S3-102022	Grab	SS	2	10-20-22	1030	1	X		-09
SO-2494-Ex-9-S4-102022	Grab	SS	2	10-20-22	1045	1	X		-10

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 5913 6269 3616

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
Amar Jain	~~10-20-22~~ 10-21-22	~~4:30pm~~ 5:30pm			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C 1.8+0=1.8	Bottles Received: 19
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Emoreland	Date: 10/22/22	Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Anne Walsh
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle: PT MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Andrew Guglielmo

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately
Packed on Ice N____ Y____

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MRCRA8 4ozClr-NoPres	MRCRA8 250 mL HDPE-HNO3									Remarks	Sample # (lab only)
SO-2494-Ex-8-S1-102022	Grab	SS	2	10-20-22	1300	1	X											-11
SO-2494-Ex-8-S2-102022	"	SS	2	10-20-22	1315	1	X											-12
SO-2494-Ex-6-NW-102022	"	SS	2	10-20-22	1500	1	X											-13
SO-2494-Ex-6-EW-102022	"	SS	2	10-20-22	1430	1	X											-14
SO-2494-Ex-6-B-102022	"	SS	6	10-20-22	1445	1	X											-15
SO-2494-Ex-8-SB-102022	"	SS	2	10-20-22	1330	1	X											-16
SO-2494-Dup2-102022	"	SS	—	10-20-22	—	1	X											-17
RB-2494-2-102022	✓	SS	—	10-20-22	—	1		X										-18
SO-2494-EX-9-S5-1021	GRAB	SS	2	10-21-22	0900	1	X											-19
-22		SS																

Chain of Custody Page 2 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 154698

Table #

Acctnum: **UPRRGOLD**
Template: **T217941**
Prelogin: **P956686**
PM: **134 - Mark W. Beasley**
PB CR 10-11-22

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 5913 6269 3616

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes (No) HCL / MeoH TBR	If preservation required by Login: Date/Time
Amar Jain	10-21-22 ~~10-20-22~~	4:30pm ~~5:30pm~~			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.8 +0 = 1.8 °C Bottles Received: 19	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Stmoreland	Date: 10/22/22 Time: 0900	Hold: Condition: NCF / OK

ANALYTICAL REPORT

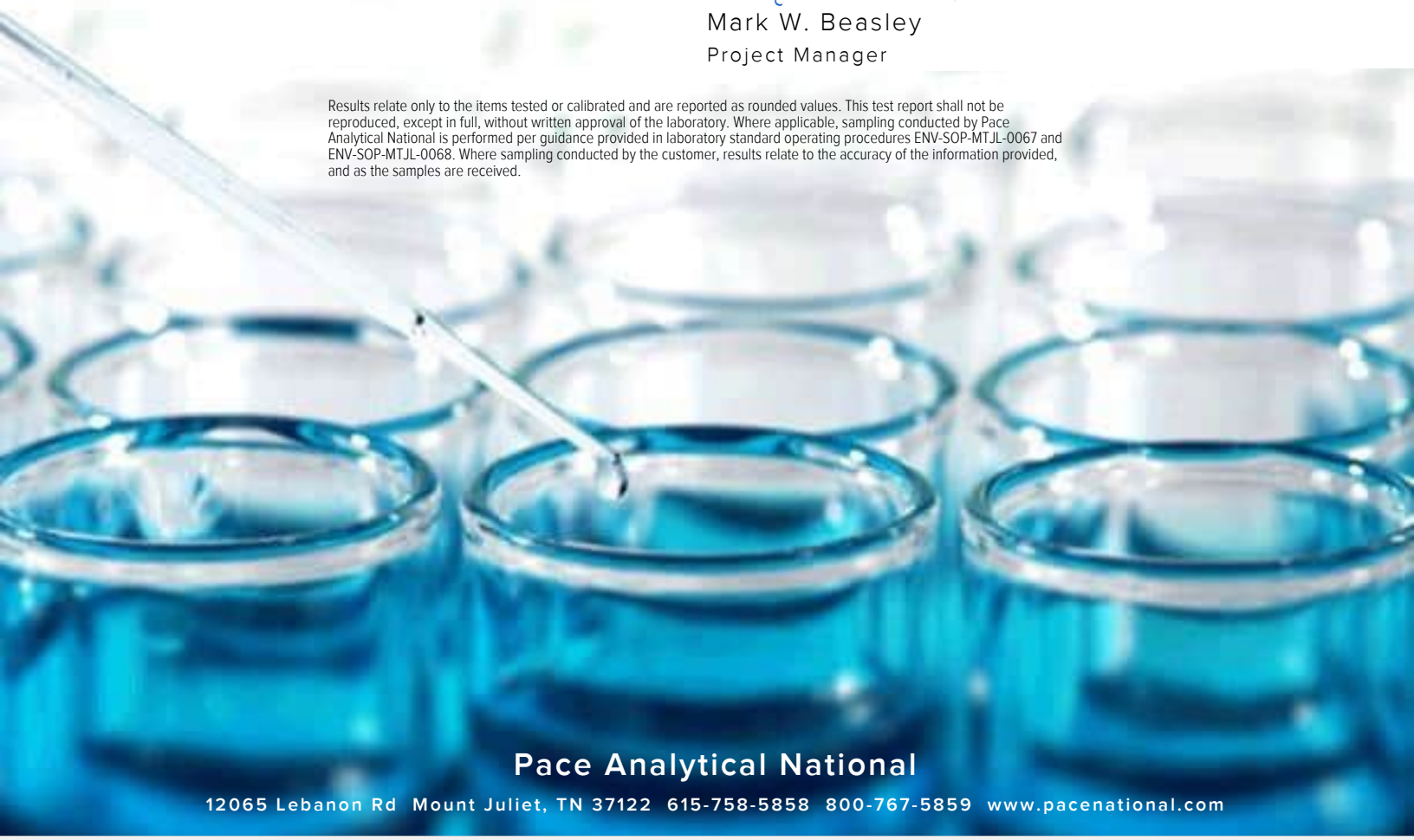
November 03, 2022

UPRR - Golder Associates

Sample Delivery Group:	L1550711
Samples Received:	10/26/2022
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SO-2494-EX-7-NW-102422 L1550711-01 Solid

Collected by: Amar Jain | Collected date/time: 10/24/22 09:00 | Received date/time: 10/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949683	1	10/27/22 08:31	10/27/22 08:38	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1950389	1	10/28/22 08:09	10/30/22 11:24	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1950966	1	11/01/22 13:47	11/01/22 20:45	JDG	Mt. Juliet, TN

SO-2494-EX-7-B-102422 L1550711-02 Solid

Collected by: Amar Jain | Collected date/time: 10/24/22 09:15 | Received date/time: 10/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949683	1	10/27/22 08:31	10/27/22 08:38	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1950389	1	10/28/22 08:09	10/30/22 11:32	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1950966	1	11/01/22 13:47	11/01/22 20:48	JDG	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1950966	5	11/01/22 13:47	11/03/22 02:10	CCE	Mt. Juliet, TN

SO-2494-EX-7-SW-102422 L1550711-03 Solid

Collected by: Amar Jain | Collected date/time: 10/24/22 09:30 | Received date/time: 10/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949684	1	10/27/22 08:41	10/27/22 08:49	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1950389	1	10/28/22 08:09	10/30/22 11:17	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1950966	1	11/01/22 13:47	11/01/22 20:57	JDG	Mt. Juliet, TN

SO-2494-EX-7-EW-102422 L1550711-04 Solid

Collected by: Amar Jain | Collected date/time: 10/24/22 09:45 | Received date/time: 10/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949684	1	10/27/22 08:41	10/27/22 08:49	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1950389	.833	10/28/22 08:09	10/30/22 11:34	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1950966	1	11/01/22 13:47	11/01/22 20:29	JDG	Mt. Juliet, TN

SO-2494-EX-7-WW-102422 L1550711-05 Solid

Collected by: Amar Jain | Collected date/time: 10/24/22 10:00 | Received date/time: 10/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949684	1	10/27/22 08:41	10/27/22 08:49	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1950389	1	10/28/22 08:09	10/30/22 11:37	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1950966	1	11/01/22 13:47	11/01/22 20:59	JDG	Mt. Juliet, TN

SO-2494-EX-5-B-102422 L1550711-06 Solid

Collected by: Amar Jain | Collected date/time: 10/24/22 10:15 | Received date/time: 10/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949684	1	10/27/22 08:41	10/27/22 08:49	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1950389	1	10/28/22 08:09	10/30/22 11:39	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1950966	1	11/01/22 13:47	11/01/22 21:02	JDG	Mt. Juliet, TN

SO-2494-EX-5-NW-102422 L1550711-07 Solid

Collected by: Amar Jain | Collected date/time: 10/24/22 10:30 | Received date/time: 10/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949684	1	10/27/22 08:41	10/27/22 08:49	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1950389	1	10/28/22 08:09	10/30/22 11:42	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1950966	1	11/01/22 13:47	11/01/22 21:05	JDG	Mt. Juliet, TN

SO-2494-EX-5-EW-102422 L1550711-08 Solid

Collected by: Amar Jain | Collected date/time: 10/24/22 10:45 | Received date/time: 10/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949684	1	10/27/22 08:41	10/27/22 08:49	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1950389	1	10/28/22 08:09	10/30/22 11:44	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1950966	1	11/01/22 13:47	11/01/22 21:08	JDG	Mt. Juliet, TN

SO-2494-EX-5-SW-102422 L1550711-09 Solid

Collected by: Amar Jain | Collected date/time: 10/24/22 11:00 | Received date/time: 10/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949684	1	10/27/22 08:41	10/27/22 08:49	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1950389	1	10/28/22 08:09	10/30/22 11:47	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1950966	1	11/01/22 13:47	11/01/22 21:11	JDG	Mt. Juliet, TN

SO-2494-EX-5-WW-102422 L1550711-10 Solid

Collected by: Amar Jain | Collected date/time: 10/24/22 11:15 | Received date/time: 10/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1949684	1	10/27/22 08:41	10/27/22 08:49	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1950389	1	10/28/22 08:09	10/30/22 11:49	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1950966	1	11/01/22 13:47	11/01/22 21:14	JDG	Mt. Juliet, TN

CASE NARRATIVE

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

Mark W. Beasley
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.1		1	10/27/2022 08:38	WG1949683

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0187	0.0416	1	10/30/2022 11:24	WG1950389

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8130		6.32	10.4	1	11/01/2022 20:45	WG1950966
Arsenic	8.23		0.539	2.08	1	11/01/2022 20:45	WG1950966
Barium	58.7		0.0886	0.520	1	11/01/2022 20:45	WG1950966
Chromium	8.00		0.138	1.04	1	11/01/2022 20:45	WG1950966
Copper	46.4		0.416	2.08	1	11/01/2022 20:45	WG1950966

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.3		1	10/27/2022 08:38	WG1949683

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.122		0.0189	0.0420	1	10/30/2022 11:32	WG1950389

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	54800		31.9	52.4	5	11/03/2022 02:10	WG1950966
Arsenic	7.83		0.543	2.10	1	11/01/2022 20:48	WG1950966
Barium	110		0.0894	0.524	1	11/01/2022 20:48	WG1950966
Chromium	34.5		0.139	1.05	1	11/01/2022 20:48	WG1950966
Copper	615		0.420	2.10	1	11/01/2022 20:48	WG1950966

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.4		1	10/27/2022 08:49	WG1949684

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0195	0.0433	1	10/30/2022 11:17	WG1950389

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9310		6.58	10.8	1	11/01/2022 20:57	WG1950966
Arsenic	5.23		0.560	2.16	1	11/01/2022 20:57	WG1950966
Barium	74.5		0.0922	0.541	1	11/01/2022 20:57	WG1950966
Chromium	10.3		0.144	1.08	1	11/01/2022 20:57	WG1950966
Copper	33.7		0.433	2.16	1	11/01/2022 20:57	WG1950966

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.3		1	10/27/2022 08:49	WG1949684

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0166	0.0369	.833	10/30/2022 11:34	WG1950389

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	17000	O1 V	6.74	11.1	1	11/01/2022 20:29	WG1950966
Arsenic	7.94		0.574	2.22	1	11/01/2022 20:29	WG1950966
Barium	63.6		0.0944	0.554	1	11/01/2022 20:29	WG1950966
Chromium	13.2		0.147	1.11	1	11/01/2022 20:29	WG1950966
Copper	208	J6	0.443	2.22	1	11/01/2022 20:29	WG1950966

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.0		1	10/27/2022 08:49	WG1949684

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0862		0.0209	0.0465	1	10/30/2022 11:37	WG1950389

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	41200		7.07	11.6	1	11/01/2022 20:59	WG1950966
Arsenic	5.69		0.602	2.33	1	11/01/2022 20:59	WG1950966
Barium	103		0.0991	0.581	1	11/01/2022 20:59	WG1950966
Chromium	30.1		0.155	1.16	1	11/01/2022 20:59	WG1950966
Copper	391		0.465	2.33	1	11/01/2022 20:59	WG1950966

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.2		1	10/27/2022 08:49	WG1949684

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0187	0.0416	1	10/30/2022 11:39	WG1950389

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	7950		6.32	10.4	1	11/01/2022 21:02	WG1950966
Arsenic	5.00		0.538	2.08	1	11/01/2022 21:02	WG1950966
Barium	96.0		0.0885	0.520	1	11/01/2022 21:02	WG1950966
Chromium	7.33		0.138	1.04	1	11/01/2022 21:02	WG1950966
Copper	20.7		0.416	2.08	1	11/01/2022 21:02	WG1950966

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.5		1	10/27/2022 08:49	WG1949684

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0208	0.0463	1	10/30/2022 11:42	WG1950389

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10500		7.03	11.6	1	11/01/2022 21:05	WG1950966
Arsenic	5.07		0.599	2.31	1	11/01/2022 21:05	WG1950966
Barium	138		0.0985	0.578	1	11/01/2022 21:05	WG1950966
Chromium	9.86		0.154	1.16	1	11/01/2022 21:05	WG1950966
Copper	24.6		0.463	2.31	1	11/01/2022 21:05	WG1950966

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.6		1	10/27/2022 08:49	WG1949684

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0210	0.0467	1	10/30/2022 11:44	WG1950389

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11500		7.11	11.7	1	11/01/2022 21:08	WG1950966
Arsenic	2.24	J	0.605	2.34	1	11/01/2022 21:08	WG1950966
Barium	153		0.0996	0.584	1	11/01/2022 21:08	WG1950966
Chromium	9.43		0.155	1.17	1	11/01/2022 21:08	WG1950966
Copper	24.8		0.467	2.34	1	11/01/2022 21:08	WG1950966

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.8		1	10/27/2022 08:49	WG1949684

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0192	0.0426	1	10/30/2022 11:47	WG1950389

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12700		6.48	10.7	1	11/01/2022 21:11	WG1950966
Arsenic	1.80	J	0.552	2.13	1	11/01/2022 21:11	WG1950966
Barium	164		0.0908	0.533	1	11/01/2022 21:11	WG1950966
Chromium	9.59		0.142	1.07	1	11/01/2022 21:11	WG1950966
Copper	19.7		0.426	2.13	1	11/01/2022 21:11	WG1950966

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.9		1	10/27/2022 08:49	WG1949684

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0505		0.0196	0.0435	1	10/30/2022 11:49	WG1950389

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5880		6.62	10.9	1	11/01/2022 21:14	WG1950966
Arsenic	5.44		0.564	2.18	1	11/01/2022 21:14	WG1950966
Barium	88.7		0.0927	0.544	1	11/01/2022 21:14	WG1950966
Chromium	5.55		0.145	1.09	1	11/01/2022 21:14	WG1950966
Copper	21.4		0.435	2.18	1	11/01/2022 21:14	WG1950966

Method Blank (MB)

(MB) R3853858-1 10/27/22 08:38

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00200			

L1550421-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1550421-01 10/27/22 08:38 • (DUP) R3853858-3 10/27/22 08:38

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	83.0	82.9	1	0.0524		10

Laboratory Control Sample (LCS)

(LCS) R3853858-2 10/27/22 08:38

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

QUALITY CONTROL SUMMARY

L1550711-03,04,05,06,07,08,09,10

Method Blank (MB)

(MB) R3853868-1 10/27/22 08:49

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1550711-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1550711-04 10/27/22 08:49 • (DUP) R3853868-3 10/27/22 08:49

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	90.3	90.4	1	0.108		10

Laboratory Control Sample (LCS)

(LCS) R3853868-2 10/27/22 08:49

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

Method Blank (MB)

(MB) R3854659-1 10/30/22 11:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3854659-2 10/30/22 11:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.513	103	80.0-120	

L1550711-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1550711-03 10/30/22 11:17 • (MS) R3854659-3 10/30/22 11:19 • (MSD) R3854659-4 10/30/22 11:22

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.541	U	0.501	0.495	92.6	91.4	1	75.0-125			1.28	20

Method Blank (MB)

(MB) R3855766-1 11/01/22 20:23

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.08	10.0
Arsenic	U		0.518	2.00
Barium	U		0.0852	0.500
Chromium	U		0.133	1.00
Copper	U		0.400	2.00

Laboratory Control Sample (LCS)

(LCS) R3855766-2 11/01/22 20:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	943	94.3	80.0-120	
Arsenic	100	90.4	90.4	80.0-120	
Barium	100	97.8	97.8	80.0-120	
Chromium	100	96.4	96.4	80.0-120	
Copper	100	95.9	95.9	80.0-120	

L1550711-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1550711-04 11/01/22 20:29 • (MS) R3855766-5 11/01/22 20:37 • (MSD) R3855766-6 11/01/22 20:40

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1110	17000	18500	16700	136	0.000	1	75.0-125	V	V	9.98	20
Arsenic	111	7.94	114	115	95.8	96.8	1	75.0-125			0.980	20
Barium	111	63.6	173	169	98.8	95.4	1	75.0-125			2.19	20
Chromium	111	13.2	125	128	101	104	1	75.0-125			2.25	20
Copper	111	208	282	269	66.5	55.2	1	75.0-125	J6	J6	4.55	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Anne Walsh
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To: amar.jain@wsp.com; tnorton@golder.com;andrew.guglielmo@wsp.com

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle: PT MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Amar Jain

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MRCRA8 4ozClr-NoPres									Remarks	Sample # (lab only)
SO-2494-EX-7-NW-102422	GRAB	SS	2	10-24-22	0900	1	X										-01
SO-2494-EX-7-B-102422		SS	4		0915	1											-02
SO-2494-EX-7-SW-102422		SS	2		0930												-03
SO-2494-EX-7-EW-102422		SS	2		0945												-04
SO-2494-EX-7-WW-102422		SS	2		1000												-05
SO-2494-EX-5-B-102422		SS	4		1015												-06
SO-2494-EX-5-NW-102422		SS	2		1080												-07
SO-2494-EX-5-EW-102422		SS	2		1045												-08
SO-2494-EX-5-SW-102422		SS	2		1100												-09
SO-2494-EX-5-WW-102422		SS	2		1115												-10

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 550711
D137

Acctnum: **UPRRGOLD**
Template: **T217941**
Prelogin: **P956686**
PM: **134 - Mark W. Beasley**
PB: CR 10.11.22

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier _____

Tracking # 6053 3807 7192

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

	Date:	Time:		
Relinquished by : (Signature)	10-25-22	1620	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp 0.6 °C Bottles Received: 3 2 3 10
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 10/26 Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

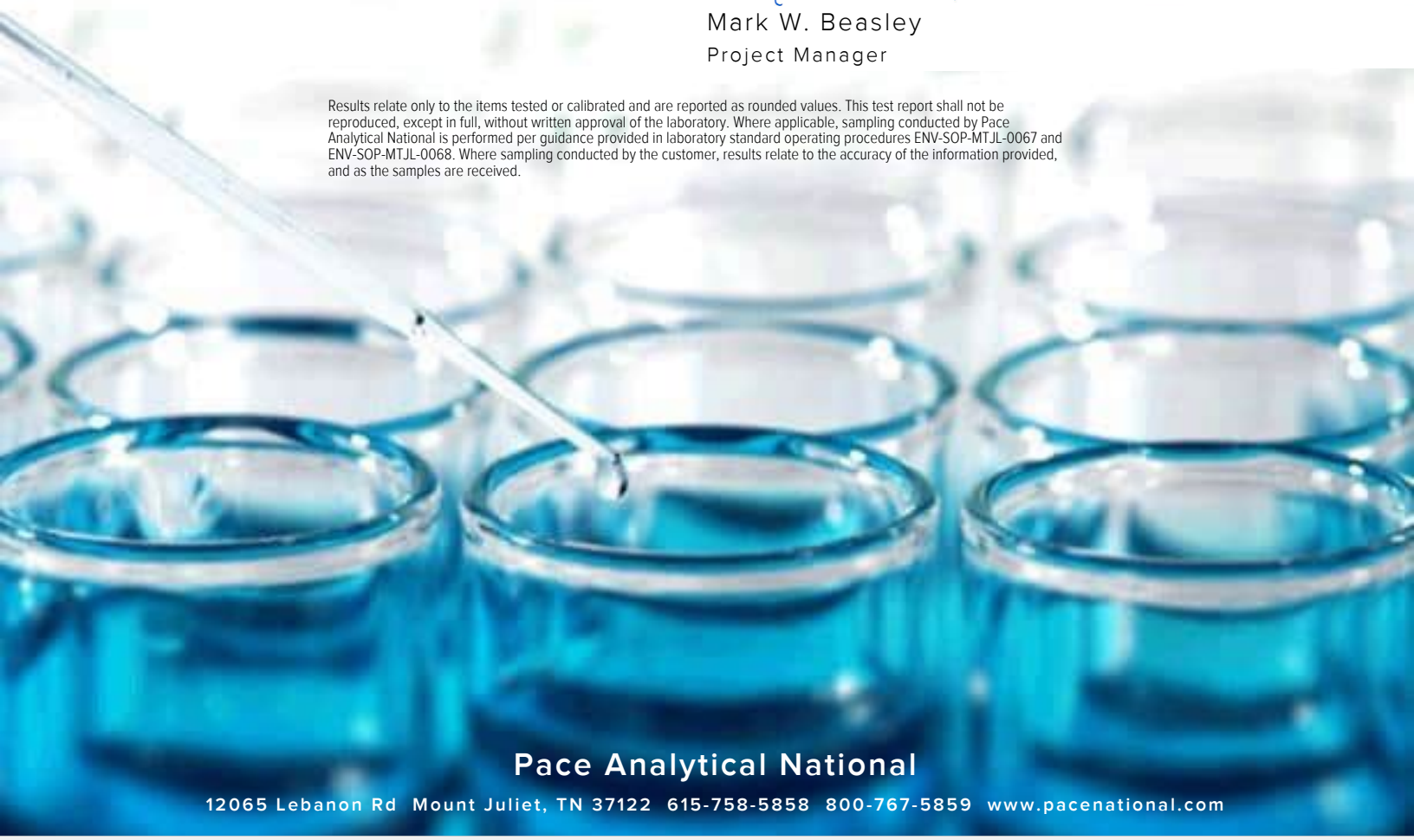
November 03, 2022

UPRR - Golder Associates

Sample Delivery Group:	L1551962
Samples Received:	10/29/2022
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-DW-B-102622 L1551962-01 Solid

Collected by: Amar Jain
Collected date/time: 10/26/22 15:00
Received date/time: 10/29/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1951604	1	11/01/22 05:43	11/01/22 05:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1951431	1	10/30/22 13:02	10/31/22 15:56	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1952938	1	11/02/22 09:32	11/03/22 11:42	ZSA	Mt. Juliet, TN

CASE NARRATIVE

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

Mark W. Beasley
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.1		1	11/01/2022 05:50	WG1951604

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0214	J	0.0183	0.0408	1	10/31/2022 15:56	WG1951431

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5250		6.20	10.2	1	11/03/2022 11:42	WG1952938
Arsenic	0.528	B J	0.528	2.04	1	11/03/2022 11:42	WG1952938
Barium	73.7		0.0868	0.510	1	11/03/2022 11:42	WG1952938
Chromium	4.05		0.136	1.02	1	11/03/2022 11:42	WG1952938
Copper	38.4		0.408	2.04	1	11/03/2022 11:42	WG1952938

Method Blank (MB)

(MB) R3855566-1 11/01/22 05:50

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00200			

L1551705-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1551705-03 11/01/22 05:50 • (DUP) R3855566-3 11/01/22 05:50

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	82.2	83.2	1	1.14		10

Laboratory Control Sample (LCS)

(LCS) R3855566-2 11/01/22 05:50

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.1	100	85.0-115	

Method Blank (MB)

(MB) R3855252-1 10/31/22 14:52

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3855252-2 10/31/22 14:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.493	98.7	80.0-120	

L1550959-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1550959-01 10/31/22 14:57 • (MS) R3855252-3 10/31/22 14:59 • (MSD) R3855252-4 10/31/22 15:02

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.679	0.0274	0.779	0.772	111	110	1	75.0-125			0.972	20

QUALITY CONTROL SUMMARY

L1551962-01

Method Blank (MB)

(MB) R3856286-1 11/02/22 19:17

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.08	10.0
Arsenic	0.618	J	0.518	2.00
Barium	0.412	J	0.0852	0.500
Chromium	U		0.133	1.00
Copper	U		0.400	2.00

Laboratory Control Sample (LCS)

(LCS) R3856286-2 11/02/22 19:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	959	95.9	80.0-120	
Arsenic	100	92.5	92.5	80.0-120	
Barium	100	98.5	98.5	80.0-120	
Chromium	100	96.8	96.8	80.0-120	
Copper	100	98.0	98.0	80.0-120	

L1551921-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1551921-01 11/02/22 19:23 • (MS) R3856286-5 11/02/22 19:31 • (MSD) R3856286-6 11/02/22 19:34

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	26.4	989	1020	96.2	98.9	1	75.0-125			2.72	20
Arsenic	100	0.711	94.4	96.4	93.7	95.7	1	75.0-125			2.14	20
Barium	100	2.49	101	103	98.9	101	1	75.0-125			2.01	20
Chromium	100	0.468	97.0	100	96.5	99.6	1	75.0-125			3.13	20
Copper	100	5.79	104	109	97.8	103	1	75.0-125			4.90	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Anne Walsh
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle: PT MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Amar Jain

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
✓ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MRCRA8 250mlHDPE-HNO3									Remarks	Sample # (lab only)
							62										
SO-2494-DW-B-102C22	GRAB	GW	0	10-26-22	1500	1	X										-01
		GW															
		GW															
		GW															
		GW															
		GW															
		GW															
		GW															
		GW															
		GW															
		GW															

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1551962

Table # E5

Acctnum: **UPRRGOLD**

Template: **T217946**

Prelogin: **P956687**

PM: **134 - Mark W. Beasley**

PB: KP 10/11/22

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6053 3808 1379

Sample Receipt Checklist
COC Seal Present/Intact: ✓NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes (No) HCL / MeoH TBR	
	10-28-22	1615			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.1/1.9°C Bottles Received: 3.0 to = 3.0	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 10/29/22 Time: 0900	Hold: Condition: NCF / (OK)

ANALYTICAL REPORT

November 10, 2022

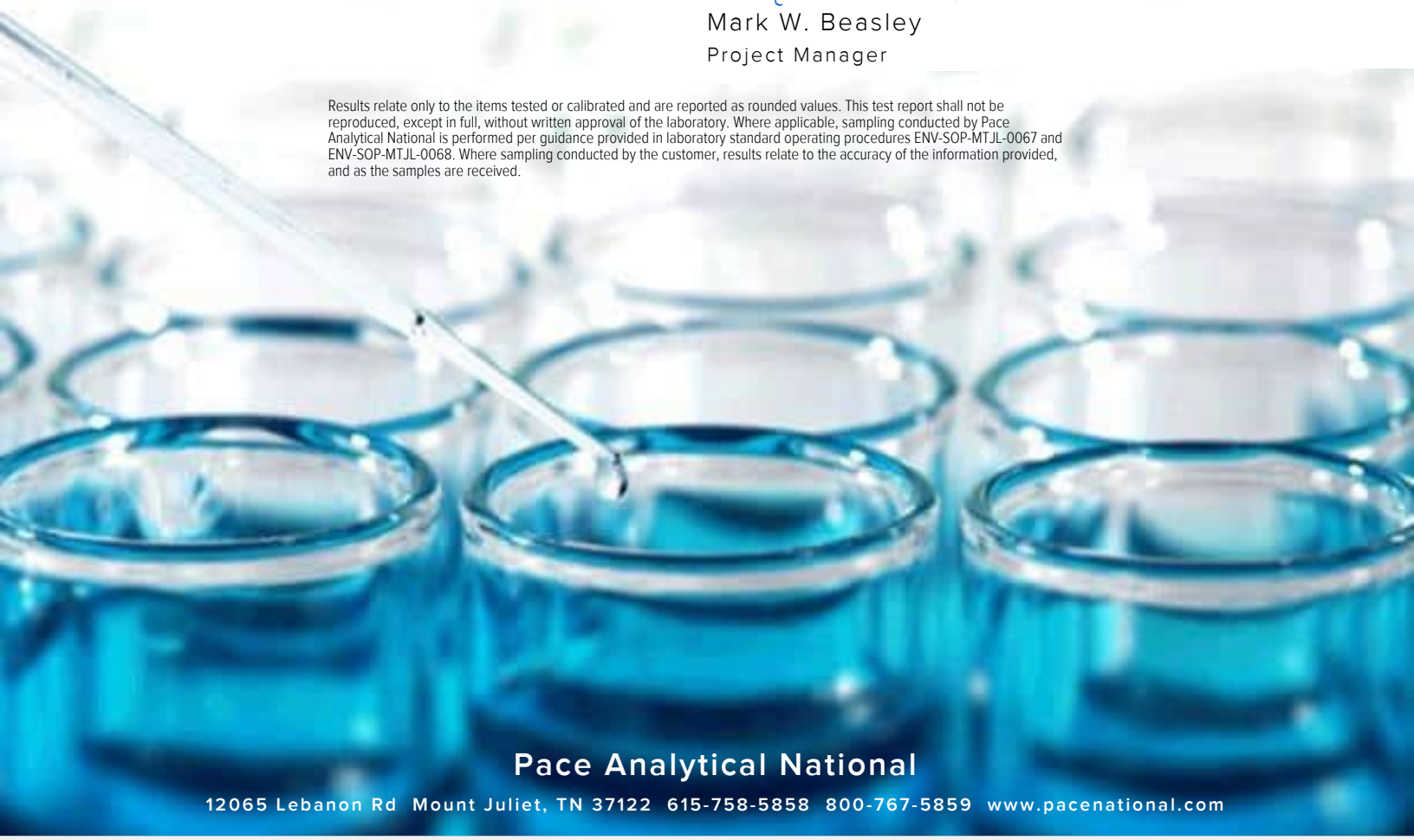
UPRR - Golder Associates

Sample Delivery Group:	L1554509
Samples Received:	11/05/2022
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SO-2494-W1-48-110222 L1554509-01 Solid

Collected by: Amar Jain | Collected date/time: 11/02/22 13:15 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956521	1	11/09/22 07:35	11/09/22 07:42	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 09:03	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956202	1	11/08/22 17:11	11/09/22 12:45	ABL	Mt. Juliet, TN

SO-2494-UP2-32-110222 L1554509-02 Solid

Collected by: Amar Jain | Collected date/time: 11/02/22 15:45 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956521	1	11/09/22 07:35	11/09/22 07:42	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 09:06	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956202	1	11/08/22 17:11	11/09/22 12:54	ABL	Mt. Juliet, TN

SO-2494-UP2-33-110222 L1554509-03 Solid

Collected by: Amar Jain | Collected date/time: 11/02/22 16:00 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956521	1	11/09/22 07:35	11/09/22 07:42	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 09:13	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956202	1	11/08/22 17:11	11/09/22 12:56	ABL	Mt. Juliet, TN

SO-2494-UP2-34-110222 L1554509-04 Solid

Collected by: Amar Jain | Collected date/time: 11/02/22 15:55 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956521	1	11/09/22 07:35	11/09/22 07:42	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 08:49	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956202	1	11/08/22 17:11	11/09/22 12:59	ABL	Mt. Juliet, TN

SO-2494-UP2-35-110322 L1554509-05 Solid

Collected by: Amar Jain | Collected date/time: 11/03/22 10:00 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956521	1	11/09/22 07:35	11/09/22 07:42	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 09:15	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956202	1	11/08/22 17:11	11/09/22 13:02	ABL	Mt. Juliet, TN

SO-2494-UP2-36-110322 L1554509-06 Solid

Collected by: Amar Jain | Collected date/time: 11/03/22 11:00 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956522	1	11/09/22 09:44	11/09/22 10:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 09:18	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956202	1	11/08/22 17:11	11/09/22 13:05	ABL	Mt. Juliet, TN

SO-2494-UP2-37-110322 L1554509-07 Solid

Collected by: Amar Jain | Collected date/time: 11/03/22 11:10 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956522	1	11/09/22 09:44	11/09/22 10:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 09:20	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956202	1	11/08/22 17:11	11/09/22 13:07	ABL	Mt. Juliet, TN

SO-2494-DUP3-110322 L1554509-08 Solid

Collected by: Amar Jain | Collected date/time: 11/03/22 14:00 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956522	1	11/09/22 09:44	11/09/22 10:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 09:22	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 00:57	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 10:24	ABL	Mt. Juliet, TN

RB-2494-3-110322 L1554509-09 GW

Collected by: Amar Jain | Collected date/time: 11/03/22 14:00 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1955058	1	11/06/22 08:54	11/07/22 09:12	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1955355	1	11/08/22 12:04	11/08/22 19:28	ZSA	Mt. Juliet, TN

SO-2494-EX2-7-EW-110422 L1554509-10 Solid

Collected by: Amar Jain | Collected date/time: 11/04/22 08:55 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956522	1	11/09/22 09:44	11/09/22 10:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 09:25	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 01:00	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 10:26	ABL	Mt. Juliet, TN

SO-2494-EX2-7-WW-110422 L1554509-11 Solid

Collected by: Amar Jain | Collected date/time: 11/04/22 09:00 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956522	1	11/09/22 09:44	11/09/22 10:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 09:27	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 00:06	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 09:56	ABL	Mt. Juliet, TN

SO-2494-EX2-7-BE-110422 L1554509-12 Solid

Collected by: Amar Jain | Collected date/time: 11/04/22 09:10 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956522	1	11/09/22 09:44	11/09/22 10:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 09:29	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 01:08	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 10:29	ABL	Mt. Juliet, TN

SO-2494-EX2-7-BW-110422 L1554509-13 Solid

Collected by: Amar Jain | Collected date/time: 11/04/22 09:15 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956522	1	11/09/22 09:44	11/09/22 10:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 09:32	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 01:11	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 10:32	ABL	Mt. Juliet, TN

SO-2494-EX2-5-EW-110422 L1554509-14 Solid

Collected by: Amar Jain | Collected date/time: 11/04/22 11:30 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956522	1	11/09/22 09:44	11/09/22 10:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 09:34	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 01:14	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 10:35	ABL	Mt. Juliet, TN

SO-2494-EX2-5-NW-110422 L1554509-15 Solid

Collected by: Amar Jain | Collected date/time: 11/04/22 11:35 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956522	1	11/09/22 09:44	11/09/22 10:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 09:41	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 01:16	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 10:37	ABL	Mt. Juliet, TN

SO-2494-EX2-5-SW-110422 L1554509-16 Solid

Collected by: Amar Jain | Collected date/time: 11/04/22 11:40 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956522	1	11/09/22 09:44	11/09/22 10:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 09:44	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 01:19	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 10:40	ABL	Mt. Juliet, TN

SO-2494-EX2-5-EW2-110422 L1554509-17 Solid

Collected by: Amar Jain | Collected date/time: 11/04/22 11:50 | Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1956523	1	11/09/22 09:17	11/09/22 09:40	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1955925	1	11/08/22 08:56	11/09/22 09:46	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 01:22	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1956206	1	11/08/22 16:34	11/10/22 10:43	ABL	Mt. Juliet, TN

CASE NARRATIVE

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

Mark W. Beasley
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.3		1	11/09/2022 07:42	WG1956521

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0261	J	0.0185	0.0411	1	11/09/2022 09:03	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	2260		6.25	10.3	1	11/09/2022 12:45	WG1956202
Arsenic	2.82		0.532	2.06	1	11/09/2022 12:45	WG1956202
Barium	44.7		0.0876	0.514	1	11/09/2022 12:45	WG1956202
Chromium	3.62		0.137	1.03	1	11/09/2022 12:45	WG1956202
Copper	19.7		0.411	2.06	1	11/09/2022 12:45	WG1956202

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.5		1	11/09/2022 07:42	WG1956521

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0185	0.0410	1	11/09/2022 09:06	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	2160		6.23	10.3	1	11/09/2022 12:54	WG1956202
Arsenic	1.97	J	0.531	2.05	1	11/09/2022 12:54	WG1956202
Barium	65.0		0.0873	0.513	1	11/09/2022 12:54	WG1956202
Chromium	2.50		0.136	1.03	1	11/09/2022 12:54	WG1956202
Copper	20.8		0.410	2.05	1	11/09/2022 12:54	WG1956202

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.4		1	11/09/2022 07:42	WG1956521

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.456		0.0187	0.0415	1	11/09/2022 09:13	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	30700		6.31	10.4	1	11/09/2022 12:56	WG1956202
Arsenic	1.92	J	0.537	2.07	1	11/09/2022 12:56	WG1956202
Barium	69.2		0.0884	0.519	1	11/09/2022 12:56	WG1956202
Chromium	23.4		0.138	1.04	1	11/09/2022 12:56	WG1956202
Copper	441		0.415	2.07	1	11/09/2022 12:56	WG1956202

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.6		1	11/09/2022 07:42	WG1956521

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	11/09/2022 08:49	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	3100		6.10	10.0	1	11/09/2022 12:59	WG1956202
Arsenic	3.07		0.520	2.01	1	11/09/2022 12:59	WG1956202
Barium	44.4		0.0855	0.502	1	11/09/2022 12:59	WG1956202
Chromium	3.48		0.134	1.00	1	11/09/2022 12:59	WG1956202
Copper	28.2		0.402	2.01	1	11/09/2022 12:59	WG1956202

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.0		1	11/09/2022 07:42	WG1956521

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0631		0.0186	0.0412	1	11/09/2022 09:15	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	7710		6.27	10.3	1	11/09/2022 13:02	WG1956202
Arsenic	1.49	J	0.534	2.06	1	11/09/2022 13:02	WG1956202
Barium	77.7		0.0878	0.515	1	11/09/2022 13:02	WG1956202
Chromium	6.90		0.137	1.03	1	11/09/2022 13:02	WG1956202
Copper	101		0.412	2.06	1	11/09/2022 13:02	WG1956202

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.3		1	11/09/2022 10:02	WG1956522

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0403	1	11/09/2022 09:18	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	2910		6.12	10.1	1	11/09/2022 13:05	WG1956202
Arsenic	7.03		0.521	2.01	1	11/09/2022 13:05	WG1956202
Barium	41.1		0.0858	0.503	1	11/09/2022 13:05	WG1956202
Chromium	6.26		0.134	1.01	1	11/09/2022 13:05	WG1956202
Copper	42.0		0.403	2.01	1	11/09/2022 13:05	WG1956202

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	100		1	11/09/2022 10:02	WG1956522

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0180	0.0400	1	11/09/2022 09:20	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	2480		6.08	10.0	1	11/09/2022 13:07	WG1956202
Arsenic	2.94		0.518	2.00	1	11/09/2022 13:07	WG1956202
Barium	46.2		0.0852	0.500	1	11/09/2022 13:07	WG1956202
Chromium	2.57		0.133	1.00	1	11/09/2022 13:07	WG1956202
Copper	21.0		0.400	2.00	1	11/09/2022 13:07	WG1956202

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.8		1	11/09/2022 10:02	WG1956522

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0195	J	0.0184	0.0409	1	11/09/2022 09:22	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	2540		6.21	10.2	1	11/10/2022 00:57	WG1956206
Arsenic	4.87		0.529	2.04	1	11/10/2022 00:57	WG1956206
Barium	48.7		0.0871	0.511	1	11/10/2022 00:57	WG1956206
Chromium	4.17		0.136	1.02	1	11/10/2022 00:57	WG1956206
Copper	27.3		0.409	2.04	1	11/10/2022 10:24	WG1956206

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	U		0.000100	0.000200	1	11/07/2022 09:12	WG1955058

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	U		0.0561	0.200	1	11/08/2022 19:28	WG1955355
Arsenic	U		0.00440	0.0100	1	11/08/2022 19:28	WG1955355
Barium	0.00123	J	0.000736	0.00500	1	11/08/2022 19:28	WG1955355
Chromium	U		0.00140	0.0100	1	11/08/2022 19:28	WG1955355
Copper	U		0.00368	0.0100	1	11/08/2022 19:28	WG1955355

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.9		1	11/09/2022 10:02	WG1956522

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0180	0.0401	1	11/09/2022 09:25	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	2070		6.09	10.0	1	11/10/2022 01:00	WG1956206
Arsenic	6.47		0.519	2.00	1	11/10/2022 01:00	WG1956206
Barium	45.3		0.0853	0.501	1	11/10/2022 01:00	WG1956206
Chromium	2.77		0.133	1.00	1	11/10/2022 01:00	WG1956206
Copper	23.2		0.401	2.00	1	11/10/2022 10:26	WG1956206

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.2		1	11/09/2022 10:02	WG1956522

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0185	0.0411	1	11/09/2022 09:27	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	2760	J5 J6	6.25	10.3	1	11/10/2022 00:06	WG1956206
Arsenic	2.75		0.533	2.06	1	11/10/2022 00:06	WG1956206
Barium	50.9		0.0876	0.514	1	11/10/2022 00:06	WG1956206
Chromium	2.82		0.137	1.03	1	11/10/2022 00:06	WG1956206
Copper	18.0		0.411	2.06	1	11/10/2022 09:56	WG1956206

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.0		1	11/09/2022 10:02	WG1956522

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0189	0.0421	1	11/09/2022 09:29	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	3130		6.40	10.5	1	11/10/2022 01:08	WG1956206
Arsenic	7.66		0.545	2.10	1	11/10/2022 01:08	WG1956206
Barium	52.2		0.0897	0.526	1	11/10/2022 01:08	WG1956206
Chromium	2.98		0.140	1.05	1	11/10/2022 01:08	WG1956206
Copper	47.3		0.421	2.10	1	11/10/2022 10:29	WG1956206

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.2		1	11/09/2022 10:02	WG1956522

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0256	J	0.0183	0.0408	1	11/09/2022 09:32	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	3110		6.19	10.2	1	11/10/2022 01:11	WG1956206
Arsenic	3.64		0.528	2.04	1	11/10/2022 01:11	WG1956206
Barium	42.6		0.0868	0.509	1	11/10/2022 01:11	WG1956206
Chromium	4.19		0.135	1.02	1	11/10/2022 01:11	WG1956206
Copper	38.5		0.408	2.04	1	11/10/2022 10:32	WG1956206

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.8		1	11/09/2022 10:02	WG1956522

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0186	0.0413	1	11/09/2022 09:34	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	1650		6.28	10.3	1	11/10/2022 01:14	WG1956206
Arsenic	6.87		0.535	2.07	1	11/10/2022 01:14	WG1956206
Barium	53.8		0.0880	0.516	1	11/10/2022 01:14	WG1956206
Chromium	1.63		0.137	1.03	1	11/10/2022 01:14	WG1956206
Copper	21.0		0.413	2.07	1	11/10/2022 10:35	WG1956206

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.4		1	11/09/2022 10:02	WG1956522

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0187	0.0415	1	11/09/2022 09:41	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	1670		6.31	10.4	1	11/10/2022 01:16	WG1956206
Arsenic	6.37		0.537	2.08	1	11/10/2022 01:16	WG1956206
Barium	43.8		0.0884	0.519	1	11/10/2022 01:16	WG1956206
Chromium	1.66		0.138	1.04	1	11/10/2022 01:16	WG1956206
Copper	19.6		0.415	2.08	1	11/10/2022 10:37	WG1956206

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.1		1	11/09/2022 10:02	WG1956522

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0404	1	11/09/2022 09:44	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	3030		6.13	10.1	1	11/10/2022 01:19	WG1956206
Arsenic	0.825	J	0.523	2.02	1	11/10/2022 01:19	WG1956206
Barium	126		0.0860	0.504	1	11/10/2022 01:19	WG1956206
Chromium	2.03		0.134	1.01	1	11/10/2022 01:19	WG1956206
Copper	13.2		0.404	2.02	1	11/10/2022 10:40	WG1956206

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.4		1	11/09/2022 09:40	WG1956523

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0193	0.0428	1	11/09/2022 09:46	WG1955925

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	1540		6.51	10.7	1	11/10/2022 01:22	WG1956206
Arsenic	26.5		0.555	2.14	1	11/10/2022 01:22	WG1956206
Barium	39.7		0.0912	0.535	1	11/10/2022 01:22	WG1956206
Chromium	1.49		0.142	1.07	1	11/10/2022 01:22	WG1956206
Copper	15.7		0.428	2.14	1	11/10/2022 10:43	WG1956206

Method Blank (MB)

(MB) R3858912-1 11/09/22 07:42

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1554509-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1554509-04 11/09/22 07:42 • (DUP) R3858912-3 11/09/22 07:42

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	99.6	99.6	1	0.0442		10

Laboratory Control Sample (LCS)

(LCS) R3858912-2 11/09/22 07:42

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

Method Blank (MB)

(MB) R3859227-1 11/09/22 10:02

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1554509-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1554509-14 11/09/22 10:02 • (DUP) R3859227-3 11/09/22 10:02

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	96.8	97.0	1	0.144		10

Laboratory Control Sample (LCS)

(LCS) R3859227-2 11/09/22 10:02

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

Method Blank (MB)

(MB) R3859222-1 11/09/22 09:40

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00200			

L1550956-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1550956-04 11/09/22 09:40 • (DUP) R3859222-3 11/09/22 09:40

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	78.7	78.3	1	0.463		10

Laboratory Control Sample (LCS)

(LCS) R3859222-2 11/09/22 09:40

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

Method Blank (MB)

(MB) R3857718-1 11/07/22 09:07

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3857718-2 11/07/22 09:09

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00319	106	80.0-120	

L1554509-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1554509-09 11/07/22 09:12 • (MS) R3857718-3 11/07/22 09:18 • (MSD) R3857718-4 11/07/22 09:20

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	U	0.00304	0.00314	101	105	1	75.0-125			3.05	20

Method Blank (MB)

(MB) R3858731-1 11/09/22 08:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3858731-2 11/09/22 08:47

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.482	96.3	80.0-120	

L1554509-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1554509-04 11/09/22 08:49 • (MS) R3858731-3 11/09/22 08:51 • (MSD) R3858731-4 11/09/22 08:54

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.502	U	0.467	0.480	93.0	95.7	1	75.0-125			2.83	20

Method Blank (MB)

(MB) R3858580-1 11/08/22 18:18

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aluminum	U		0.0561	0.200
Arsenic	U		0.00440	0.0100
Barium	U		0.000736	0.00500
Chromium	U		0.00140	0.0100
Copper	U		0.00368	0.0100

Laboratory Control Sample (LCS)

(LCS) R3858580-2 11/08/22 18:20

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	10.0	9.77	97.7	80.0-120	
Arsenic	1.00	0.970	97.0	80.0-120	
Barium	1.00	1.01	101	80.0-120	
Chromium	1.00	0.989	98.9	80.0-120	
Copper	1.00	0.997	99.7	80.0-120	

L1553665-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1553665-01 11/08/22 18:23 • (MS) R3858580-4 11/08/22 18:28 • (MSD) R3858580-5 11/08/22 18:31

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	10.0	0.998	10.6	11.0	96.3	99.6	1	75.0-125			3.04	20
Arsenic	1.00	U	1.00	0.985	100	98.5	1	75.0-125			1.93	20
Barium	1.00	0.209	1.23	1.22	102	101	1	75.0-125			0.217	20
Chromium	1.00	0.00616	1.01	0.991	99.9	98.4	1	75.0-125			1.51	20
Copper	1.00	0.117	1.17	1.17	105	106	1	75.0-125			0.390	20

Method Blank (MB)

(MB) R3858950-1 11/09/22 11:37

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.08	10.0
Arsenic	U		0.518	2.00
Barium	U		0.0852	0.500
Chromium	U		0.133	1.00
Copper	U		0.400	2.00

Laboratory Control Sample (LCS)

(LCS) R3858950-2 11/09/22 11:40

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	925	92.5	80.0-120	
Arsenic	100	90.8	90.8	80.0-120	
Barium	100	96.2	96.2	80.0-120	
Chromium	100	93.1	93.1	80.0-120	
Copper	100	95.4	95.4	80.0-120	

L1554345-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1554345-06 11/09/22 11:43 • (MS) R3858950-5 11/09/22 11:51 • (MSD) R3858950-6 11/09/22 11:54

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	1120	2120	2370	100	125	1	75.0-125			11.0	20
Arsenic	100	4.73	102	97.6	97.3	92.9	1	75.0-125			4.40	20
Barium	100	78.8	154	152	75.6	73.0	1	75.0-125		J6	1.75	20
Chromium	100	1.39	99.5	96.0	98.1	94.6	1	75.0-125			3.54	20
Copper	100	39.2	143	141	104	102	1	75.0-125			1.76	20

Method Blank (MB)

(MB) R3859181-1 11/10/22 00:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.08	10.0
Arsenic	U		0.518	2.00
Barium	0.167	J	0.0852	0.500
Chromium	U		0.133	1.00

Method Blank (MB)

(MB) R3859181-7 11/10/22 09:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Copper	U		0.400	2.00

Laboratory Control Sample (LCS)

(LCS) R3859181-2 11/10/22 00:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	963	96.3	80.0-120	
Arsenic	100	94.6	94.6	80.0-120	
Barium	100	99.1	99.1	80.0-120	
Chromium	100	97.3	97.3	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3859181-8 11/10/22 09:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Copper	100	105	105	80.0-120	

L1554509-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1554509-11 11/10/22 00:06 • (MS) R3859181-5 11/10/22 00:14 • (MSD) R3859181-6 11/10/22 00:17

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1030	2760	3420	4130	64.5	134	1	75.0-125	J6	J5	18.8	20
Arsenic	103	2.75	94.8	91.6	89.5	86.4	1	75.0-125			3.44	20
Barium	103	50.9	140	152	86.7	98.3	1	75.0-125			8.17	20
Chromium	103	2.82	99.4	96.8	93.9	91.4	1	75.0-125			2.61	20

L1554509-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1554509-11 11/10/22 09:56 • (MS) R3859181-11 11/10/22 10:04 • (MSD) R3859181-12 11/10/22 10:07

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Copper	103	18.0	118	118	97.3	97.0	1	75.0-125			0.298	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Anne Walsh
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle: PT MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Amar Jain / Adithya Jayan

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No of Cntrs	MRCRA8-4oz-Cl-NoPres	Method SW7470- Mercury	Method SW6020- Aluminum, Arsenic, Barium	Copper, Chromium (total)	AMERAS 250 mL HDPE HNO3							
SO-2494-UP1-48-110222	GRAB	SS	4"	11-2-2022	1315	1		X	X									-01
SO-2494-UP2-32-110222		SS	4"	11-2-2022	1545	1												-02
SO-2494-UP2-33-110222		SS	4"	11-2-2022	1600													-03
SO-2494-UP2-34-110222		SS	4"	11-2-2022	1555													-04
SO-2494-UP2-35-110322		SS	4"	11-3-2022	1000													-05
SO-2494-UP2-36-110322		SS	4"	11-3-2022	1100													-06
SO-2494-UP2-37-110322		SS	4"	11-3-2022	1110													-07
SO-2494-DUP3-110322		SS	4"	11-3-2022	1400													-08
RB-2494-3-110322	—	~~SS~~ AQ	—	11-3-2022	1400			X	X		~~X~~	AS						-09
		SS																

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 155460

M010

Acctnum: **UPRRGOLD**
Template: **T217941**
Prelogin: **P956686**
PM: **134 - Mark W. Beasley**
PB: **CR 10-11-22**
Shipped Via: **FedEX Ground**

Remarks | Sample # (lab only)

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier _____

Tracking # 5913 6269 3627

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes (No) HCL / MeoH TBR
	11-4-2022	4:15pm		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.7 °C Bottles Received: 17
				.9 to .9
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11/5 Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF (OK)

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Anne Walsh
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle: PT MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Amar Jain / Ari Johnson

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):
AJ

Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
__✓__ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MRERA8 4oz Cln NoPres	Mercury - Method SW7470	Aluminum, Arsenic, Barium, Copper, Chromium (total) - Method SW6020								Remarks	Sample # (lab only)
SO-2494-EX2-7-EW-110422	GRAB	SS	3'	11-4-2022	0855	1		X	X									-10
SO-2494-EX2-7-WW-110422		SS	4'		0900													-11
SO-2494-EX2-7-BE-110422		SS	6'		0910													-12
SO-2494-EX2-7-BW-110422		SS	6'		0915													-13
SO-2494-EX2-5-EW-110422		SS	3'		1130													-14
SO-2494-EX2-5-NW-110422		SS	3'		1135													-15
SO-2494-EX2-5-SW-110422		SS	3'		1140													-16
SO-2494-EX2-5-EW2-110422		SS	3'		1150													-17
		SS																
		SS																

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 1554509

Table #

Acctnum: **UPRRGOLD**
Template: **T217941**
Prelogin: **P956686**
PM: **134 - Mark W. Beasley**
PB: CR 10-11-22

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __✓__ FedEx __ Courier _____

Tracking # 5913 6269 3627

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		✓ N
Bottles arrive intact:		✓ N
Correct bottles used:		✓ N
Sufficient volume sent:		✓ N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		✓ N
RAD Screen <0.5 mR/hr:		✓ N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / NO HCL / MeoH TBR	If preservation required by Login: Date/Time
	11-4-2022	4:15pm			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: GB87 °C 0.9+0=0.9 Bottles Received: 17	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11/5 Time: 09a	Hold: / Condition: NCF / OK

ANALYTICAL REPORT

November 12, 2022

UPRR - Golder Associates

Sample Delivery Group:	L1556071
Samples Received:	11/10/2022
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SO-2494-EX-6-2-SW-110822 L1556071-01 Solid

Collected by: AJ | Collected date/time: 11/08/22 15:00 | Received date/time: 11/10/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1957603	1	11/10/22 15:55	11/10/22 16:27	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1957930	1	11/11/22 07:43	11/11/22 13:00	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1958069	1	11/11/22 10:38	11/11/22 14:58	ZSA	Mt. Juliet, TN

SO-2494-W1-BF-110922 L1556071-02 Solid

Collected by: AJ | Collected date/time: 11/09/22 07:58 | Received date/time: 11/10/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1957603	1	11/10/22 15:55	11/10/22 16:27	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1957930	1	11/11/22 07:43	11/11/22 13:19	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1958069	1	11/11/22 10:38	11/11/22 15:32	ZSA	Mt. Juliet, TN

SO-2494EX-6-2-NWW-110922 L1556071-03 Solid

Collected by: AJ | Collected date/time: 11/09/22 08:24 | Received date/time: 11/10/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1957607	1	11/10/22 15:30	11/10/22 15:51	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1957930	1	11/11/22 07:43	11/11/22 13:22	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1958069	1	11/11/22 10:38	11/11/22 15:34	ZSA	Mt. Juliet, TN

SO-2494EX-6-2-NWE-110922 L1556071-04 Solid

Collected by: AJ | Collected date/time: 11/09/22 08:17 | Received date/time: 11/10/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1957607	1	11/10/22 15:30	11/10/22 15:51	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1957930	1	11/11/22 07:43	11/11/22 13:35	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1958069	1	11/11/22 10:38	11/11/22 15:37	ZSA	Mt. Juliet, TN

SO-2494EX-6-2-EW-110922 L1556071-05 Solid

Collected by: AJ | Collected date/time: 11/09/22 08:34 | Received date/time: 11/10/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1957607	1	11/10/22 15:30	11/10/22 15:51	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1957930	1	11/11/22 07:43	11/11/22 13:37	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1958069	1	11/11/22 10:38	11/11/22 15:40	ZSA	Mt. Juliet, TN

SO-2494EX-6-2-WW-110922 L1556071-06 Solid

Collected by: AJ | Collected date/time: 11/08/22 16:18 | Received date/time: 11/10/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1957607	1	11/10/22 15:30	11/10/22 15:51	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1957930	1	11/11/22 07:43	11/11/22 13:40	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1958069	1	11/11/22 10:38	11/11/22 15:43	ZSA	Mt. Juliet, TN

SO-2494EX-6-2-BW-110922 L1556071-07 Solid

Collected by: AJ | Collected date/time: 11/08/22 16:27 | Received date/time: 11/10/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1957607	1	11/10/22 15:30	11/10/22 15:51	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1957930	1	11/11/22 07:43	11/11/22 13:42	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1958069	1	11/11/22 10:38	11/11/22 15:45	ZSA	Mt. Juliet, TN

SO-2494EX-6-2-BE-110922 L1556071-08 Solid

Collected by: AJ | Collected date/time: 11/08/22 16:33 | Received date/time: 11/10/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1957607	1	11/10/22 15:30	11/10/22 15:51	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1957930	1	11/11/22 07:43	11/11/22 13:45	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1958069	1	11/11/22 10:38	11/11/22 15:48	ZSA	Mt. Juliet, TN

SO-2494-EX-8-2-B-110922 L1556071-09 Solid

Collected by: AJ | Collected date/time: 11/09/22 14:13 | Received date/time: 11/10/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1957607	1	11/10/22 15:30	11/10/22 15:51	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1957930	1	11/11/22 07:43	11/11/22 13:47	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1958069	1	11/11/22 10:38	11/11/22 15:51	ZSA	Mt. Juliet, TN

SO-2494-EX-9-2-B-110922 L1556071-10 Solid

Collected by: AJ | Collected date/time: 11/09/22 14:21 | Received date/time: 11/10/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1957607	1	11/10/22 15:30	11/10/22 15:51	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1957930	1	11/11/22 07:43	11/11/22 13:50	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1958069	1	11/11/22 10:38	11/11/22 15:59	ZSA	Mt. Juliet, TN

SO-2494-DUP4-110922 L1556071-11 Solid

Collected by: AJ | Collected date/time: 11/09/22 14:22 | Received date/time: 11/10/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1957607	1	11/10/22 15:30	11/10/22 15:51	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1957930	1	11/11/22 07:43	11/11/22 13:52	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1958069	1	11/11/22 10:38	11/11/22 16:02	ZSA	Mt. Juliet, TN

RB-2494-4-110922 L1556071-12 GW

Collected by: AJ | Collected date/time: 11/09/22 14:47 | Received date/time: 11/10/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1957530	1	11/11/22 07:51	11/11/22 13:38	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1957922	1	11/11/22 12:18	11/11/22 21:07	KMG	Mt. Juliet, TN

CASE NARRATIVE

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

Mark W. Beasley
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.9		1	11/10/2022 16:27	WG1957603

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0432		0.0180	0.0400	1	11/11/2022 13:00	WG1957930

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5880	V	6.09	10.0	1	11/11/2022 14:58	WG1958069
Arsenic	12.3		0.518	2.00	1	11/11/2022 14:58	WG1958069
Barium	63.8		0.0853	0.500	1	11/11/2022 14:58	WG1958069
Chromium	7.59		0.133	1.00	1	11/11/2022 14:58	WG1958069
Copper	24.8		0.400	2.00	1	11/11/2022 14:58	WG1958069

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.8		1	11/10/2022 16:27	WG1957603

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.210		0.0180	0.0401	1	11/11/2022 13:19	WG1957930

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	33500		6.09	10.0	1	11/11/2022 15:32	WG1958069
Arsenic	11.4		0.519	2.00	1	11/11/2022 15:32	WG1958069
Barium	97.2		0.0853	0.501	1	11/11/2022 15:32	WG1958069
Chromium	27.8		0.133	1.00	1	11/11/2022 15:32	WG1958069
Copper	291		0.401	2.00	1	11/11/2022 15:32	WG1958069

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.9		1	11/10/2022 15:51	WG1957607

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0489		0.0180	0.0401	1	11/11/2022 13:22	WG1957930

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	6540		6.09	10.0	1	11/11/2022 15:34	WG1958069
Arsenic	11.4		0.519	2.00	1	11/11/2022 15:34	WG1958069
Barium	51.7		0.0853	0.501	1	11/11/2022 15:34	WG1958069
Chromium	8.49		0.133	1.00	1	11/11/2022 15:34	WG1958069
Copper	53.6		0.401	2.00	1	11/11/2022 15:34	WG1958069

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	100		1	11/10/2022 15:51	WG1957607

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0395	J	0.0180	0.0400	1	11/11/2022 13:35	WG1957930

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	6650		6.08	10.0	1	11/11/2022 15:37	WG1958069
Arsenic	11.9		0.518	2.00	1	11/11/2022 15:37	WG1958069
Barium	60.3		0.0852	0.500	1	11/11/2022 15:37	WG1958069
Chromium	8.41		0.133	1.00	1	11/11/2022 15:37	WG1958069
Copper	38.0		0.400	2.00	1	11/11/2022 15:37	WG1958069

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.9		1	11/10/2022 15:51	WG1957607

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.150		0.0180	0.0400	1	11/11/2022 13:37	WG1957930

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11200		6.09	10.0	1	11/11/2022 15:40	WG1958069
Arsenic	11.6		0.519	2.00	1	11/11/2022 15:40	WG1958069
Barium	74.9		0.0853	0.501	1	11/11/2022 15:40	WG1958069
Chromium	12.3		0.133	1.00	1	11/11/2022 15:40	WG1958069
Copper	75.6		0.400	2.00	1	11/11/2022 15:40	WG1958069

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	100		1	11/10/2022 15:51	WG1957607

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0403		0.0180	0.0400	1	11/11/2022 13:40	WG1957930

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9040		6.08	10.0	1	11/11/2022 15:43	WG1958069
Arsenic	8.96		0.518	2.00	1	11/11/2022 15:43	WG1958069
Barium	89.3		0.0852	0.500	1	11/11/2022 15:43	WG1958069
Chromium	20.2		0.133	1.00	1	11/11/2022 15:43	WG1958069
Copper	27.1		0.400	2.00	1	11/11/2022 15:43	WG1958069

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.8		1	11/10/2022 15:51	WG1957607

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0370	J	0.0192	0.0426	1	11/11/2022 13:42	WG1957930

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	4180		6.48	10.7	1	11/11/2022 15:45	WG1958069
Arsenic	8.96		0.552	2.13	1	11/11/2022 15:45	WG1958069
Barium	46.1		0.0908	0.533	1	11/11/2022 15:45	WG1958069
Chromium	5.13		0.142	1.07	1	11/11/2022 15:45	WG1958069
Copper	17.7		0.426	2.13	1	11/11/2022 15:45	WG1958069

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.2		1	11/10/2022 15:51	WG1957607

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0512		0.0197	0.0439	1	11/11/2022 13:45	WG1957930

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5310		6.67	11.0	1	11/11/2022 15:48	WG1958069
Arsenic	6.20		0.568	2.19	1	11/11/2022 15:48	WG1958069
Barium	37.4		0.0935	0.549	1	11/11/2022 15:48	WG1958069
Chromium	5.87		0.146	1.10	1	11/11/2022 15:48	WG1958069
Copper	28.7		0.439	2.19	1	11/11/2022 15:48	WG1958069

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.9		1	11/10/2022 15:51	WG1957607

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0386	J	0.0188	0.0417	1	11/11/2022 13:47	WG1957930

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	2500		6.34	10.4	1	11/11/2022 15:51	WG1958069
Arsenic	4.14		0.540	2.09	1	11/11/2022 15:51	WG1958069
Barium	24.9		0.0889	0.522	1	11/11/2022 15:51	WG1958069
Chromium	2.61		0.139	1.04	1	11/11/2022 15:51	WG1958069
Copper	9.58		0.417	2.09	1	11/11/2022 15:51	WG1958069

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.3		1	11/10/2022 15:51	WG1957607

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0452		0.0195	0.0433	1	11/11/2022 13:50	WG1957930

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8900		6.59	10.8	1	11/11/2022 15:59	WG1958069
Arsenic	8.18		0.561	2.17	1	11/11/2022 15:59	WG1958069
Barium	51.1		0.0923	0.542	1	11/11/2022 15:59	WG1958069
Chromium	7.34		0.144	1.08	1	11/11/2022 15:59	WG1958069
Copper	38.4		0.433	2.17	1	11/11/2022 15:59	WG1958069

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.1		1	11/10/2022 15:51	WG1957607

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0712		0.0193	0.0430	1	11/11/2022 13:52	WG1957930

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	7090		6.53	10.7	1	11/11/2022 16:02	WG1958069
Arsenic	8.19		0.557	2.15	1	11/11/2022 16:02	WG1958069
Barium	52.7		0.0916	0.537	1	11/11/2022 16:02	WG1958069
Chromium	7.19		0.143	1.07	1	11/11/2022 16:02	WG1958069
Copper	44.0		0.430	2.15	1	11/11/2022 16:02	WG1958069

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	U		0.000100	0.000200	1	11/11/2022 13:38	WG1957530

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Arsenic	U		0.00440	0.0100	1	11/11/2022 21:07	WG1957922
Barium	U		0.000736	0.00500	1	11/11/2022 21:07	WG1957922
Cadmium	U		0.000479	0.00200	1	11/11/2022 21:07	WG1957922
Chromium	U		0.00140	0.0100	1	11/11/2022 21:07	WG1957922
Lead	U		0.00299	0.00600	1	11/11/2022 21:07	WG1957922
Selenium	U		0.00735	0.0100	1	11/11/2022 21:07	WG1957922
Silver	U		0.00154	0.00500	1	11/11/2022 21:07	WG1957922

Method Blank (MB)

(MB) R3859823-1 11/10/22 16:27

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1556037-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1556037-04 11/10/22 16:27 • (DUP) R3859823-3 11/10/22 16:27

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	81.4	80.6	1	1.03		10

Laboratory Control Sample (LCS)

(LCS) R3859823-2 11/10/22 16:27

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

Method Blank (MB)

(MB) R3859820-1 11/10/22 15:51

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1556071-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1556071-11 11/10/22 15:51 • (DUP) R3859820-3 11/10/22 15:51

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	93.1	92.7	1	0.361		10

Laboratory Control Sample (LCS)

(LCS) R3859820-2 11/10/22 15:51

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

Method Blank (MB)

(MB) R3860019-1 11/11/22 13:30

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3860019-2 11/11/22 13:32

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00300	100	80.0-120	

L1556071-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1556071-12 11/11/22 13:38 • (MS) R3860019-3 11/11/22 13:41 • (MSD) R3860019-4 11/11/22 13:43

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	U	0.00325	0.00303	108	101	1	75.0-125			6.87	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3860048-5 11/11/22 14:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3860048-2 11/11/22 12:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.541	108	80.0-120	

L1556071-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1556071-01 11/11/22 13:00 • (MS) R3860048-3 11/11/22 13:02 • (MSD) R3860048-4 11/11/22 13:05

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	0.0432	0.539	0.489	99.1	89.2	1	75.0-125			9.65	20

Method Blank (MB)

(MB) R3860208-1 11/11/22 20:08

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	U		0.00440	0.0100
Barium	U		0.000736	0.00500
Cadmium	U		0.000479	0.00200
Chromium	U		0.00140	0.0100
Lead	U		0.00299	0.00600
Selenium	U		0.00735	0.0100
Silver	U		0.00154	0.00500

Laboratory Control Sample (LCS)

(LCS) R3860208-2 11/11/22 20:11

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	1.00	0.965	96.5	80.0-120	
Barium	1.00	1.07	107	80.0-120	
Cadmium	1.00	1.02	102	80.0-120	
Chromium	1.00	1.06	106	80.0-120	
Lead	1.00	0.996	99.6	80.0-120	
Selenium	1.00	0.981	98.1	80.0-120	
Silver	0.200	0.185	92.4	80.0-120	

L1544376-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544376-01 11/11/22 20:14 • (MS) R3860208-4 11/11/22 20:19 • (MSD) R3860208-5 11/11/22 20:22

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	1.00	U	0.940	0.962	94.0	96.2	1	75.0-125			2.31	20
Barium	1.00	0.0528	1.09	1.10	104	105	1	75.0-125			1.08	20
Cadmium	1.00	U	0.993	1.00	99.3	100	1	75.0-125			1.02	20
Chromium	1.00	U	1.04	1.05	104	105	1	75.0-125			0.970	20
Lead	1.00	U	0.966	0.981	96.6	98.1	1	75.0-125			1.47	20
Selenium	1.00	U	0.957	0.969	95.7	96.9	1	75.0-125			1.24	20
Silver	0.200	U	0.181	0.182	90.3	90.9	1	75.0-125			0.679	20

Method Blank (MB)

(MB) R3860142-1 11/11/22 14:53

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.08	10.0
Arsenic	U		0.518	2.00
Barium	0.132	J	0.0852	0.500
Chromium	U		0.133	1.00
Copper	U		0.400	2.00

Laboratory Control Sample (LCS)

(LCS) R3860142-2 11/11/22 14:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	952	95.2	80.0-120	
Arsenic	100	93.2	93.2	80.0-120	
Barium	100	98.1	98.1	80.0-120	
Chromium	100	95.2	95.2	80.0-120	
Copper	100	95.7	95.7	80.0-120	

L1556071-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1556071-01 11/11/22 14:58 • (MS) R3860142-5 11/11/22 15:06 • (MSD) R3860142-6 11/11/22 15:09

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	5880	6540	6300	66.7	42.3	1	75.0-125	V	V	3.81	20
Arsenic	100	12.3	99.9	99.5	87.5	87.1	1	75.0-125			0.413	20
Barium	100	63.8	148	143	84.1	79.4	1	75.0-125			3.17	20
Chromium	100	7.59	94.3	94.8	86.6	87.2	1	75.0-125			0.570	20
Copper	100	24.8	114	113	89.3	88.4	1	75.0-125			0.819	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Anne Walsh
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle: PT MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Adelicia Johnson

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):
A. Johnson

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
✓ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MRGRA8-4oz Clr-NoPres	Method SW 7470 - Mercury	Method SW6020 - Al, As, Ba, Cu, Cr total	TOTAL METALS	Remarks	Sample # (lab only)
SO-2494-EX-6-2-SW-110822	Grab	SS	4'	11/8/22	1500	1		X	X	X		-01
SO-2494-W1-BF-110922	Grab	SS	4'	11/9/22	0758	1						-02
SO-2494-EX-6-2-NWW-110922	Grab	SS	4'	11/9/22	~~0817~~ 0824	1						-03
SO-2494-EX-6-2-NWE-110922	Grab	SS	4'	11/9/22	0817	1						-04
SO-2494-EX-6-2-~~EW~~ EW-110922	Grab	SS	4'	11/9/22	0834	1						-05
SO-2494-EX-6-2-WW-110822	Grab	SS	4'	11/8/22	1618	1						-06
SO-2494-EX-6-2-BW-110822	Grab	SS	6'	11/8/22	1627	1						-07
SO-2494-EX-6-2-BE-110822	Grab	SS	6'	11/8/22	1633	1						-08
SO-2494-EX-8-2-B-110922	Grab	SS	6'	11/9/22	1413	1						-09
SO-2494-EX-9-2-B-110922	Grab	SS	6'	11/9/22	1421	1		X	X	X		-10

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1556094
Table # 1229

Acctnum: **UPRRGOLD**
Template: **T217941**
Prelogin: **P956686**
PM: **134 - Mark W. Beasley**
PB: **OR 10.11.22**
Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:
Seal Numbers: 14150, 14151

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier _____

Tracking # 6094 5462 7177

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: #__Y __N
Preservation Correct/Checked: ✓Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeOH TBR
A. Johnson	11/9/22	1400		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.1°C Bottles Received: 12
				1.4+0=1.4
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11/10/22 Time: 09:00
			TANYA MARCHWKA	

If preservation required by Login: Date/Time

Hold: Condition: NCF / (OK)

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Anne Walsh
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle: PT MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Adilicia Johnson

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):
A. Johnson

Immediately
Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
✓ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MRCRA8 4ozClr-NoPres	Method SW7470 - Mercury	Method SW6020 - Al, As, Ba, Cu, Cr(total)	MRCRA8 250mL MDPE HNO3							Remarks	Sample # (lab only)
SO-2494-DUP4-110922	Grab	~~AQ~~ SS	~~#~~ 6'	11/09/22	1422	1		X	X									-11
RB-2494-4-110922	—	~~AQ~~ SS	—	11/09/22	1447	1		X	X	X								-12
		SS																
		SS																
		SS																
		SS																
		SS																
		SS																
		SS																
		SS																

Chain of Custody Page 2 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1556075

Table #

Acctnum: **UPRRGOLD**
Template: **T217941**
Prelogin: **P956686**
PM: **134 - Mark W. Beasley**
PB: **DR 10-11-22**
Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:
Seal Numbers 14150, 14151

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6094 5462 4177

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: ✓Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
A. Johnson	11/09/22	1400			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: MMT 2C 1.4+0=1.4 Bottles Received: 12	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Hana Mitchim	Date: 11/10/22 Time: 09:00	Hold: Condition: NCF / OK

ANALYTICAL REPORT

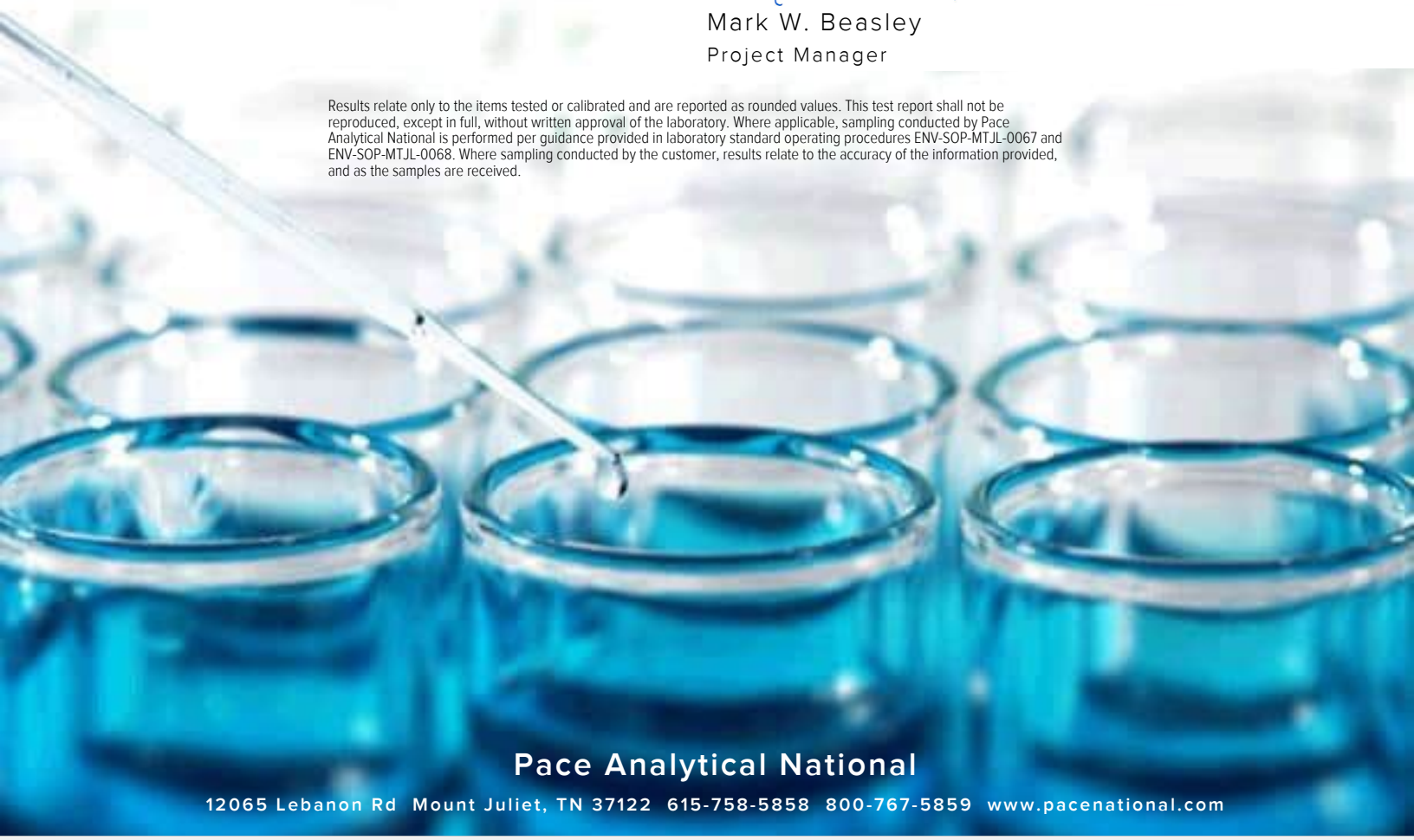
November 28, 2022

UPRR - Golder Associates

Sample Delivery Group:	L1559016
Samples Received:	11/17/2022
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SO-2494-EX-9-2-S2-02-111422 L1559016-01 Solid

Collected by: AJ/AC | Collected date/time: 11/14/22 09:53 | Received date/time: 11/17/22 11:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1961789	1	11/18/22 10:01	11/18/22 10:16	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1961813	1	11/18/22 08:14	11/20/22 10:12	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1961902	5	11/23/22 13:53	11/25/22 14:40	JPD	Mt. Juliet, TN

SO-2494-EX-9-3-S1-111522 L1559016-02 Solid

Collected by: AJ/AC | Collected date/time: 11/15/22 09:50 | Received date/time: 11/17/22 11:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1961789	1	11/18/22 10:01	11/18/22 10:16	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1961813	1	11/18/22 08:14	11/20/22 10:14	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1961902	5	11/23/22 13:53	11/25/22 14:44	JPD	Mt. Juliet, TN

SO-2494-EX-8-3-S1-111622 L1559016-03 Solid

Collected by: AJ/AC | Collected date/time: 11/16/22 07:07 | Received date/time: 11/17/22 11:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1961789	1	11/18/22 10:01	11/18/22 10:16	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1961813	1	11/18/22 08:14	11/20/22 10:17	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1961902	5	11/23/22 13:53	11/25/22 14:47	JPD	Mt. Juliet, TN

SO-2494-W1-02-111622 L1559016-04 Solid

Collected by: AJ/AC | Collected date/time: 11/16/22 13:13 | Received date/time: 11/17/22 11:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1961789	1	11/18/22 10:01	11/18/22 10:16	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1961813	1	11/18/22 08:14	11/20/22 10:19	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1961902	20	11/23/22 13:53	11/25/22 16:11	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1961902	5	11/23/22 13:53	11/25/22 14:50	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Mark W. Beasley
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.5		1	11/18/2022 10:16	WG1961789

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	11/20/2022 10:12	WG1961813

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10600		6.93	50.2	5	11/25/2022 14:40	WG1961902
Arsenic	14.4		0.100	1.00	5	11/25/2022 14:40	WG1961902
Barium	73.6		0.153	2.51	5	11/25/2022 14:40	WG1961902
Chromium	11.6		0.297	5.02	5	11/25/2022 14:40	WG1961902
Copper	26.9		0.133	5.02	5	11/25/2022 14:40	WG1961902

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.5		1	11/18/2022 10:16	WG1961789

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	11/20/2022 10:14	WG1961813

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	17500		6.93	50.3	5	11/25/2022 14:44	WG1961902
Arsenic	11.5		0.101	1.01	5	11/25/2022 14:44	WG1961902
Barium	74.8		0.153	2.51	5	11/25/2022 14:44	WG1961902
Chromium	15.1		0.297	5.03	5	11/25/2022 14:44	WG1961902
Copper	30.0		0.133	5.03	5	11/25/2022 14:44	WG1961902

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.7		1	11/18/2022 10:16	WG1961789

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0401	1	11/20/2022 10:17	WG1961813

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11300		6.92	50.1	5	11/25/2022 14:47	WG1961902
Arsenic	11.9		0.100	1.00	5	11/25/2022 14:47	WG1961902
Barium	78.1		0.152	2.51	5	11/25/2022 14:47	WG1961902
Chromium	12.5		0.297	5.01	5	11/25/2022 14:47	WG1961902
Copper	21.9		0.132	5.01	5	11/25/2022 14:47	WG1961902

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.6		1	11/18/2022 10:16	WG1961789

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.138		0.0181	0.0401	1	11/20/2022 10:19	WG1961813

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	38200		6.93	50.2	5	11/25/2022 14:50	WG1961902
Arsenic	15.4		0.100	1.00	5	11/25/2022 14:50	WG1961902
Barium	118		0.153	2.51	5	11/25/2022 14:50	WG1961902
Chromium	34.1		0.297	5.02	5	11/25/2022 14:50	WG1961902
Copper	230		0.532	20.1	20	11/25/2022 16:11	WG1961902

Method Blank (MB)

(MB) R3862980-1 11/18/22 10:16

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1559120-30 Original Sample (OS) • Duplicate (DUP)

(OS) L1559120-30 11/18/22 10:16 • (DUP) R3862980-3 11/18/22 10:16

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	93.8	93.4	1	0.370		10

Laboratory Control Sample (LCS)

(LCS) R3862980-2 11/18/22 10:16

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

Method Blank (MB)

(MB) R3863135-1 11/20/22 09:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3863135-2 11/20/22 09:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.482	96.3	80.0-120	

L1559117-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1559117-01 11/20/22 09:16 • (MS) R3863135-3 11/20/22 09:19 • (MSD) R3863135-4 11/20/22 09:21

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.639	U	0.599	0.607	93.6	95.0	1	75.0-125			1.42	20

Method Blank (MB)

(MB) R3865068-1 11/25/22 13:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3865068-2 11/25/22 13:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	1030	103	80.0-120	
Arsenic	100	106	106	80.0-120	
Barium	100	102	102	80.0-120	
Chromium	100	107	107	80.0-120	
Copper	100	99.9	99.9	80.0-120	

L1558817-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1558817-12 11/25/22 13:17 • (MS) R3865068-5 11/25/22 13:27 • (MSD) R3865068-6 11/25/22 13:30

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1230	59500	57000	62400	0.000	236	5	75.0-125	E V	E V	9.01	20
Arsenic	123	3.37	119	109	93.4	85.3	5	75.0-125			8.84	20
Barium	123	215	350	335	109	97.4	5	75.0-125			4.29	20
Chromium	123	71.4	186	184	92.6	91.3	5	75.0-125			0.873	20
Copper	123	25.4	140	133	92.7	86.9	5	75.0-125			5.28	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates
18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Anne Walsh
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle: PT MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Addison Johnson / Andrew Chavez

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

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Quote #

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
_X_ Three Day

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MRCRA8 4oz Clr-NoPres	Method SW7470 Mercury	Method SW6020 - Al, As, Ba, Cu, Cr (total)	Remarks	Sample # (lab only)
SO-2494-~~EX-9-2-S2-02-~~ EX-9-S2-03-111422	Grab	SS	4'	11-14-22	09:53	1		X	X		-01
SO-2494-EX-9-3-S1-111522	Grab	SS	4'	11-15-22	0950	1					-02
SO-2494-Ex-8-3-S1-111622	Grab	SS	4'	11-16-22	0707	1					-03
SO-2494-W1-02-111622	Grab	SS	—	11-16-22	1313	1					-04
		SS									
		SS									
		SS									
		SS									
		SS									
		SS									

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1559016
B058

Acctnum: **UPRRGOLD**
Template: **T217941**
Prelogin: **P956686**
PM: **134 - Mark W. Beasley**
PB: **DR 10.11.22**
Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
A. Johnson	11/16/22	1440		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.5-1.7 °C Bottles Received: 4
				1.3+0=1.3
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11-17-22 Time: 0100
			O. Rampey	

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

December 02, 2022

UPRR - Golder Associates

Sample Delivery Group:	L1562957
Samples Received:	12/01/2022
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

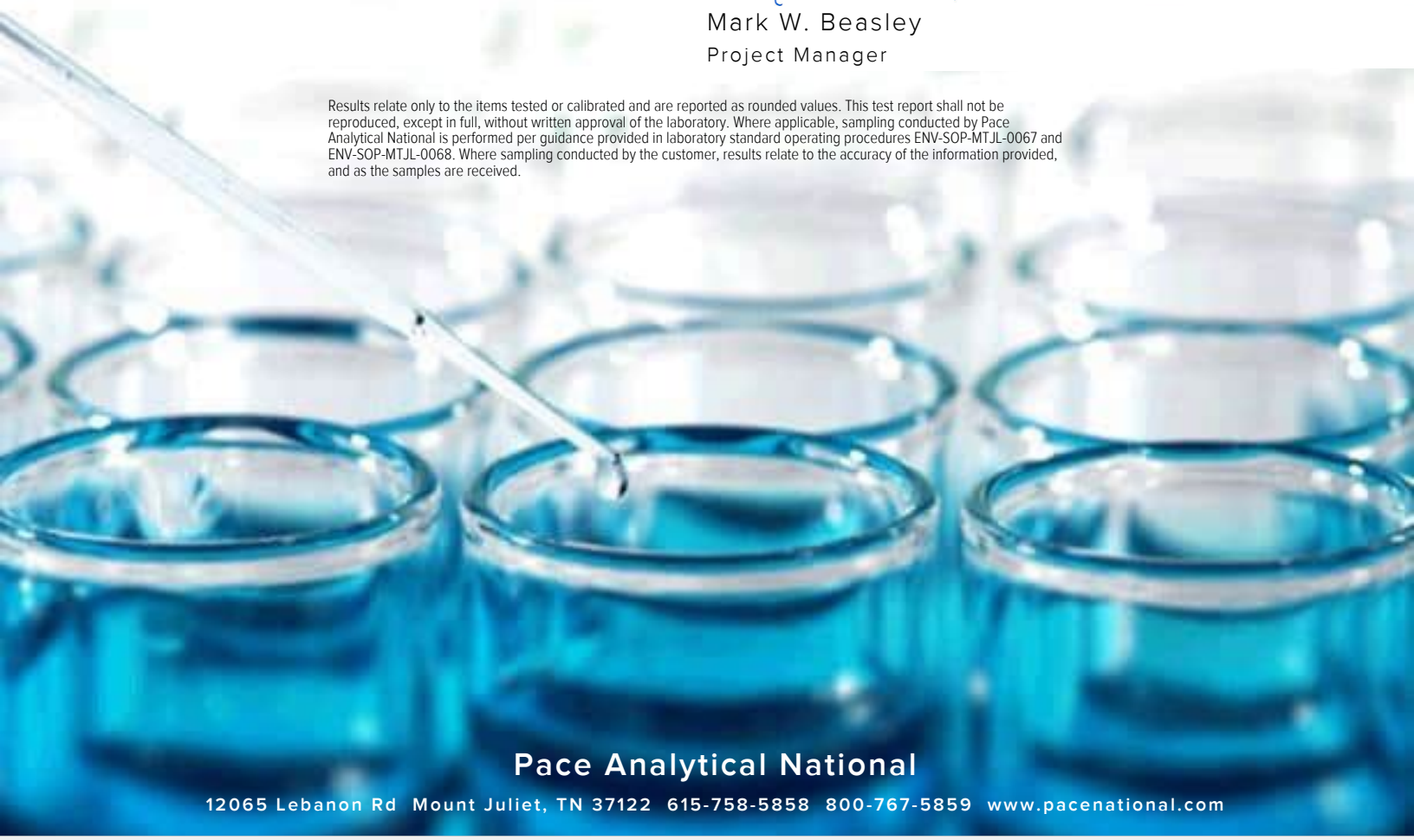


TABLE OF CONTENTS

SO-2494-EX-9-S4-4-112922 L1562957-01 Solid

Collected by: Andrew Guglielmo | Collected date/time: 11/29/22 15:05 | Received date/time: 12/01/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1968124	1	12/02/22 08:03	12/02/22 08:12	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1968156	1	12/02/22 06:53	12/02/22 09:41	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1968218	5	12/02/22 11:53	12/02/22 15:45	JPD	Mt. Juliet, TN

SO-2494-EX-9-S5-2-112922 L1562957-02 Solid

Collected by: Andrew Guglielmo | Collected date/time: 11/29/22 15:10 | Received date/time: 12/01/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1968124	1	12/02/22 08:03	12/02/22 08:12	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1968156	1	12/02/22 06:53	12/02/22 09:27	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1968218	5	12/02/22 11:53	12/02/22 15:49	JPD	Mt. Juliet, TN

SO-2494-EX-5-SW-3-112922 L1562957-03 Solid

Collected by: Andrew Guglielmo | Collected date/time: 11/29/22 10:00 | Received date/time: 12/01/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1968124	1	12/02/22 08:03	12/02/22 08:12	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1968156	1	12/02/22 06:53	12/02/22 09:43	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1968218	5	12/02/22 11:53	12/02/22 15:05	JPD	Mt. Juliet, TN

SO-2494-EX-6-EW-3-112922 L1562957-04 Solid

Collected by: Andrew Guglielmo | Collected date/time: 11/29/22 11:05 | Received date/time: 12/01/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1968124	1	12/02/22 08:03	12/02/22 08:12	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1968156	1	12/02/22 06:53	12/02/22 09:50	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1968218	5	12/02/22 11:53	12/02/22 15:09	JPD	Mt. Juliet, TN

SO-2494-EX-6-SW-3-112922 L1562957-05 Solid

Collected by: Andrew Guglielmo | Collected date/time: 11/29/22 11:10 | Received date/time: 12/01/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1968124	1	12/02/22 08:03	12/02/22 08:12	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1968156	1	12/02/22 06:53	12/02/22 09:53	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1968218	5	12/02/22 11:53	12/02/22 15:29	JPD	Mt. Juliet, TN

SO-2494-EX-6-NW-3-112922 L1562957-06 Solid

Collected by: Andrew Guglielmo | Collected date/time: 11/29/22 11:00 | Received date/time: 12/01/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1968124	1	12/02/22 08:03	12/02/22 08:12	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1968156	1	12/02/22 06:53	12/02/22 09:55	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1968218	5	12/02/22 11:53	12/02/22 15:12	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Mark W. Beasley
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.6		1	12/02/2022 08:12	WG1968124

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0183	0.0406	1	12/02/2022 09:41	WG1968156

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	7180		7.00	50.7	5	12/02/2022 15:45	WG1968218
Arsenic	10.1		0.101	1.01	5	12/02/2022 15:45	WG1968218
Barium	57.1		0.154	2.54	5	12/02/2022 15:45	WG1968218
Chromium	7.67		0.300	5.07	5	12/02/2022 15:45	WG1968218
Copper	24.2		0.134	5.07	5	12/02/2022 15:45	WG1968218

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.9		1	12/02/2022 08:12	WG1968124

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0184	0.0408	1	12/02/2022 09:27	WG1968156

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8460		7.05	51.1	5	12/02/2022 15:49	WG1968218
Arsenic	8.03		0.102	1.02	5	12/02/2022 15:49	WG1968218
Barium	64.5		0.155	2.55	5	12/02/2022 15:49	WG1968218
Chromium	8.49		0.302	5.11	5	12/02/2022 15:49	WG1968218
Copper	25.1		0.135	5.11	5	12/02/2022 15:49	WG1968218

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.7		1	12/02/2022 08:12	WG1968124

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0203	0.0451	1	12/02/2022 09:43	WG1968156

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	15400		7.78	56.4	5	12/02/2022 15:05	WG1968218
Arsenic	6.00		0.113	1.13	5	12/02/2022 15:05	WG1968218
Barium	159		0.171	2.82	5	12/02/2022 15:05	WG1968218
Chromium	9.85		0.334	5.64	5	12/02/2022 15:05	WG1968218
Copper	14.9		0.149	5.64	5	12/02/2022 15:05	WG1968218

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	89.8		1	12/02/2022 08:12	WG1968124

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0201	0.0446	1	12/02/2022 09:50	WG1968156

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	3450		7.69	55.7	5	12/02/2022 15:09	WG1968218
Arsenic	6.65		0.111	1.11	5	12/02/2022 15:09	WG1968218
Barium	31.2		0.169	2.79	5	12/02/2022 15:09	WG1968218
Chromium	7.17		0.330	5.57	5	12/02/2022 15:09	WG1968218
Copper	11.6		0.147	5.57	5	12/02/2022 15:09	WG1968218

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.5		1	12/02/2022 08:12	WG1968124

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	12/02/2022 09:53	WG1968156

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	4280		6.94	50.3	5	12/02/2022 15:29	WG1968218
Arsenic	8.23		0.101	1.01	5	12/02/2022 15:29	WG1968218
Barium	39.1		0.153	2.51	5	12/02/2022 15:29	WG1968218
Chromium	4.41	J	0.298	5.03	5	12/02/2022 15:29	WG1968218
Copper	13.9		0.133	5.03	5	12/02/2022 15:29	WG1968218

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	89.1		1	12/02/2022 08:12	WG1968124

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0202	0.0449	1	12/02/2022 09:55	WG1968156

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	6150		7.74	56.1	5	12/02/2022 15:12	WG1968218
Arsenic	6.99		0.112	1.12	5	12/02/2022 15:12	WG1968218
Barium	73.1		0.171	2.81	5	12/02/2022 15:12	WG1968218
Chromium	7.04		0.332	5.61	5	12/02/2022 15:12	WG1968218
Copper	21.8		0.148	5.61	5	12/02/2022 15:12	WG1968218

Method Blank (MB)

(MB) R3867559-1 12/02/22 08:12

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00300			

L1562957-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1562957-03 12/02/22 08:12 • (DUP) R3867559-3 12/02/22 08:12

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	88.7	88.5	1	0.202		10

Laboratory Control Sample (LCS)

(LCS) R3867559-2 12/02/22 08:12

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

Method Blank (MB)

(MB) R3867394-1 12/02/22 09:22

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3867394-2 12/02/22 09:24

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.510	102	80.0-120	

L1562957-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1562957-02 12/02/22 09:27 • (MS) R3867394-3 12/02/22 09:29 • (MSD) R3867394-4 12/02/22 09:31

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.511	U	0.609	0.589	119	115	1	75.0-125			3.37	20

Method Blank (MB)

(MB) R3867606-1 12/02/22 15:22

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	0.172	J	0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3867606-2 12/02/22 15:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	925	92.5	80.0-120	
Arsenic	100	91.9	91.9	80.0-120	
Barium	100	89.2	89.2	80.0-120	
Chromium	100	96.3	96.3	80.0-120	
Copper	100	90.3	90.3	80.0-120	

L1562957-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1562957-05 12/02/22 15:29 • (MS) R3867606-5 12/02/22 15:39 • (MSD) R3867606-6 12/02/22 15:42

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1010	4280	6700	6290	241	200	5	75.0-125	V	V	6.41	20
Arsenic	101	8.23	101	91.5	92.3	82.8	5	75.0-125			9.91	20
Barium	101	39.1	144	134	104	94.6	5	75.0-125			6.92	20
Chromium	101	4.41	101	92.2	96.4	87.4	5	75.0-125			9.39	20
Copper	101	13.9	108	97.9	93.9	83.6	5	75.0-125			10.0	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Anne Walsh
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle: PT MT CT ET

Phone: 425-833-0777

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Andrew Guglielmo

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately
Packed on Ice N ____ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MRCRA8 +6Cr NoPres	SW7470 Mercury	SW6020 Al, As, Ba, Cu, Cr								Remarks	Sample # (lab only)
SO-2494-Ex-9-S4-4-112922	G	SS	4'	11-29-22	1505	1		X	X									-01
SO-2494-Ex-7-S5-2-112922		SS	4'	11-29-22	1510	1		X	X									-02
SO-2494-Ex-5-SW-3-112922		SS	4'	11-29-22	1000	1		X	X									-03
SO-2494-Ex-6-EW-3-112922		SS	4'	11-29-22	1105	1		X	X									-04
SO-2494-Ex-6-SW-3-112922		SS	4'	11-29-22	1110	1		X	X									-05
SO-2494-Ex-6-DW-3-112922		SS	4'	11-29-22	1100	1		X	X									-06
		SS																
		SS																
		SS																
		SS																

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 3914 5686 0975

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	11-30-22	1700	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			Caleb Tate

Trip Blank Received: Yes / (No)
HCL / MeoH
TBR

Temp: 6 6 4.6 °C Bottles Received: 6

Date: 12/1/22 Time: 09:00

Hold:

Condition: (NCF) / OK

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

If preservation required by Login: Date/Time

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1562957
H226

Acctnum: UPRRGOLD
Template: T217941
Prelogin: P956686
PM: 134 - Mark W. Beasley
PB: CR 10-11-22
Shipped Via: FedEX Ground

12/1 - NCF-L1562957 UPRRGOLD

R1/R2

Time estimate: oh **Time spent:** oh **Grouping date:** 1 December 2022

Members

Robert Rountree (responsible)

- [ ] Parameter(s) past holding time
- [ ] Temperature not in range
- [ ] Improper container type
- [ ] pH not in range
- [ ] Insufficient sample volume
- [ ] Sample is biphasic
- [ ] Vials received with headspace
- [x] Broken container
- [ ] Sufficient sample remains
- [ ] If broken container: Insufficient packing material around container
- [ ] If broken container: Insufficient packing material inside cooler
- [ ] If broken container: Improper handling by carrier:_____
- [ ] If broken container: Sample was frozen
- [ ] If broken container: Container lid not intact
- [ ] Client informed by Call
- [ ] Client informed by Email
- [ ] Client informed by Voicemail
- [ ] Date/Time:_____
- [ ] PM initials:_____
- [ ] Client Contact:_____

Comments

Robert Rountree *1 December 2022 6:15 PM*

Received broken 4oz jar for -04 "SO-2494-EX-6-EW-3-112922" and -06 "SO-2494-EX-6-NW-3-112922". Contents transferred to new containers.

ANALYTICAL REPORT

December 13, 2022

UPRR - Golder Associates

Sample Delivery Group:	L1565584
Samples Received:	12/08/2022
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-EX-9-S3-4-120222 L1565584-01 Solid

Collected by: Andrew Guglielmo | Collected date/time: 12/02/22 15:00 | Received date/time: 12/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1971718	1	12/09/22 08:36	12/09/22 08:42	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1971762	1	12/09/22 08:38	12/11/22 19:53	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1970909	5	12/09/22 09:15	12/12/22 20:35	LD	Mt. Juliet, TN

SO-2494-EX-5-WW-2-120622 L1565584-02 Solid

Collected by: Andrew Guglielmo | Collected date/time: 12/06/22 10:20 | Received date/time: 12/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1971718	1	12/09/22 08:36	12/09/22 08:42	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1971762	1	12/09/22 08:38	12/11/22 19:55	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1970909	5	12/09/22 09:15	12/12/22 20:39	LD	Mt. Juliet, TN

SO-2494-EX-6-WSW-120722 L1565584-03 Solid

Collected by: Andrew Guglielmo | Collected date/time: 12/07/22 13:00 | Received date/time: 12/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1971718	1	12/09/22 08:36	12/09/22 08:42	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1971762	1	12/09/22 08:38	12/11/22 19:03	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1970909	5	12/09/22 09:15	12/12/22 20:50	LD	Mt. Juliet, TN

SO-2494-EX-6-SWW-120722 L1565584-04 Solid

Collected by: Andrew Guglielmo | Collected date/time: 12/07/22 13:10 | Received date/time: 12/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1971718	1	12/09/22 08:36	12/09/22 08:42	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1971762	1	12/09/22 08:38	12/11/22 19:58	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1970909	5	12/09/22 09:15	12/12/22 20:53	LD	Mt. Juliet, TN

SO-2494-DUP-5-120722 L1565584-05 Solid

Collected by: Andrew Guglielmo | Collected date/time: 12/07/22 00:00 | Received date/time: 12/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1971718	1	12/09/22 08:36	12/09/22 08:42	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1971762	1	12/09/22 08:38	12/11/22 20:00	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1970909	5	12/09/22 09:15	12/12/22 20:56	LD	Mt. Juliet, TN

SO-2494-EX-6-NEW-120722 L1565584-06 Solid

Collected by: Andrew Guglielmo | Collected date/time: 12/07/22 13:15 | Received date/time: 12/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1971718	1	12/09/22 08:36	12/09/22 08:42	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1971762	1	12/09/22 08:38	12/11/22 20:03	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1970909	5	12/09/22 09:15	12/12/22 20:59	LD	Mt. Juliet, TN

RB-2494-5-120722 L1565584-07 GW

Collected by: Andrew Guglielmo
Collected date/time: 12/07/22 00:00
Received date/time: 12/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1971757	1	12/09/22 13:50	12/12/22 11:31	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1971984	1	12/12/22 22:42	12/13/22 09:41	CCE	Mt. Juliet, TN

SO-2494-EX-6-WNW-120722 L1565584-08 Solid

Collected by: Andrew Guglielmo
Collected date/time: 12/07/22 13:05
Received date/time: 12/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1971719	1	12/09/22 08:27	12/09/22 08:33	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1971762	1	12/09/22 08:38	12/11/22 20:05	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1970909	5	12/09/22 09:15	12/12/22 21:03	LD	Mt. Juliet, TN

SO-2494-EX-6-B-2-120722 L1565584-09 Solid

Collected by: Andrew Guglielmo
Collected date/time: 12/07/22 13:20
Received date/time: 12/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1971719	1	12/09/22 08:27	12/09/22 08:33	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1971762	1	12/09/22 08:38	12/11/22 20:12	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1970909	5	12/09/22 09:15	12/12/22 21:06	LD	Mt. Juliet, TN

CASE NARRATIVE

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

Mark W. Beasley
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.6		1	12/09/2022 08:42	WG1971718

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0192	0.0427	1	12/11/2022 19:53	WG1971762

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	14400		7.37	53.4	5	12/12/2022 20:35	WG1970909
Arsenic	14.3		0.107	1.07	5	12/12/2022 20:35	WG1970909
Barium	63.7		0.162	2.67	5	12/12/2022 20:35	WG1970909
Chromium	15.1		0.316	5.34	5	12/12/2022 20:35	WG1970909
Copper	53.8		0.141	5.34	5	12/12/2022 20:35	WG1970909

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.7		1	12/09/2022 08:42	WG1971718

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0405	1	12/11/2022 19:55	WG1971762

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	25300		6.99	50.7	5	12/12/2022 20:39	WG1970909
Arsenic	7.54		0.101	1.01	5	12/12/2022 20:39	WG1970909
Barium	195		0.154	2.53	5	12/12/2022 20:39	WG1970909
Chromium	14.6		0.300	5.07	5	12/12/2022 20:39	WG1970909
Copper	24.1		0.134	5.07	5	12/12/2022 20:39	WG1970909

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.6		1	12/09/2022 08:42	WG1971718

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	12/11/2022 19:03	WG1971762

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11800		6.93	50.2	5	12/12/2022 20:50	WG1970909
Arsenic	11.1		0.100	1.00	5	12/12/2022 20:50	WG1970909
Barium	69.9		0.153	2.51	5	12/12/2022 20:50	WG1970909
Chromium	13.7		0.297	5.02	5	12/12/2022 20:50	WG1970909
Copper	21.4		0.133	5.02	5	12/12/2022 20:50	WG1970909

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.6		1	12/09/2022 08:42	WG1971718

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	12/11/2022 19:58	WG1971762

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	13300		6.93	50.2	5	12/12/2022 20:53	WG1970909
Arsenic	14.2		0.100	1.00	5	12/12/2022 20:53	WG1970909
Barium	82.4		0.153	2.51	5	12/12/2022 20:53	WG1970909
Chromium	14.7		0.297	5.02	5	12/12/2022 20:53	WG1970909
Copper	29.5		0.133	5.02	5	12/12/2022 20:53	WG1970909

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.6		1	12/09/2022 08:42	WG1971718

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	12/11/2022 20:00	WG1971762

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	13700		6.93	50.2	5	12/12/2022 20:56	WG1970909
Arsenic	12.1		0.100	1.00	5	12/12/2022 20:56	WG1970909
Barium	88.8		0.153	2.51	5	12/12/2022 20:56	WG1970909
Chromium	14.0		0.297	5.02	5	12/12/2022 20:56	WG1970909
Copper	29.2		0.133	5.02	5	12/12/2022 20:56	WG1970909

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.4		1	12/09/2022 08:42	WG1971718

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0197	0.0438	1	12/11/2022 20:03	WG1971762

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12900		7.55	54.7	5	12/12/2022 20:59	WG1970909
Arsenic	15.9		0.109	1.09	5	12/12/2022 20:59	WG1970909
Barium	91.3		0.166	2.74	5	12/12/2022 20:59	WG1970909
Chromium	14.2		0.324	5.47	5	12/12/2022 20:59	WG1970909
Copper	30.6		0.144	5.47	5	12/12/2022 20:59	WG1970909

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Mercury	U		0.000100	0.000200	1	12/12/2022 11:31	WG1971757

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Arsenic	U		0.00440	0.0100	1	12/13/2022 09:41	WG1971984
Barium	U		0.000736	0.00500	1	12/13/2022 09:41	WG1971984
Cadmium	U		0.000479	0.00200	1	12/13/2022 09:41	WG1971984
Chromium	U		0.00140	0.0100	1	12/13/2022 09:41	WG1971984
Lead	U		0.00299	0.00600	1	12/13/2022 09:41	WG1971984
Selenium	U		0.00735	0.0100	1	12/13/2022 09:41	WG1971984
Silver	U		0.00154	0.00500	1	12/13/2022 09:41	WG1971984

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.0		1	12/09/2022 08:33	WG1971719

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0190	0.0421	1	12/11/2022 20:05	WG1971762

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11200		7.27	52.7	5	12/12/2022 21:03	WG1970909
Arsenic	6.73		0.105	1.05	5	12/12/2022 21:03	WG1970909
Barium	92.4		0.160	2.63	5	12/12/2022 21:03	WG1970909
Chromium	17.0		0.312	5.27	5	12/12/2022 21:03	WG1970909
Copper	17.7		0.139	5.27	5	12/12/2022 21:03	WG1970909

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.5		1	12/09/2022 08:33	WG1971719

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0192	0.0428	1	12/11/2022 20:12	WG1971762

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11800		7.38	53.5	5	12/12/2022 21:06	WG1970909
Arsenic	8.42		0.107	1.07	5	12/12/2022 21:06	WG1970909
Barium	66.3		0.163	2.67	5	12/12/2022 21:06	WG1970909
Chromium	13.1		0.316	5.35	5	12/12/2022 21:06	WG1970909
Copper	43.9		0.141	5.35	5	12/12/2022 21:06	WG1970909

Method Blank (MB)

(MB) R3870200-1 12/09/22 08:42

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1565326-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1565326-03 12/09/22 08:42 • (DUP) R3870200-3 12/09/22 08:42

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	71.0	70.4	1	0.908		10

Laboratory Control Sample (LCS)

(LCS) R3870200-2 12/09/22 08:42

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

Method Blank (MB)

(MB) R3870194-1 12/09/22 08:33

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1565380-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1565380-06 12/09/22 08:33 • (DUP) R3870194-3 12/09/22 08:33

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	93.0	93.2	1	0.158		10

Laboratory Control Sample (LCS)

(LCS) R3870194-2 12/09/22 08:33

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

Method Blank (MB)

(MB) R3870702-1 12/12/22 11:27

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3870702-2 12/12/22 11:29

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00307	102	80.0-120	

L1565584-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1565584-07 12/12/22 11:31 • (MS) R3870702-3 12/12/22 11:33 • (MSD) R3870702-4 12/12/22 11:35

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	U	0.00312	0.00304	104	101	1	75.0-125			2.56	20

Method Blank (MB)

(MB) R3870552-1 12/11/22 18:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3870552-2 12/11/22 19:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.520	104	80.0-120	

L1565584-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1565584-03 12/11/22 19:03 • (MS) R3870552-3 12/11/22 19:13 • (MSD) R3870552-4 12/11/22 19:15

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.502	U	0.471	0.548	93.8	109	1	75.0-125			15.0	20

QUALITY CONTROL SUMMARY

L1565584-07

Method Blank (MB)

(MB) R3871166-1 12/13/22 08:55

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	U		0.00440	0.0100
Barium	U		0.000736	0.00500
Cadmium	U		0.000479	0.00200
Chromium	U		0.00140	0.0100
Lead	U		0.00299	0.00600
Selenium	U		0.00735	0.0100
Silver	U		0.00154	0.00500

Laboratory Control Sample (LCS)

(LCS) R3871166-2 12/13/22 08:57

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	1.00	0.932	93.2	80.0-120	
Barium	1.00	0.992	99.2	80.0-120	
Cadmium	1.00	0.960	96.0	80.0-120	
Chromium	1.00	0.959	95.9	80.0-120	
Lead	1.00	0.948	94.8	80.0-120	
Selenium	1.00	0.964	96.4	80.0-120	
Silver	0.200	0.188	94.2	80.0-120	

L1564071-23 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1564071-23 12/13/22 09:00 • (MS) R3871166-4 12/13/22 09:05 • (MSD) R3871166-5 12/13/22 09:08

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	1.00	U	0.951	0.963	95.1	96.3	1	75.0-125			1.22	20
Barium	1.00	0.00675	0.987	0.996	98.0	98.9	1	75.0-125			0.905	20
Cadmium	1.00	U	0.970	0.977	97.0	97.7	1	75.0-125			0.742	20
Chromium	1.00	U	0.943	0.944	94.3	94.4	1	75.0-125			0.0333	20
Lead	1.00	U	0.945	0.952	94.5	95.2	1	75.0-125			0.647	20
Selenium	1.00	0.00798	0.985	0.996	97.7	98.8	1	75.0-125			1.20	20
Silver	0.200	U	0.189	0.190	94.7	94.9	1	75.0-125			0.159	20

Method Blank (MB)

(MB) R3870926-1 12/12/22 19:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3870926-2 12/12/22 19:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	984	98.4	80.0-120	
Arsenic	100	97.0	97.0	80.0-120	
Barium	100	95.6	95.6	80.0-120	
Chromium	100	98.0	98.0	80.0-120	
Copper	100	97.9	97.9	80.0-120	

L1564204-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1564204-03 12/12/22 19:36 • (MS) R3870926-5 12/12/22 19:46 • (MSD) R3870926-6 12/12/22 19:49

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	486	1620	1740	113	125	5	75.0-125			6.83	20
Arsenic	100	5.91	99.3	94.4	93.4	88.5	5	75.0-125			5.06	20
Barium	100	41.8	156	141	114	99.0	5	75.0-125			10.4	20
Chromium	100	8.97	129	114	120	106	5	75.0-125			12.1	20
Copper	100	58.2	290	242	232	184	5	75.0-125	E J5	E J5	18.2	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Anne Walsh
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Andrew Guglielmo

Site/Facility ID #
DROSS STOCKPILE

P.O. #

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

Rush? (Lab MUST Be Notified)
~~Same Day~~ ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	~~MRCRA8 4oz Clr NoPres~~ 5R 12/7/2022	SW7470 Mercury	SW6020 Al, As, Ba, Cd, Cr	MRCRA8 250mL HDPE w/ HNO3	Remarks	Sample # (lab only)
SO-2494-EX-9-S3-4-120222	G	SS	4 ft	12-2-2022	1500			X	X			-01
SO-2494-EX-5-WW-2-120622		SS	3 ft	12-6-2022	1020			X	X			-02
SO-2494-EX-6-WSW-120722		SS	4 ft	12-7-2022	1300			X	X			-03
SO-2494-EX-6-SWW-120722		SS	4 ft	12-7-2022	1310			X	X			-04
SO-2494-DUP-5-120722		SS	-	-	-			X	X			-05
SO-2494-EX-6-NEW-120722	↓	SS	4 ft	12-7-2022	1315			X	X			-06
RB-2494-5-120722	-	SS	-	12-7-2022	-					X		-07
SO-2494-EX-6-WNW-120722	G	SS	4 ft	12-7-2022	1305			X	X			-08
SO-2494-EX-6-B-2-120722	G	SS	6 ft	12-7-2022	1320			X	X			-09
		SS										

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 156584
E214

Acctnum: **UPRRGOLD**
Template: **T217941**
Prelogin: **P956686**
PM: **134 - Mark W. Beasley**
PB CR 10.11.22
Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 609454627188

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR	
	12-7-2022	1545			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.6 °C	Bottles Received: 9
				1.1	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 120822	Time: 0900

If preservation required by Login: Date/Time

Hold: | Condition: NCF / OK

ANALYTICAL REPORT

December 20, 2022

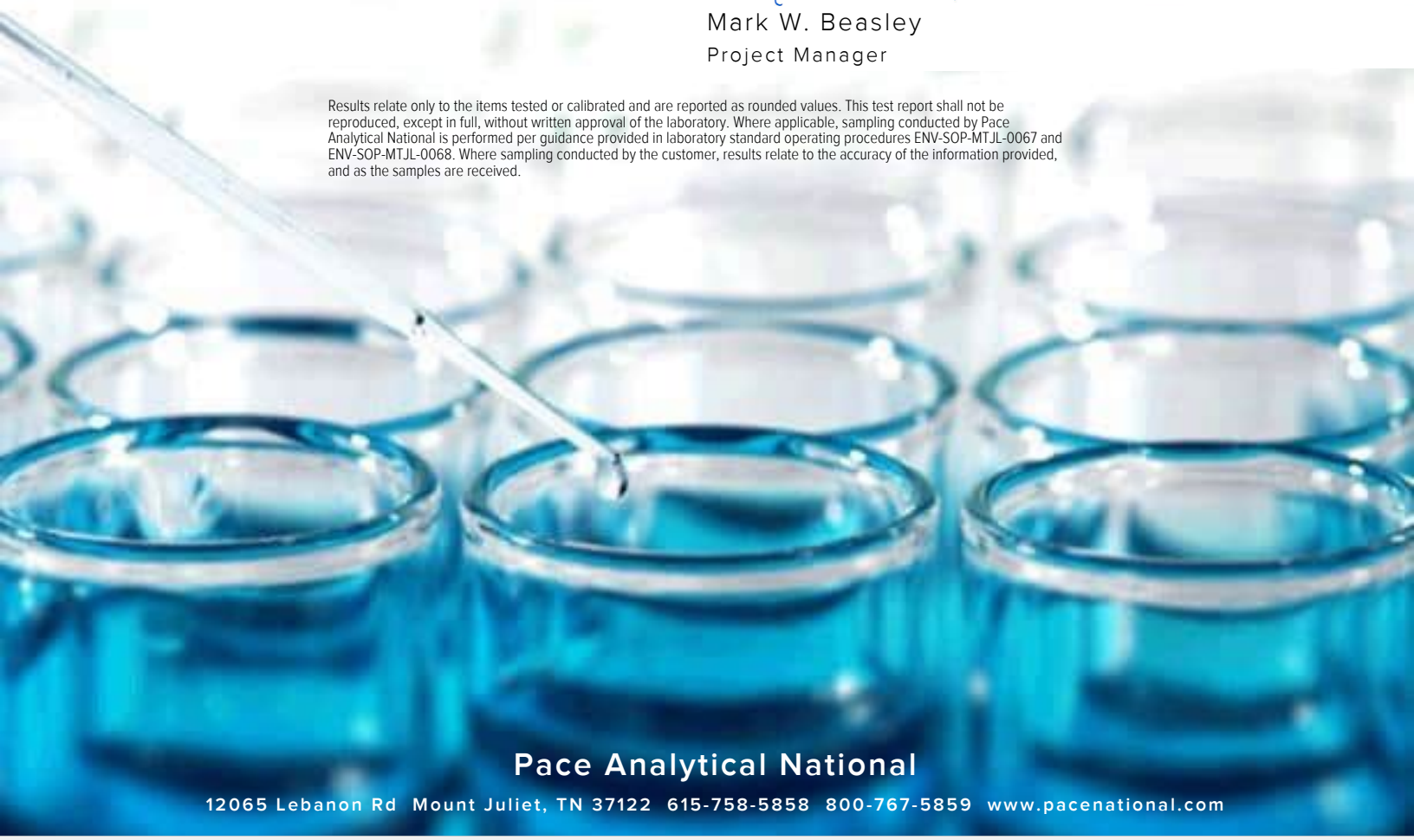
UPRR - Golder Associates

Sample Delivery Group:	L1568651
Samples Received:	12/16/2022
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-EX-8-S3-2-120822 L1568651-01 Solid

Collected by: James Roman | Collected date/time: 12/08/22 13:55 | Received date/time: 12/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1975989	1	12/20/22 10:53	12/20/22 11:00	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1975769	1	12/17/22 12:07	12/18/22 18:18	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1976054	5	12/18/22 15:10	12/18/22 23:27	LD	Mt. Juliet, TN

SO-2494-EX-8-S6-120822 L1568651-02 Solid

Collected by: James Roman | Collected date/time: 12/08/22 14:00 | Received date/time: 12/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1975989	1	12/20/22 10:53	12/20/22 11:00	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1975769	1	12/17/22 12:07	12/18/22 18:25	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1976054	5	12/18/22 15:10	12/18/22 23:30	LD	Mt. Juliet, TN

SO-2494-EX-6-NEW-121522 L1568651-03 Solid

Collected by: James Roman | Collected date/time: 12/15/22 09:55 | Received date/time: 12/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1975989	1	12/20/22 10:53	12/20/22 11:00	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1975769	1	12/17/22 12:07	12/18/22 18:28	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1976054	5	12/18/22 15:10	12/18/22 23:34	LD	Mt. Juliet, TN

SO-2494-EX-5-ESW-121522 L1568651-04 Solid

Collected by: James Roman | Collected date/time: 12/15/22 10:00 | Received date/time: 12/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1975989	1	12/20/22 10:53	12/20/22 11:00	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1975769	1	12/17/22 12:07	12/18/22 18:30	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1976054	5	12/18/22 15:10	12/18/22 23:37	LD	Mt. Juliet, TN

SO-2494-EX-5-NWW-121522 L1568651-05 Solid

Collected by: James Roman | Collected date/time: 12/15/22 10:05 | Received date/time: 12/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1975989	1	12/20/22 10:53	12/20/22 11:00	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1975769	1	12/17/22 12:07	12/18/22 18:33	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1976054	5	12/18/22 15:10	12/18/22 23:40	LD	Mt. Juliet, TN

CASE NARRATIVE

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

Mark W. Beasley
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.4		1	12/20/2022 11:00	WG1975989

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0403	1	12/18/2022 18:18	WG1975769

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12500		6.94	50.3	5	12/18/2022 23:27	WG1976054
Arsenic	13.6		0.101	1.01	5	12/18/2022 23:27	WG1976054
Barium	79.9		0.153	2.52	5	12/18/2022 23:27	WG1976054
Chromium	15.1		0.298	5.03	5	12/18/2022 23:27	WG1976054
Copper	26.6		0.133	5.03	5	12/18/2022 23:27	WG1976054

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.6		1	12/20/2022 11:00	WG1975989

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0183	0.0406	1	12/18/2022 18:25	WG1975769

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9400		7.00	50.7	5	12/18/2022 23:30	WG1976054
Arsenic	9.16		0.101	1.01	5	12/18/2022 23:30	WG1976054
Barium	58.2		0.154	2.54	5	12/18/2022 23:30	WG1976054
Chromium	10.3		0.300	5.07	5	12/18/2022 23:30	WG1976054
Copper	16.8		0.134	5.07	5	12/18/2022 23:30	WG1976054

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.6		1	12/20/2022 11:00	WG1975989

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0183	0.0406	1	12/18/2022 18:28	WG1975769

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	16300		7.00	50.7	5	12/18/2022 23:34	WG1976054
Arsenic	14.7		0.101	1.01	5	12/18/2022 23:34	WG1976054
Barium	81.9		0.154	2.54	5	12/18/2022 23:34	WG1976054
Chromium	13.3		0.300	5.07	5	12/18/2022 23:34	WG1976054
Copper	29.6		0.134	5.07	5	12/18/2022 23:34	WG1976054

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.6		1	12/20/2022 11:00	WG1975989

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0183	0.0406	1	12/18/2022 18:30	WG1975769

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	23100		7.00	50.7	5	12/18/2022 23:37	WG1976054
Arsenic	6.61		0.101	1.01	5	12/18/2022 23:37	WG1976054
Barium	171		0.154	2.54	5	12/18/2022 23:37	WG1976054
Chromium	12.4		0.300	5.07	5	12/18/2022 23:37	WG1976054
Copper	23.5		0.134	5.07	5	12/18/2022 23:37	WG1976054

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.0		1	12/20/2022 11:00	WG1975989

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0184	0.0408	1	12/18/2022 18:33	WG1975769

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11900		7.04	51.0	5	12/18/2022 23:40	WG1976054
Arsenic	10.8		0.102	1.02	5	12/18/2022 23:40	WG1976054
Barium	77.5		0.155	2.55	5	12/18/2022 23:40	WG1976054
Chromium	13.6		0.302	5.10	5	12/18/2022 23:40	WG1976054
Copper	22.4		0.135	5.10	5	12/18/2022 23:40	WG1976054

Method Blank (MB)

(MB) R3873999-1 12/20/22 11:00

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00400			

L1568418-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1568418-01 12/20/22 11:00 • (DUP) R3873999-3 12/20/22 11:00

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	82.1	81.5	1	0.696		10

Laboratory Control Sample (LCS)

(LCS) R3873999-2 12/20/22 11:00

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

Method Blank (MB)

(MB) R3873165-1 12/18/22 17:26

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3873165-2 12/18/22 17:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.427	85.4	80.0-120	

L1568242-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1568242-01 12/18/22 17:31 • (MS) R3873165-3 12/18/22 17:34 • (MSD) R3873165-4 12/18/22 17:36

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	U	0.443	0.435	88.7	87.0	1	75.0-125			1.87	20

Method Blank (MB)

(MB) R3873173-1 12/18/22 22:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3873173-2 12/18/22 22:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	933	93.3	80.0-120	
Arsenic	100	92.8	92.8	80.0-120	
Barium	100	90.2	90.2	80.0-120	
Chromium	100	94.7	94.7	80.0-120	
Copper	100	87.7	87.7	80.0-120	

L1568417-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1568417-05 12/18/22 22:36 • (MS) R3873173-5 12/18/22 22:46 • (MSD) R3873173-6 12/18/22 22:49

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1250	44500	51600	52600	568	647	5	75.0-125	V	V	1.89	20
Arsenic	125	2.89	114	107	89.0	83.3	5	75.0-125			6.47	20
Barium	125	321	399	438	62.3	93.1	5	75.0-125	J6		9.22	20
Chromium	125	66.4	179	172	90.1	84.3	5	75.0-125			4.18	20
Copper	125	26.2	136	137	88.3	88.7	5	75.0-125			0.414	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Anne Walsh
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to: **Ted Norton**

Email To: **tnorton@golder.com;andrew.guglielmo@wsp.c**

Project Description: **Trentwood WA-Aluminum Dross II**

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project # **2494**

Lab Project # **UPRRGOLD-2494**

Collected by (print): James Roman

Site/Facility ID # **DROSS STOCKPILE**

P.O. #

Collected by (signature): J Roman

Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
- ✓ Same Day
- ___ Next Day
- ___ Two Day
- ___ Three Day
- ___ Five Day
- ___ 5 Day (Rad Only)
- ___ 10 Day (Rad Only)

Date Results Needed

Quote #

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	~~MRGRA8 4oz Clr NoPres~~	Mercury - SW7470	Aluminum, Arsenic, Barium, Copper, Chromium (Total) - SW6020								Remarks	Sample # (lab only)
SO-2494-EX-8-S3-2-120822	G	SS	4'	12-08-2022	1355	1		X	X									-01
SO-2494-EX-8-S6-120822	|	SS	4'	12-08-2022	1400	1		X	X									-02
SO-2494-EX-6-NEW-121522	|	SS	4'	12-15-2022	0955	1		X	X									-03
SO-2494-EX-5-ESW-121522	|	SS	3'	12-15-2022	1000	1		X	X									-04
SO-2494-EX-5-NWW-121522	+	SS	3'	12-15-2022	1005	1		X	X									-05
		SS																
		SS																
		SS																
		SS																
		SS																

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 156665

E159

Acctnum: **UPRRGOLD**
Template: **T217941**
Prelogin: **P956686**
PM: **134 - Mark W. Beasley**
PB: CR 10.11.22

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS X FedEx __ Courier _____

Tracking # 6094 5462 7269

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

12/16

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
J Roman	12-15-2022	15:15			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.2 °C 4.7+0=4.7	Bottles Received: 5
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 12/16	Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

ANALYTICAL REPORT

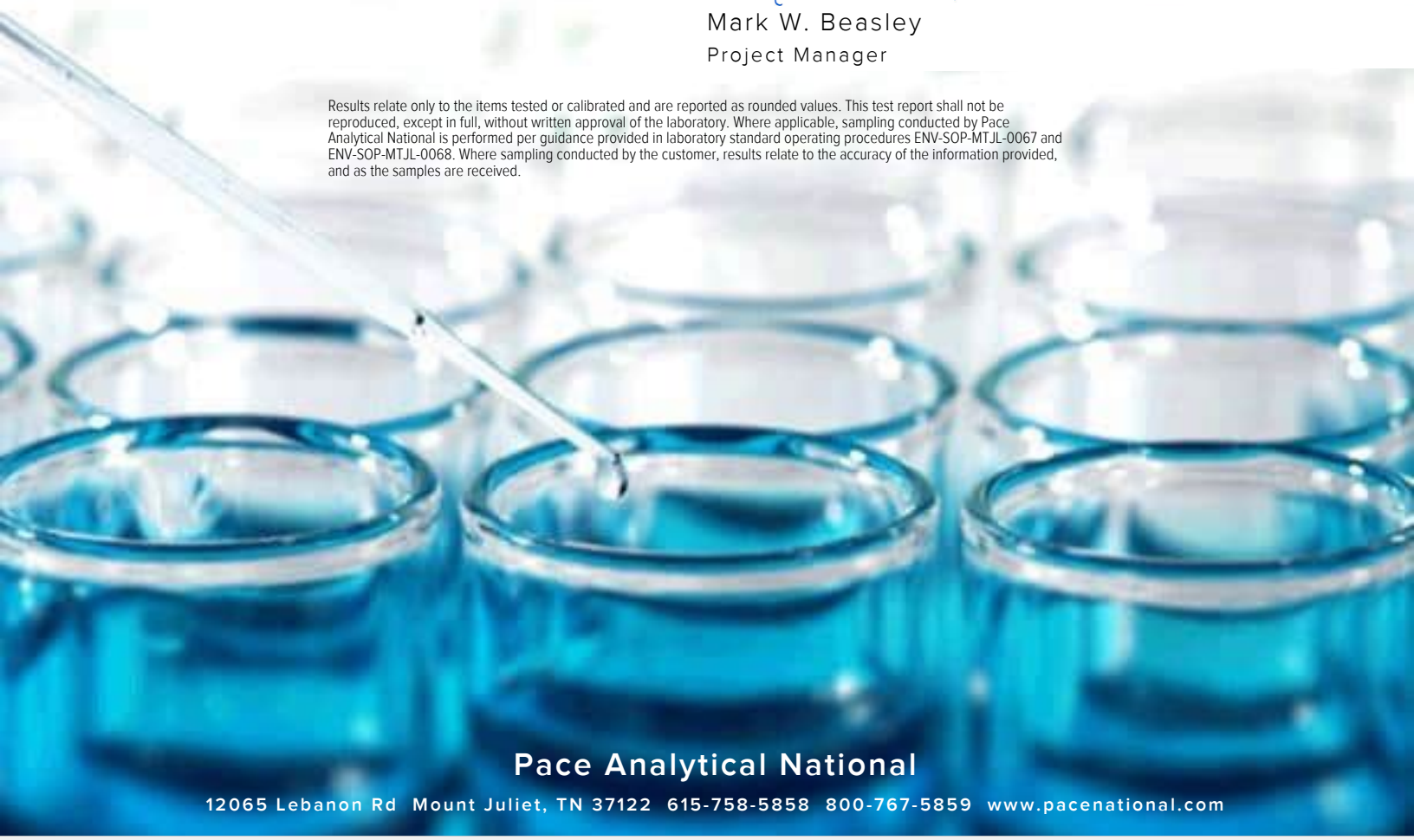
December 27, 2022

UPRR - Golder Associates

Sample Delivery Group:	L1570129
Samples Received:	12/22/2022
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2404-EX-8-SW-121922 L1570129-01 Solid

Collected by | Collected date/time 12/19/22 12:20 | Received date/time 12/22/22 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1978751	1	12/22/22 14:37	12/22/22 14:51	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1979278	1	12/24/22 11:08	12/24/22 16:41	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1979193	10	12/23/22 12:47	12/26/22 11:27	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1979193	5	12/23/22 12:47	12/26/22 10:25	SJM	Mt. Juliet, TN

SO-2404-DUP-6-121922 L1570129-02 Solid

Collected by | Collected date/time 12/19/22 12:20 | Received date/time 12/22/22 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1978751	1	12/22/22 14:37	12/22/22 14:51	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1979278	1	12/24/22 11:08	12/24/22 16:49	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1979193	10	12/23/22 12:47	12/26/22 11:30	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1979193	5	12/23/22 12:47	12/26/22 10:42	SJM	Mt. Juliet, TN

SO-2404-EX-8-SEW-121922 L1570129-03 Solid

Collected by | Collected date/time 12/19/22 12:25 | Received date/time 12/22/22 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1978751	1	12/22/22 14:37	12/22/22 14:51	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1979278	1	12/24/22 11:08	12/24/22 16:51	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1979193	5	12/23/22 12:47	12/26/22 10:45	SJM	Mt. Juliet, TN

SO-2404-EX-8-WW-121922 L1570129-04 Solid

Collected by | Collected date/time 12/20/22 11:00 | Received date/time 12/22/22 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1978751	1	12/22/22 14:37	12/22/22 14:51	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1979278	1	12/24/22 11:08	12/24/22 16:54	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1979193	5	12/23/22 12:47	12/26/22 10:48	SJM	Mt. Juliet, TN

SO-2404-EX-5-BSE-121922 L1570129-05 Solid

Collected by | Collected date/time 12/21/22 09:00 | Received date/time 12/22/22 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1978751	1	12/22/22 14:37	12/22/22 14:51	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1979278	1	12/24/22 11:08	12/24/22 16:56	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1979193	5	12/23/22 12:47	12/26/22 10:59	SJM	Mt. Juliet, TN

SO-2404-EX-5-SEW-121922 L1570129-06 Solid

Collected by | Collected date/time 12/21/22 09:00 | Received date/time 12/22/22 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1978751	1	12/22/22 14:37	12/22/22 14:51	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1979278	1	12/24/22 11:08	12/24/22 16:59	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1979193	5	12/23/22 12:47	12/26/22 11:03	SJM	Mt. Juliet, TN

CASE NARRATIVE

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

Mark W. Beasley
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.4		1	12/22/2022 14:51	WG1978751

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0429		0.0181	0.0402	1	12/24/2022 16:41	WG1979278

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	14100	O1 V	6.94	50.3	5	12/26/2022 10:25	WG1979193
Arsenic	11.7		0.101	1.01	5	12/26/2022 10:25	WG1979193
Barium	75.4		0.153	2.51	5	12/26/2022 10:25	WG1979193
Chromium	12.5		0.298	5.03	5	12/26/2022 10:25	WG1979193
Copper	98.1		0.267	10.1	10	12/26/2022 11:27	WG1979193

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.8		1	12/22/2022 14:51	WG1978751

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0539		0.0186	0.0413	1	12/24/2022 16:49	WG1979278

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	18900		7.13	51.6	5	12/26/2022 10:42	WG1979193
Arsenic	10.8		0.103	1.03	5	12/26/2022 10:42	WG1979193
Barium	70.2		0.157	2.58	5	12/26/2022 10:42	WG1979193
Chromium	14.6		0.306	5.16	5	12/26/2022 10:42	WG1979193
Copper	152		0.274	10.3	10	12/26/2022 11:30	WG1979193

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.9		1	12/22/2022 14:51	WG1978751

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0416		0.0184	0.0409	1	12/24/2022 16:51	WG1979278

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9840		7.05	51.1	5	12/26/2022 10:45	WG1979193
Arsenic	13.8		0.102	1.02	5	12/26/2022 10:45	WG1979193
Barium	79.0		0.155	2.55	5	12/26/2022 10:45	WG1979193
Chromium	10.9		0.302	5.11	5	12/26/2022 10:45	WG1979193
Copper	34.3		0.135	5.11	5	12/26/2022 10:45	WG1979193

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.5		1	12/22/2022 14:51	WG1978751

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0525		0.0189	0.0419	1	12/24/2022 16:54	WG1979278

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12100		7.23	52.4	5	12/26/2022 10:48	WG1979193
Arsenic	7.80		0.105	1.05	5	12/26/2022 10:48	WG1979193
Barium	120		0.159	2.62	5	12/26/2022 10:48	WG1979193
Chromium	17.4		0.310	5.24	5	12/26/2022 10:48	WG1979193
Copper	27.9		0.138	5.24	5	12/26/2022 10:48	WG1979193

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.5		1	12/22/2022 14:51	WG1978751

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0333	J	0.0181	0.0402	1	12/24/2022 16:56	WG1979278

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9400		6.94	50.3	5	12/26/2022 10:59	WG1979193
Arsenic	9.72		0.101	1.01	5	12/26/2022 10:59	WG1979193
Barium	81.6		0.153	2.51	5	12/26/2022 10:59	WG1979193
Chromium	10.6		0.298	5.03	5	12/26/2022 10:59	WG1979193
Copper	24.8		0.133	5.03	5	12/26/2022 10:59	WG1979193

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.5		1	12/22/2022 14:51	WG1978751

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0424	J	0.0193	0.0428	1	12/24/2022 16:59	WG1979278

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12400		7.38	53.5	5	12/26/2022 11:03	WG1979193
Arsenic	4.20		0.107	1.07	5	12/26/2022 11:03	WG1979193
Barium	176		0.163	2.67	5	12/26/2022 11:03	WG1979193
Chromium	8.37		0.317	5.35	5	12/26/2022 11:03	WG1979193
Copper	15.3		0.141	5.35	5	12/26/2022 11:03	WG1979193

Method Blank (MB)

(MB) R3875131-1 12/22/22 14:51

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00300			

L1570129-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1570129-01 12/22/22 14:51 • (DUP) R3875131-3 12/22/22 14:51

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	99.4	99.4	1	0.0253		10

Laboratory Control Sample (LCS)

(LCS) R3875131-2 12/22/22 14:51

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

Method Blank (MB)

(MB) R3875351-4 12/24/22 17:22

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3875351-1 12/24/22 16:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.543	109	80.0-120	

L1570129-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1570129-01 12/24/22 16:41 • (MS) R3875351-2 12/24/22 16:44 • (MSD) R3875351-3 12/24/22 16:46

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.503	0.0429	0.488	0.514	88.6	93.8	1	75.0-125			5.19	20

Method Blank (MB)

(MB) R3875408-1 12/26/22 10:19

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	1.70	J	0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3875408-2 12/26/22 10:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	980	98.0	80.0-120	
Arsenic	100	97.8	97.8	80.0-120	
Barium	100	94.0	94.0	80.0-120	
Chromium	100	98.1	98.1	80.0-120	
Copper	100	95.0	95.0	80.0-120	

L1570129-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1570129-01 12/26/22 10:25 • (MS) R3875408-5 12/26/22 10:35 • (MSD) R3875408-6 12/26/22 10:39

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1010	14100	15000	13800	89.6	0.000	5	75.0-125		V	8.13	20
Arsenic	101	11.7	104	98.2	92.0	86.0	5	75.0-125			6.01	20
Barium	101	75.4	191	164	115	87.6	5	75.0-125			15.4	20
Chromium	101	12.5	108	102	94.9	89.4	5	75.0-125			5.26	20
Copper	101	103	188	176	84.3	73.0	5	75.0-125		J6	6.28	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Anne Walsh
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To: amar.jain@wsp.com
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle: PT MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print): Amar Jain
~~Andrew Guglielmo~~

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	~~MRCRA8 250mlHDPE-HNO3~~	Mercury-SW7470	Aluminum, Arsenic, Barium, Copper, Chromium(Total) - SW6020									Remarks	Sample # (lab only)
~~SO-2494-EX-6-BW-102022~~	~~Grab~~	~~SW SO~~	6	10-20-22	1400													
SO-2494-EX-8-SW-121922	GRAB	SO	4	12-19-22	12:20		X	X										-01
SO-2494-DUP-6-121922			4'		12:20													-02
SO-2494-EX-8-MSMSD-121922			4'		12:20													
SO-2494-EX-8-SEW-121922			4'		12:25													-03
SO-2494-EX-8-UW-122022			4'	12-20-22	11:00													-04
~~SO-2494-EX-BSE-122122~~			6'		~~9:00~~													
SO-2494-EX-5-BSE-122122			6'	12-21-22	9:00													-05
SO-2494-EX-5-SEW-122122			~~4~~ 3'	12-21-22	9:00													-06

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1570124
E069

Acctnum: **UPRRGOLD**
Template: **T217946**
Prelogin: **P956687**
PM: **134 - Mark W. Beasley**
PB: KP 10/11/22

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: SO-2494-EX-8-MSMSD-121922 is MS/MSD of SO-2494-EX-8-SW-121922

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6094 5462 7199

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y / N
COC Signed/Accurate:		Y / N
Bottles arrive intact:		Y / N
Correct bottles used:		Y / N
Sufficient volume sent:		Y / N
If Applicable		
VOA Zero Headspace:		Y / N
Preservation Correct/Checked:		Y / N
RAD Screen <0.5 mR/hr:		Y / N

	Date:	Time:		
Relinquished by : (Signature)	12-21-22	1200	Received by: (Signature)	Trip Blank Received: Yes (No) HCL / MeoH TBR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.2 °C Bottles Received: 4.2+0=4.2 7
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 12-22-22 Time: 0830

If preservation required by Login: Date/Time

Hold:

Condition: NCF (OK)

ANALYTICAL REPORT

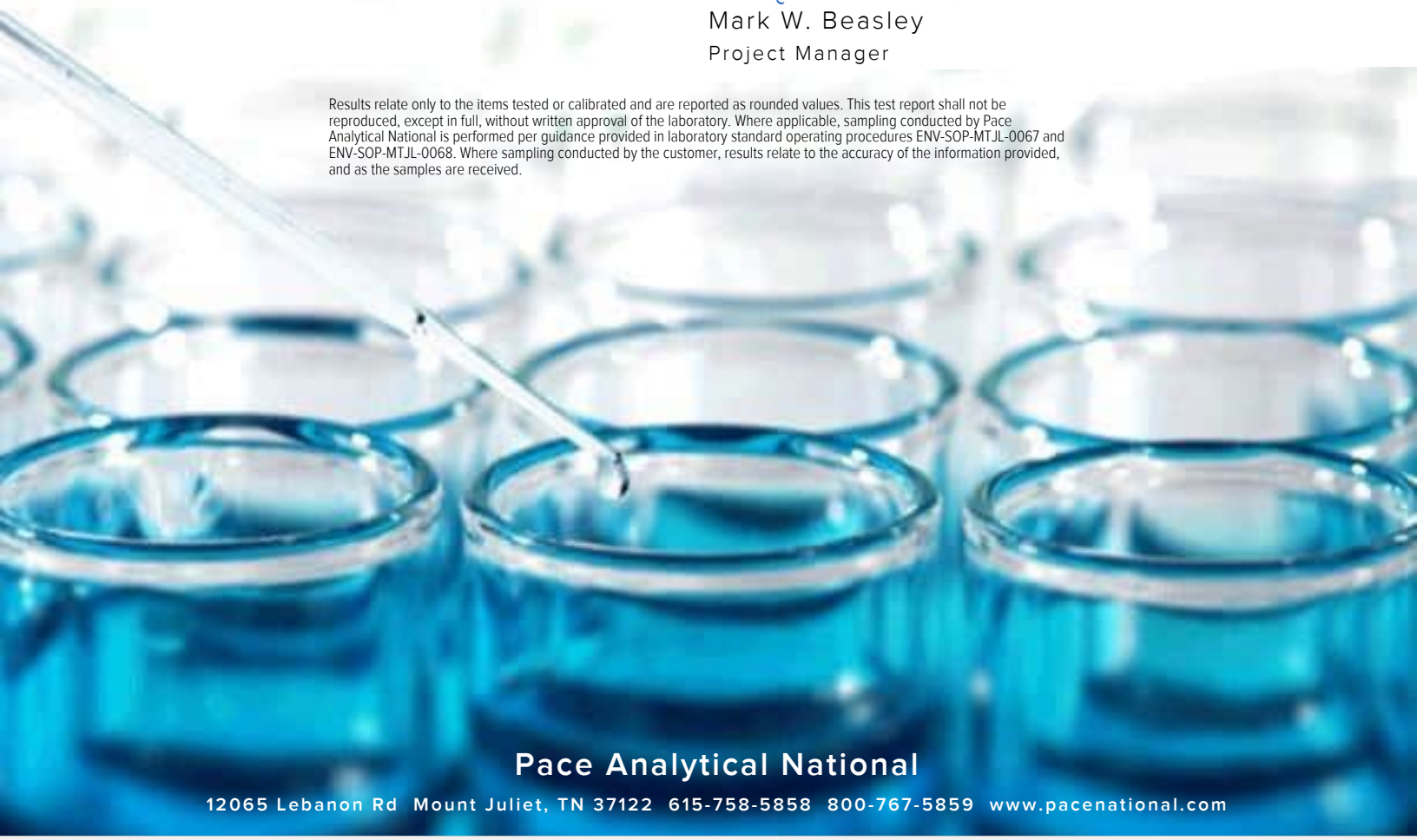
January 12, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1574810
Samples Received:	01/11/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

RB-2494-6-010923 L1574810-01 GW

Collected by: James Roman
Collected date/time: 01/10/23 13:30
Received date/time: 01/11/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1986861	1	01/11/23 11:22	01/11/23 14:42	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1986843	1	01/11/23 18:28	01/11/23 20:46	LD	Mt. Juliet, TN

SO2492-UP2-38-010923 L1574810-02 Solid

Collected by:
Collected date/time: 01/10/23 13:45
Received date/time: 01/11/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1986908	1	01/11/23 12:28	01/11/23 12:35	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1987168	1	01/11/23 17:49	01/12/23 10:19	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1987747	5	01/12/23 13:37	01/12/23 17:05	LD	Mt. Juliet, TN

SO2492-UP2-39-010923 L1574810-03 Solid

Collected by:
Collected date/time: 01/10/23 13:50
Received date/time: 01/11/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1986908	1	01/11/23 12:28	01/11/23 12:35	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1987168	1	01/11/23 17:49	01/12/23 10:03	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1987747	5	01/12/23 13:37	01/12/23 17:08	LD	Mt. Juliet, TN

CASE NARRATIVE

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

Mark W. Beasley
Project Manager

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	0.000130	J	0.000100	0.000200	1	01/11/2023 14:42	WG1986861

Metals (ICPMS) by Method 6020B

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	U		0.0185	0.100	1	01/11/2023 20:46	WG1986843
Arsenic	U		0.000180	0.00200	1	01/11/2023 20:46	WG1986843
Barium	U		0.000381	0.00200	1	01/11/2023 20:46	WG1986843
Chromium	U		0.00124	0.00200	1	01/11/2023 20:46	WG1986843
Copper	U		0.00151	0.00500	1	01/11/2023 20:46	WG1986843

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.3		1	01/11/2023 12:35	WG1986908

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0403	1	01/12/2023 10:19	WG1987168

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8170		6.95	50.4	5	01/12/2023 17:05	WG1987747
Arsenic	7.32		0.101	1.01	5	01/12/2023 17:05	WG1987747
Barium	67.7		0.153	2.52	5	01/12/2023 17:05	WG1987747
Chromium	9.69		0.298	5.04	5	01/12/2023 17:05	WG1987747
Copper	23.1		0.133	5.04	5	01/12/2023 17:05	WG1987747

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.9		1	01/11/2023 12:35	WG1986908

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0184	0.0409	1	01/12/2023 10:03	WG1987168

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	22000		7.05	51.1	5	01/12/2023 17:08	WG1987747
Arsenic	8.15		0.102	1.02	5	01/12/2023 17:08	WG1987747
Barium	81.0		0.155	2.55	5	01/12/2023 17:08	WG1987747
Chromium	12.6		0.302	5.11	5	01/12/2023 17:08	WG1987747
Copper	78.7		0.135	5.11	5	01/12/2023 17:08	WG1987747

Method Blank (MB)

(MB) R3880302-1 01/11/23 12:35

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1574810-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1574810-03 01/11/23 12:35 • (DUP) R3880302-3 01/11/23 12:35

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	97.9	97.9	1	0.00194		10

Laboratory Control Sample (LCS)

(LCS) R3880302-2 01/11/23 12:35

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

QUALITY CONTROL SUMMARY

L1574810-01

Method Blank (MB)

(MB) R3880083-4 01/11/23 15:10

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3880083-1 01/11/23 14:40

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00301	100	80.0-120	

L1574810-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1574810-01 01/11/23 14:42 • (MS) R3880083-2 01/11/23 14:45 • (MSD) R3880083-3 01/11/23 14:47

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	0.000130	0.00288	0.00306	91.6	97.5	1	75.0-125			6.05	20

Method Blank (MB)

(MB) R3880324-1 01/12/23 09:59

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3880324-2 01/12/23 10:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.501	100	80.0-120	

L1574810-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1574810-03 01/12/23 10:03 • (MS) R3880324-3 01/12/23 10:06 • (MSD) R3880324-4 01/12/23 10:08

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.511	U	0.587	0.636	115	124	1	75.0-125			7.99	20

Method Blank (MB)

(MB) R3880171-1 01/11/23 20:05

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aluminum	U		0.0185	0.100
Arsenic	U		0.000180	0.00200
Barium	U		0.000381	0.00200
Chromium	U		0.00124	0.00200
Copper	U		0.00151	0.00500

Laboratory Control Sample (LCS)

(LCS) R3880171-2 01/11/23 20:08

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	5.00	4.77	95.4	80.0-120	
Arsenic	0.0500	0.0493	98.5	80.0-120	
Barium	0.0500	0.0484	96.9	80.0-120	
Chromium	0.0500	0.0514	103	80.0-120	
Copper	0.0500	0.0495	99.1	80.0-120	

L1574833-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1574833-05 01/11/23 20:12 • (MS) R3880171-4 01/11/23 20:18 • (MSD) R3880171-5 01/11/23 20:22

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	5.00	U	4.75	4.84	95.1	96.8	1	75.0-125			1.81	20
Arsenic	0.0500	U	0.0491	0.0493	98.3	98.5	1	75.0-125			0.227	20
Barium	0.0500		0.0476	0.0471	95.1	94.3	1	75.0-125			0.858	20
Chromium	0.0500	U	0.0511	0.0515	102	103	1	75.0-125			0.683	20
Copper	0.0500		0.0486	0.0498	97.1	99.6	1	75.0-125			2.48	20

Method Blank (MB)

(MB) R3880579-1 01/12/23 16:42

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	0.154	J	0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3880579-2 01/12/23 16:46

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	914	91.4	80.0-120	
Arsenic	100	93.3	93.3	80.0-120	
Barium	100	95.1	95.1	80.0-120	
Chromium	100	94.6	94.6	80.0-120	
Copper	100	91.6	91.6	80.0-120	

L1574945-24 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1574945-24 01/12/23 16:49 • (MS) R3880579-5 01/12/23 16:59 • (MSD) R3880579-6 01/12/23 17:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	2550	4230	3540	168	98.7	5	75.0-125	J5		17.8	20
Arsenic	100	3.24	83.1	84.1	79.9	80.9	5	75.0-125			1.17	20
Barium	100	74.9	177	158	102	83.0	5	75.0-125			11.2	20
Chromium	100	7.31	90.4	89.6	83.0	82.3	5	75.0-125			0.801	20
Copper	100	32.3	118	120	85.9	87.6	5	75.0-125			1.36	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com; ~~andrew.guglielmo~~ James.Roman@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
James Roman

Site/Facility ID #
DROSS STOCKPILE

P.O. #

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

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres	2	Al, As, Ba, Cr, Cu, Hg 250mL more w/HNO3								Remarks	Sample # (lab only)
RB-2494-6-010923	—	SS	—	1-09-2023	1330				X									-01
SO-2494-UP2-38-010923	G	SS	1.5 ft		1345		X											-02
SO-2494-UP2-39-010923	G	SS	1.5 ft		1350		X											-03
		SS																
		SS																
		SS																
		SS																
		SS																
		SS																
		SS																

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1574840
D133

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P972607**
PM: 134 - Mark W. Beasley
PB: 1/9/23 0000

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Mercury by SW7470 SN12622
Al, As, Ba, Cu, Cr by SW6020 SN 12623

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6094 5462 7203

Sample Receipt Checklist
COC Seal Present/Intact: __NP Y N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: Y __N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
James Roman	1-09-2023	1500			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: GBA2 °C 4.9+0=4.9 Bottles Received: 3	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Maycie J	Date: 1/11/23 Time: 830	Hold: / Condition: NCF / OK

ANALYTICAL REPORT

January 17, 2023

Revised Report

UPRR - Golder Associates

Sample Delivery Group:	L1575671
Samples Received:	01/13/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-UP1-K01-011223 L1575671-01 Solid

Collected by: James Roman
Collected date/time: 01/12/23 08:00
Received date/time: 01/13/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1988387	1	01/13/23 13:26	01/13/23 13:41	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1988448	1	01/14/23 09:27	01/15/23 16:54	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1989142	5	01/16/23 08:41	01/16/23 14:24	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1989142	500	01/16/23 08:41	01/16/23 15:00	JPD	Mt. Juliet, TN

SO-2494-UP1-K02-011223 L1575671-02 Solid

Collected by: James Roman
Collected date/time: 01/12/23 08:10
Received date/time: 01/13/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1988387	1	01/13/23 13:26	01/13/23 13:41	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1988448	1	01/14/23 09:27	01/15/23 17:38	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1989142	1000	01/16/23 08:41	01/16/23 15:04	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1989142	5	01/16/23 08:41	01/16/23 14:27	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Mark W. Beasley
Project Manager

Report Revision History

Level II Report - Version 1: 01/16/23 16:00

Project Narrative

Updated sample IDs

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.5		1	01/13/2023 13:41	WG1988387

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.278	J6 O1	0.0185	0.0410	1	01/15/2023 16:54	WG1988448

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	39700		707	5130	500	01/16/2023 15:00	WG1989142
Arsenic	5.78		0.103	1.03	5	01/16/2023 14:24	WG1989142
Barium	72.5		0.156	2.56	5	01/16/2023 14:24	WG1989142
Chromium	30.4		0.303	5.13	5	01/16/2023 14:24	WG1989142
Copper	302	J	13.5	513	500	01/16/2023 15:00	WG1989142

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.4		1	01/13/2023 13:41	WG1988387

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0385	J	0.0197	0.0437	1	01/15/2023 17:38	WG1988448

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	110000		1510	10900	1000	01/16/2023 15:04	WG1989142
Arsenic	4.74		0.109	1.09	5	01/16/2023 14:27	WG1989142
Barium	124	J	33.2	547	1000	01/16/2023 15:04	WG1989142
Chromium	104		0.324	5.47	5	01/16/2023 14:27	WG1989142
Copper	1030	J	29.0	1090	1000	01/16/2023 15:04	WG1989142

Method Blank (MB)

(MB) R3881005-1 01/13/23 13:41

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1575671-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1575671-01 01/13/23 13:41 • (DUP) R3881005-3 01/13/23 13:41

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	97.5	97.6	1	0.0722		10

Laboratory Control Sample (LCS)

(LCS) R3881005-2 01/13/23 13:41

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

Method Blank (MB)

(MB) R3881147-1 01/15/23 16:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3881147-2 01/15/23 16:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.522	104	80.0-120	

L1575671-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1575671-01 01/15/23 16:54 • (MS) R3881147-3 01/15/23 16:57 • (MSD) R3881147-4 01/15/23 16:59

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.513	0.278	0.715	0.600	85.2	62.8	1	75.0-125		J6	17.5	20

Method Blank (MB)

(MB) R3881399-1 01/16/23 14:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3881399-2 01/16/23 14:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	923	92.3	80.0-120	
Arsenic	100	95.1	95.1	80.0-120	
Barium	100	92.2	92.2	80.0-120	
Chromium	100	97.3	97.3	80.0-120	
Copper	100	93.1	93.1	80.0-120	

L1575589-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1575589-01 01/16/23 14:07 • (MS) R3881399-5 01/16/23 14:17 • (MSD) R3881399-6 01/16/23 14:20

Analyte	Spike Amount (dry) mg/kg	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1240	16000	17700	19400	133	275	5	75.0-125	V	V	9.53	20
Arsenic	124	7.65	109	108	81.4	81.0	5	75.0-125			0.437	20
Barium	124	185	313	304	102	95.7	5	75.0-125	E	E	2.71	20
Chromium	124	6.75	108	109	81.7	81.9	5	75.0-125			0.204	20
Copper	124	14.3	116	120	81.5	84.6	5	75.0-125			3.23	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
James Roman

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):
ROMAN

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1575671

Table # G137

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P972608**
PM: 134 - Mark W. Beasley
PB: 1/19/23 1000
Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres	Remarks	Sample # (lab only)
~~SO-2494-UP1-K01-011223~~	G	SS	2ft	1-12-2023	0800	1	X	SR 1-12-23 OR 1-12-23	
~~SO-2494-UP1-K02-011223~~	G	SS	2ft	1-12-2023	0810	1	X		
SO-2494-UP1-K01-011223	G	SS	2ft	1-12-2023	0800	1	X		-01
SO-2494-UP1-K02-011223	G	SS	2ft	1-12-2023	0810	1	X		-02
		SS							
		SS							
		SS							
		SS							
		SS							
		SS							

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Mercury by SW 7470
Al, As, Ba, Cu, Cr by SW 6020

SN12620
SN12621

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier _____

Tracking # 6094 5462 7247

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
ROMAN	1-12-2023	1530			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C 1.1 to 1.1	Bottles Received: 2
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) HANNAH MINECHINGA	Date: 01/13/23	Time: 09:15

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

January 25, 2023

Revised Report

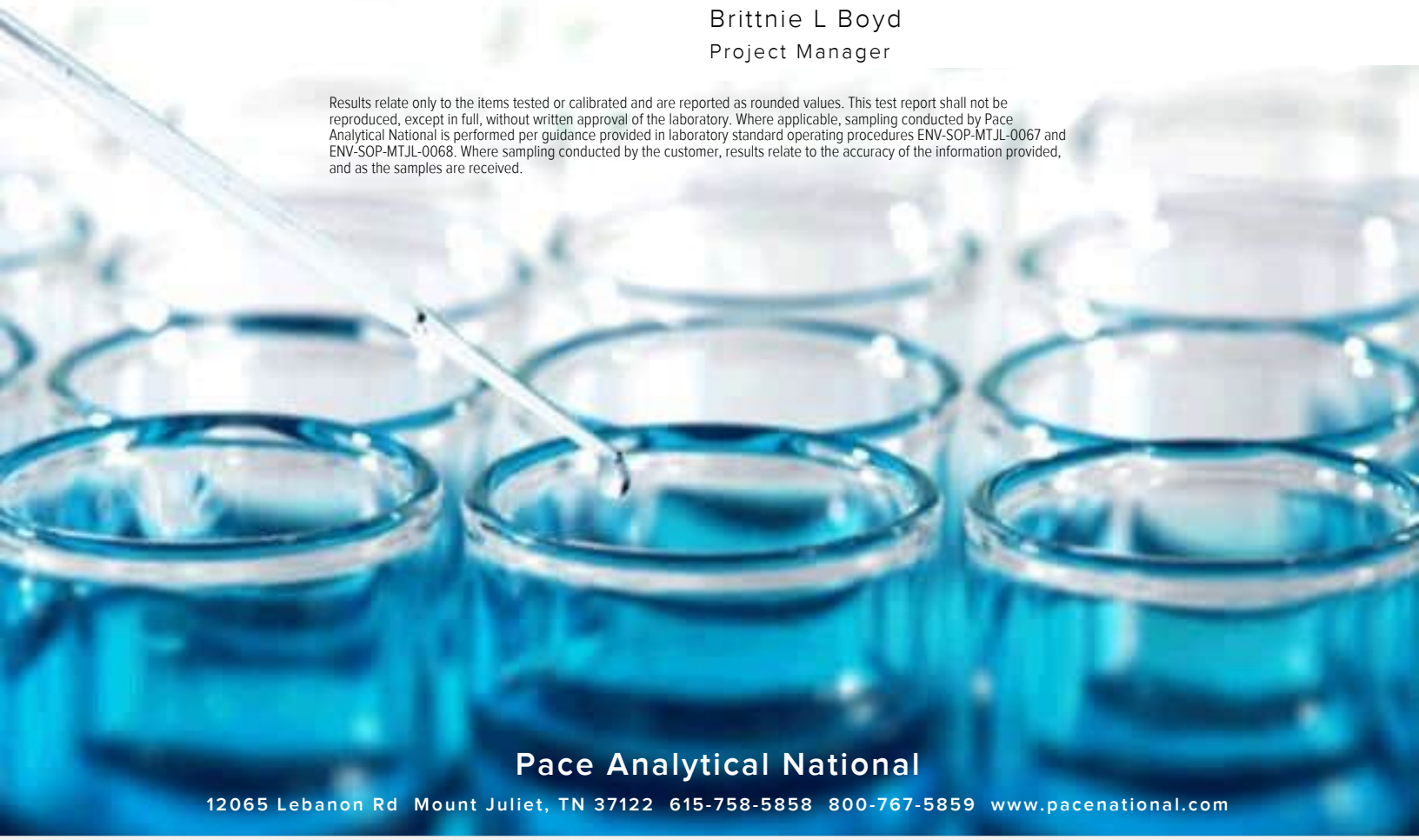
UPRR - Golder Associates

Sample Delivery Group:	L1578476
Samples Received:	01/24/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-UP1-24-011923 L1578476-01 Solid

Collected by: James Roman | Collected date/time: 01/19/23 15:55 | Received date/time: 01/24/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1993757	1	01/24/23 10:51	01/24/23 11:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1993797	1	01/24/23 11:46	01/24/23 19:11	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	100	01/24/23 14:18	01/25/23 09:41	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	2000	01/24/23 14:18	01/25/23 09:38	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	5	01/24/23 14:18	01/25/23 00:58	JPD	Mt. Juliet, TN

SO-2494-UP1-06-012023 L1578476-02 Solid

Collected by: James Roman | Collected date/time: 01/20/23 10:40 | Received date/time: 01/24/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1993757	1	01/24/23 10:51	01/24/23 11:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1993797	1	01/24/23 11:46	01/24/23 19:37	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	100	01/24/23 14:18	01/25/23 09:48	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	2000	01/24/23 14:18	01/25/23 09:45	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	5	01/24/23 14:18	01/25/23 01:44	JPD	Mt. Juliet, TN

SO-2494-UP1-13-012023 L1578476-03 Solid

Collected by: James Roman | Collected date/time: 01/20/23 14:00 | Received date/time: 01/24/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1993757	1	01/24/23 10:51	01/24/23 11:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1993797	2	01/24/23 11:46	01/24/23 20:40	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	100	01/24/23 14:18	01/25/23 09:55	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	2000	01/24/23 14:18	01/25/23 09:51	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	5	01/24/23 14:18	01/25/23 01:47	JPD	Mt. Juliet, TN

SO-2494-UP1-34-012323 L1578476-04 Solid

Collected by: James Roman | Collected date/time: 01/23/23 12:50 | Received date/time: 01/24/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1993757	1	01/24/23 10:51	01/24/23 11:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1993797	1	01/24/23 11:46	01/24/23 19:33	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	100	01/24/23 14:18	01/25/23 10:04	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	2000	01/24/23 14:18	01/25/23 09:58	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	5	01/24/23 14:18	01/25/23 01:50	JPD	Mt. Juliet, TN

SO-2494-UP1-09-012323 L1578476-05 Solid

Collected by: James Roman | Collected date/time: 01/23/23 13:25 | Received date/time: 01/24/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1993757	1	01/24/23 10:51	01/24/23 11:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1993797	1	01/24/23 11:46	01/24/23 19:39	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	10	01/24/23 14:18	01/25/23 12:24	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	5	01/24/23 14:18	01/25/23 01:54	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	500	01/24/23 14:18	01/25/23 10:08	SJM	Mt. Juliet, TN

SAMPLE SUMMARY

SO-2494-UP1-10-012323 L1578476-06 Solid

Collected by: James Roman
Collected date/time: 01/23/23 13:15
Received date/time: 01/24/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1993757	1	01/24/23 10:51	01/24/23 11:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1993797	1	01/24/23 11:46	01/24/23 19:41	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	10	01/24/23 14:18	01/25/23 12:27	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	5	01/24/23 14:18	01/25/23 01:57	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	500	01/24/23 14:18	01/25/23 10:11	SJM	Mt. Juliet, TN

SO-2494-DUP-7-012323 L1578476-07 Solid

Collected by: James Roman
Collected date/time: 01/23/23 12:00
Received date/time: 01/24/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1993757	1	01/24/23 10:51	01/24/23 11:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1993797	1	01/24/23 11:46	01/24/23 19:43	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	10	01/24/23 14:18	01/25/23 12:30	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	5	01/24/23 14:18	01/25/23 02:00	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1993982	500	01/24/23 14:18	01/25/23 10:21	SJM	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Report Revision History

Level II Report - Version 1: 01/25/23 20:43

Project Narrative

Added COC

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.0		1	01/24/2023 11:06	WG1993757

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.320		0.0198	0.0439	1	01/24/2023 19:11	WG1993797

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	155000		3030	22000	2000	01/25/2023 09:38	WG1993982
Arsenic	2.70		0.110	1.10	5	01/25/2023 00:58	WG1993982
Barium	69.3		0.167	2.75	5	01/25/2023 00:58	WG1993982
Chromium	192		6.51	110	100	01/25/2023 09:41	WG1993982
Copper	1520		2.91	110	100	01/25/2023 09:41	WG1993982

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.5		1	01/24/2023 11:06	WG1993757

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.812		0.0218	0.0485	1	01/24/2023 19:37	WG1993797

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	139000		3340	24200	2000	01/25/2023 09:45	WG1993982
Arsenic	7.17		0.121	1.21	5	01/25/2023 01:44	WG1993982
Barium	42.6		0.184	3.03	5	01/25/2023 01:44	WG1993982
Chromium	82.1		0.359	6.06	5	01/25/2023 01:44	WG1993982
Copper	793		3.21	121	100	01/25/2023 09:48	WG1993982

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.8		1	01/24/2023 11:06	WG1993757

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	2.31		0.0420	0.0932	2	01/24/2023 20:40	WG1993797

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	149000		3220	23300	2000	01/25/2023 09:51	WG1993982
Arsenic	2.76		0.117	1.17	5	01/25/2023 01:47	WG1993982
Barium	89.8		0.177	2.91	5	01/25/2023 01:47	WG1993982
Chromium	182		6.91	117	100	01/25/2023 09:55	WG1993982
Copper	1330		3.09	117	100	01/25/2023 09:55	WG1993982

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.4		1	01/24/2023 11:06	WG1993757

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	1.71		0.0185	0.0411	1	01/24/2023 19:33	WG1993797

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	75100		2830	20500	2000	01/25/2023 09:58	WG1993982
Arsenic	6.05		0.103	1.03	5	01/25/2023 01:50	WG1993982
Barium	264		0.156	2.57	5	01/25/2023 01:50	WG1993982
Chromium	89.4		0.304	5.13	5	01/25/2023 01:50	WG1993982
Copper	727		2.72	103	100	01/25/2023 10:04	WG1993982

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.5		1	01/24/2023 11:06	WG1993757

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.266		0.0183	0.0406	1	01/24/2023 19:39	WG1993797

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	32200		700	5070	500	01/25/2023 10:08	WG1993982
Arsenic	11.1		0.101	1.01	5	01/25/2023 01:54	WG1993982
Barium	130		0.154	2.54	5	01/25/2023 01:54	WG1993982
Chromium	29.9		0.300	5.07	5	01/25/2023 01:54	WG1993982
Copper	342		0.269	10.1	10	01/25/2023 12:24	WG1993982

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.3		1	01/24/2023 11:06	WG1993757

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.342		0.0185	0.0411	1	01/24/2023 19:41	WG1993797

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	52500		709	5140	500	01/25/2023 10:11	WG1993982
Arsenic	8.86		0.103	1.03	5	01/25/2023 01:57	WG1993982
Barium	150		0.156	2.57	5	01/25/2023 01:57	WG1993982
Chromium	39.0		0.304	5.14	5	01/25/2023 01:57	WG1993982
Copper	270		0.272	10.3	10	01/25/2023 12:27	WG1993982

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.2		1	01/24/2023 11:06	WG1993757

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.294		0.0185	0.0412	1	01/24/2023 19:43	WG1993797

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	50300		710	5150	500	01/25/2023 10:21	WG1993982
Arsenic	9.31		0.103	1.03	5	01/25/2023 02:00	WG1993982
Barium	153		0.156	2.57	5	01/25/2023 02:00	WG1993982
Chromium	39.3		0.305	5.15	5	01/25/2023 02:00	WG1993982
Copper	258		0.273	10.3	10	01/25/2023 12:30	WG1993982

Method Blank (MB)

(MB) R3884097-1 01/24/23 11:06

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00300			

L1578476-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1578476-05 01/24/23 11:06 • (DUP) R3884097-3 01/24/23 11:06

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	98.5	98.5	1	0.0650		10

Laboratory Control Sample (LCS)

(LCS) R3884097-2 01/24/23 11:06

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

Method Blank (MB)

(MB) R3884021-1 01/24/23 19:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3884021-2 01/24/23 19:09

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.552	110	80.0-120	

L1578476-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1578476-01 01/24/23 19:11 • (MS) R3884021-3 01/24/23 19:13 • (MSD) R3884021-4 01/24/23 19:15

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.549	0.320	0.852	0.839	96.8	94.5	1	75.0-125			1.51	20

Method Blank (MB)

(MB) R3884096-1 01/25/23 00:51

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3884096-2 01/25/23 00:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	957	95.7	80.0-120	
Arsenic	100	94.1	94.1	80.0-120	
Barium	100	98.4	98.4	80.0-120	
Chromium	100	92.9	92.9	80.0-120	
Copper	100	90.1	90.1	80.0-120	

L1578476-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1578476-01 01/25/23 00:58 • (MS) R3884096-5 01/25/23 01:08 • (MSD) R3884096-6 01/25/23 01:11

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1100	184000	207000	210000	2110	2310	5	75.0-125	E V	E V	1.08	20
Arsenic	110	2.70	103	101	90.9	89.5	5	75.0-125			1.53	20
Barium	110	69.3	186	183	106	103	5	75.0-125			1.75	20
Chromium	110	190	317	294	116	94.9	5	75.0-125			7.68	20
Copper	110	1560	1810	1800	225	216	5	75.0-125	E V	E V	0.537	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
James Roman

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):
James Roman

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1578476
1227
Acctnum: UPRRGOLD
Template: T222123
Prelogin: P972608
PM: 134 - Mark W. Beasley
PB:
Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres									Remarks	Sample # (lab only)
SO-2494-UP1-24-01192 3	G	SS	0.5	1-19-2023	1555	1	X										-01
SO-2494-UP1-06-01202 3	"	"	"	1-20-2023	1040	1	X										-02
SO-2494-UP1-13-01223	"	"	"	"	1400	1	X										-03
~~SO-2494-UP1-39-01223~~					1415	1	X	JK 1-23-23									
~~SO-2494-UP1-04-01223~~					1425	1	X	JK 1-23-23									
SO-2494-UP1-34-01232 3	G	SS	0.5	1-23-2023	1250	1	X										-04
SO-2494-UP1-09-01232 3	"	"	"	"	1325	1	X										-05
SO-2494-UP1-18-01232 3	"	"	"	"	1315	1	X										-06
SO-2494-DUP-7-01232 3	"	"	"	"	1200	1	X										-07

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Hg by SW7470 SN 12601 SN 12602
Al, As, Ba, Cr, Cu by SW6020

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier _____

Tracking # 6193 3529 2770

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
James Roman	1-23-2023	1600			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	~~TBR~~ 2 °C Bottles Received: 7 0310=3	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 1/24 Time: 0900	Hold: Condition: NCF / OK

ANALYTICAL REPORT

January 26, 2023

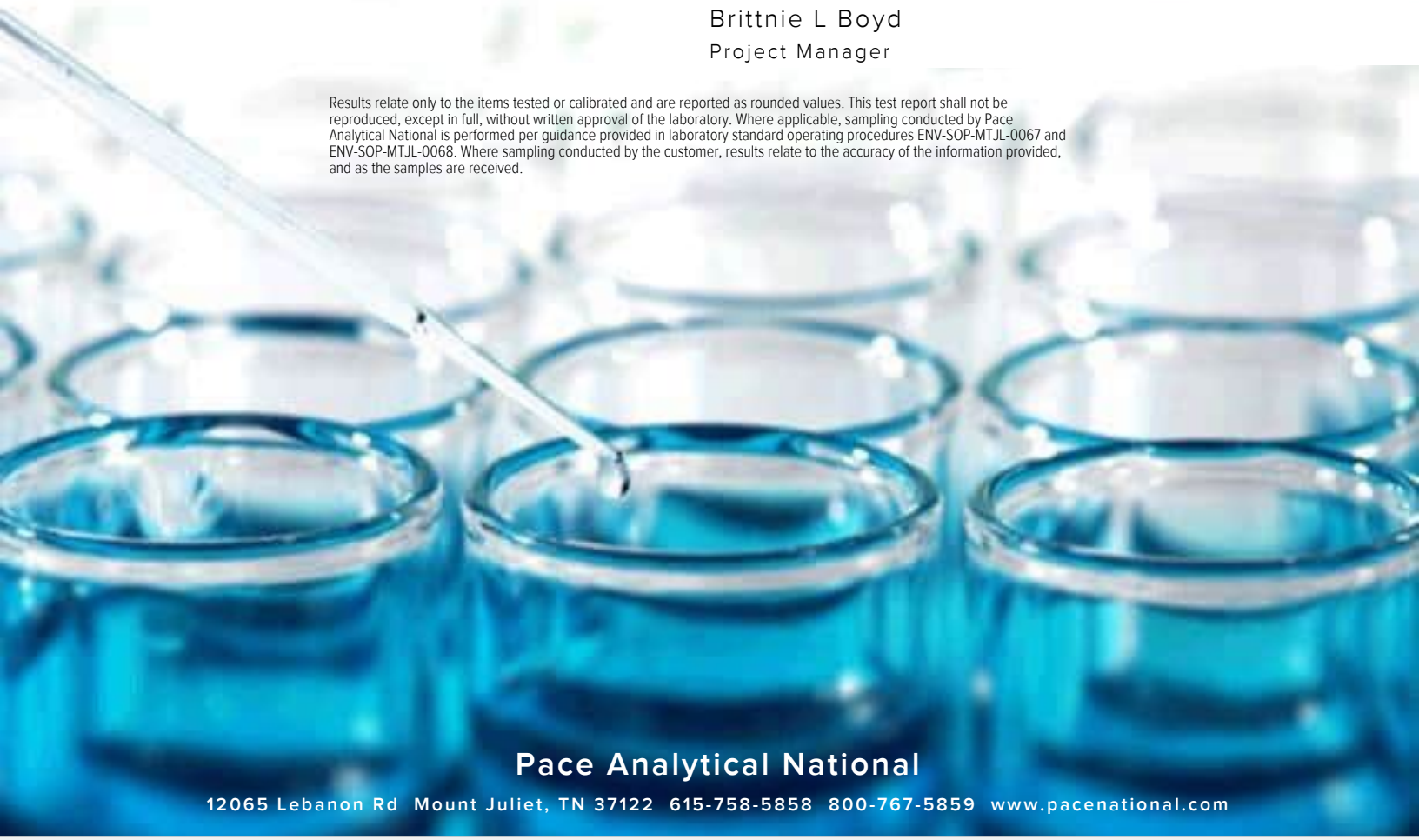
UPRR - Golder Associates

Sample Delivery Group:	L1578898
Samples Received:	01/25/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-UP1-19-012323 L1578898-01 Solid

Collected by: James Roman
Collected date/time: 01/23/23 13:00
Received date/time: 01/25/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1994519	1	01/25/23 11:51	01/25/23 12:07	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1994504	1	01/25/23 11:31	01/26/23 08:49	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1994510	100	01/25/23 12:58	01/25/23 16:48	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1994510	1000	01/25/23 12:58	01/25/23 16:44	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1994510	5	01/25/23 12:58	01/25/23 15:50	JPD	Mt. Juliet, TN

SO-2494-UP1-37-012323 L1578898-02 Solid

Collected by: James Roman
Collected date/time: 01/23/23 12:40
Received date/time: 01/25/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1994519	1	01/25/23 11:51	01/25/23 12:07	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1994504	1	01/25/23 11:31	01/26/23 08:51	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1994510	100	01/25/23 12:58	01/25/23 16:54	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1994510	1000	01/25/23 12:58	01/25/23 16:51	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1994510	5	01/25/23 12:58	01/25/23 16:06	JPD	Mt. Juliet, TN

SO-2494-UP1-30-012323 L1578898-03 Solid

Collected by: James Roman
Collected date/time: 01/23/23 12:30
Received date/time: 01/25/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1994519	1	01/25/23 11:51	01/25/23 12:07	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1994504	1	01/25/23 11:31	01/26/23 08:54	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1994510	100	01/25/23 12:58	01/25/23 17:01	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1994510	1000	01/25/23 12:58	01/25/23 16:58	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1994510	5	01/25/23 12:58	01/25/23 16:09	JPD	Mt. Juliet, TN

SO-2494-UP1-04-012023 L1578898-04 Solid

Collected by: James Roman
Collected date/time: 01/20/23 14:25
Received date/time: 01/25/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1994519	1	01/25/23 11:51	01/25/23 12:07	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1994504	1	01/25/23 11:31	01/26/23 09:01	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1994510	100	01/25/23 12:58	01/25/23 17:08	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1994510	1000	01/25/23 12:58	01/25/23 17:04	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1994510	5	01/25/23 12:58	01/25/23 16:13	JPD	Mt. Juliet, TN

SO-2494-UP1-39-012023 L1578898-05 Solid

Collected by: James Roman
Collected date/time: 01/20/23 14:15
Received date/time: 01/25/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1994519	1	01/25/23 11:51	01/25/23 12:07	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1994504	1	01/25/23 11:31	01/26/23 09:04	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1994510	200	01/25/23 12:58	01/25/23 17:11	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1994510	5	01/25/23 12:58	01/25/23 16:23	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.8		1	01/25/2023 12:07	WG1994519

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.843		0.0190	0.0422	1	01/26/2023 08:49	WG1994504

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	94000		1460	10500	1000	01/25/2023 16:44	WG1994510
Arsenic	4.67	O1	0.105	1.05	5	01/25/2023 15:50	WG1994510
Barium	150		3.21	52.7	100	01/25/2023 16:48	WG1994510
Chromium	94.7		0.312	5.27	5	01/25/2023 15:50	WG1994510
Copper	1350		2.80	105	100	01/25/2023 16:48	WG1994510

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.3		1	01/25/2023 12:07	WG1994519

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0429		0.0191	0.0424	1	01/26/2023 08:51	WG1994504

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	111000		1460	10600	1000	01/25/2023 16:51	WG1994510
Arsenic	5.95		0.106	1.06	5	01/25/2023 16:06	WG1994510
Barium	48.1		0.161	2.65	5	01/25/2023 16:06	WG1994510
Chromium	77.3		0.314	5.30	5	01/25/2023 16:06	WG1994510
Copper	1120		2.81	106	100	01/25/2023 16:54	WG1994510

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.9		1	01/25/2023 12:07	WG1994519

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.887		0.0192	0.0426	1	01/26/2023 08:54	WG1994504

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	107000		1470	10700	1000	01/25/2023 16:58	WG1994510
Arsenic	4.52		0.107	1.07	5	01/25/2023 16:09	WG1994510
Barium	72.7		0.162	2.66	5	01/25/2023 16:09	WG1994510
Chromium	104		0.315	5.33	5	01/25/2023 16:09	WG1994510
Copper	696		2.82	107	100	01/25/2023 17:01	WG1994510

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.5		1	01/25/2023 12:07	WG1994519

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.640		0.0203	0.0452	1	01/26/2023 09:01	WG1994504

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	173000		1560	11300	1000	01/25/2023 17:04	WG1994510
Arsenic	3.28		0.113	1.13	5	01/25/2023 16:13	WG1994510
Barium	96.1		0.172	2.83	5	01/25/2023 16:13	WG1994510
Chromium	213		0.335	5.65	5	01/25/2023 16:13	WG1994510
Copper	1580		3.00	113	100	01/25/2023 17:08	WG1994510

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.6		1	01/25/2023 12:07	WG1994519

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.158		0.0181	0.0402	1	01/26/2023 09:04	WG1994504

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	21400		277	2010	200	01/25/2023 17:11	WG1994510
Arsenic	11.7		0.100	1.00	5	01/25/2023 16:23	WG1994510
Barium	111		6.11	100	200	01/25/2023 17:11	WG1994510
Chromium	21.0		0.297	5.02	5	01/25/2023 16:23	WG1994510
Copper	619		5.32	201	200	01/25/2023 17:11	WG1994510

Method Blank (MB)

(MB) R3884531-1 01/25/23 12:07

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00200			

L1578898-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1578898-02 01/25/23 12:07 • (DUP) R3884531-3 01/25/23 12:07

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	94.3	94.4	1	0.180		10

Laboratory Control Sample (LCS)

(LCS) R3884531-2 01/25/23 12:07

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

Method Blank (MB)

(MB) R3884556-1 01/26/23 08:31

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3884556-2 01/26/23 08:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.470	94.0	80.0-120	

L1578888-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1578888-01 01/26/23 08:36 • (MS) R3884556-3 01/26/23 08:39 • (MSD) R3884556-4 01/26/23 08:41

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	0.598	1.03	1.07	87.1	93.7	1	75.0-125			3.12	20

Method Blank (MB)

(MB) R3884390-1 01/25/23 15:43

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3884390-2 01/25/23 15:46

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	980	98.0	80.0-120	
Arsenic	100	96.5	96.5	80.0-120	
Barium	100	100	100	80.0-120	
Chromium	100	96.1	96.1	80.0-120	
Copper	100	94.0	94.0	80.0-120	

L1578898-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1578898-01 01/25/23 15:50 • (MS) R3884390-5 01/25/23 16:00 • (MSD) R3884390-6 01/25/23 16:03

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1050	116000	95900	103000	0.000	0.000	5	75.0-125	E V	E V	7.05	20
Arsenic	105	4.67	93.7	96.4	84.3	87.0	5	75.0-125			2.90	20
Barium	105	152	236	246	79.8	89.3	5	75.0-125	E	E	4.16	20
Chromium	105	94.7	186	180	86.1	80.5	5	75.0-125			3.28	20
Copper	105	1350	1330	1340	0.000	0.000	5	75.0-125	E V	E V	0.781	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
James Roman

Site/Facility ID #
DROSS STOCKPILE

P.O. #

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

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres										Remarks	Sample # (lab only)
SO-2494-UP1-19-012323	G	SS	0.5'	1-23-2023	1300	1	X											-01
SO-2494-UP1-37-012323	"	SS	"	"	1240	1	X											-02
SO-2494-UP1-39-012323	"	SS	"	"	1230	1	X											-03
SO-2494-UP1-04-012023	"	SS	"	1-20-2023	1425	1	X											-04
SO-2494-UP1-39-012023	"	SS	"	"	1415	1	X											-05
		SS																
		SS																
		SS																
		SS																
		SS																

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1578898
B043

Tab

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P972605**
PM: **134 - Mark W. Beasley**
PB: 1/24/23

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: SW 7470 for Hg
SW 6020 for Al,As,Ba,Cr,Cu
Seal# 12603
Seal# 12604
pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6295 1084 0690

Sample Receipt Checklist
COC Seal Present/Intact: __NP (Y) N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: (Y) N
RAD Screen <0.5 mR/hr: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR	
Roman	1-24-2023	1600			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 6.5+2°C 2.7+0=2.7	Bottles Received: 5
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 1-25-23	Time: 9:00

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

ANALYTICAL REPORT

January 30, 2023

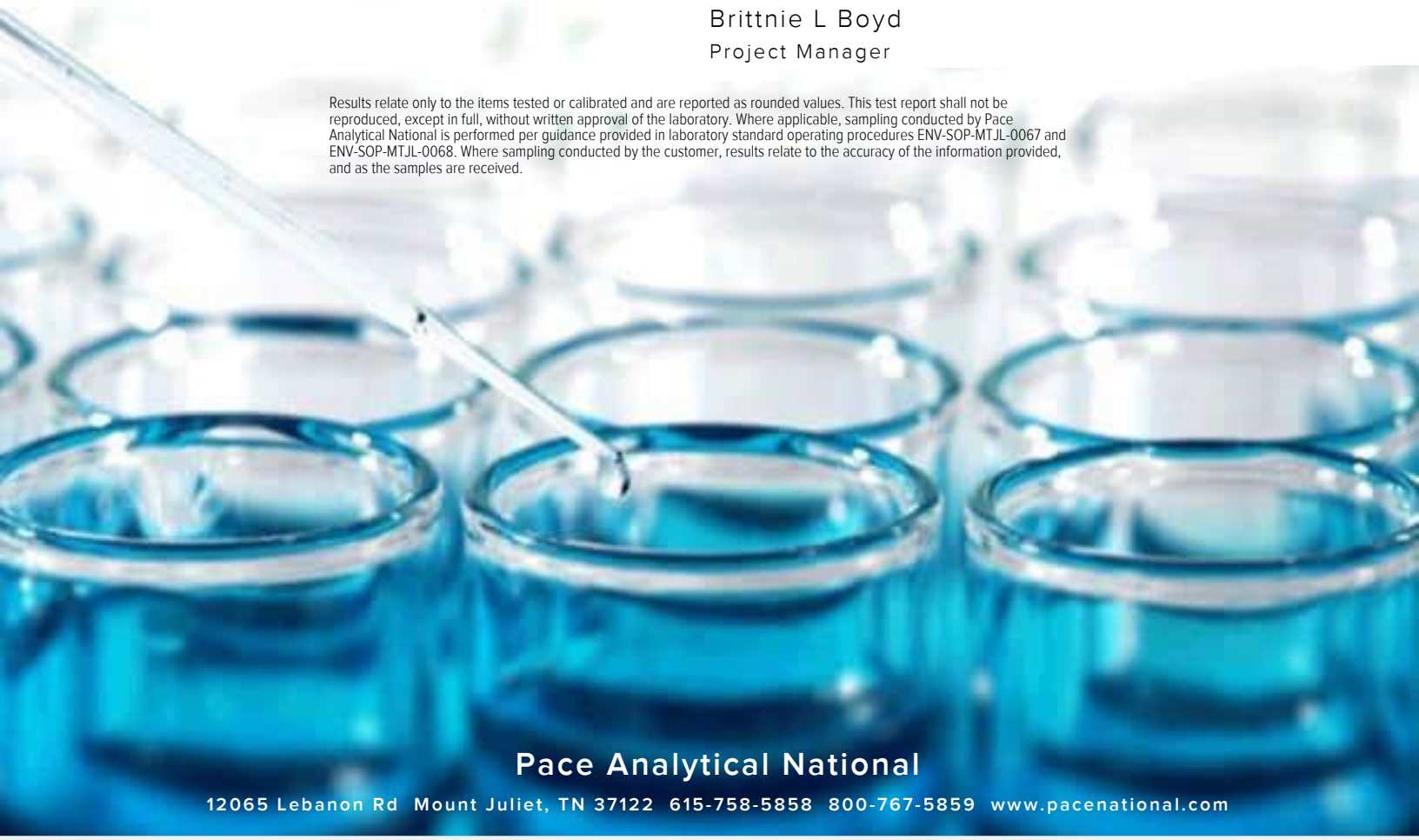
UPRR - Golder Associates

Sample Delivery Group:	L1579818
Samples Received:	01/27/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-P1-01-012423 L1579818-01 Solid

Collected by: James Roman | Collected date/time: 01/24/23 15:10 | Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1995962	1	01/27/23 17:08	01/27/23 17:27	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1996287	1	01/28/23 08:09	01/29/23 17:13	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	100	01/27/23 14:07	01/29/23 19:42	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	5	01/27/23 14:07	01/29/23 18:47	LD	Mt. Juliet, TN

SO-2494-P1-27-012423 L1579818-02 Solid

Collected by: James Roman | Collected date/time: 01/24/23 14:55 | Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1995962	1	01/27/23 17:08	01/27/23 17:27	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1996287	1	01/28/23 08:09	01/29/23 17:16	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	100	01/27/23 14:07	01/29/23 19:45	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	5	01/27/23 14:07	01/29/23 18:50	LD	Mt. Juliet, TN

SO-2494-P1-45-012423 L1579818-03 Solid

Collected by: James Roman | Collected date/time: 01/24/23 15:20 | Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1995963	1	01/27/23 16:47	01/27/23 17:04	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1996287	1	01/28/23 08:09	01/29/23 17:19	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	100	01/27/23 14:07	01/29/23 19:48	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	5	01/27/23 14:07	01/29/23 18:53	LD	Mt. Juliet, TN

SO-2494-W1-4.0-01B-012423 L1579818-04 Solid

Collected by: James Roman | Collected date/time: 01/24/23 13:30 | Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1995963	1	01/27/23 16:47	01/27/23 17:04	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1996287	1	01/28/23 08:09	01/29/23 17:21	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	5	01/27/23 14:07	01/29/23 19:06	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	50	01/27/23 14:07	01/29/23 19:52	LD	Mt. Juliet, TN

SO-2494-W1-4.0-02W-012423 L1579818-05 Solid

Collected by: James Roman | Collected date/time: 01/24/23 13:35 | Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1995963	1	01/27/23 16:47	01/27/23 17:04	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1996287	1	01/28/23 08:09	01/29/23 17:29	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	5	01/27/23 14:07	01/29/23 19:09	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	50	01/27/23 14:07	01/29/23 19:55	LD	Mt. Juliet, TN

SO-2494-W1-4.0-03B-012423 L1579818-06 Solid

Collected by: James Roman | Collected date/time: 01/24/23 13:55 | Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1995963	1	01/27/23 16:47	01/27/23 17:04	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1996287	1	01/28/23 08:09	01/29/23 17:31	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	5	01/27/23 14:07	01/29/23 19:12	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	50	01/27/23 14:07	01/29/23 19:58	LD	Mt. Juliet, TN

SAMPLE SUMMARY

SO-2494-W1-4.0-04W-012423 L1579818-07 Solid

Collected by: James Roman
Collected date/time: 01/24/23 14:00
Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1995963	1	01/27/23 16:47	01/27/23 17:04	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1996287	1	01/28/23 08:09	01/29/23 17:33	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	5	01/27/23 14:07	01/29/23 19:15	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	50	01/27/23 14:07	01/29/23 20:02	LD	Mt. Juliet, TN

SO-2494-W1-23-012423 L1579818-08 Solid

Collected by: James Roman
Collected date/time: 01/24/23 13:45
Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1995963	1	01/27/23 16:47	01/27/23 17:04	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1996287	1	01/28/23 08:09	01/29/23 17:36	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	5	01/27/23 14:07	01/29/23 19:19	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	50	01/27/23 14:07	01/29/23 20:05	LD	Mt. Juliet, TN

SO-2494-W1-46-012423 L1579818-09 Solid

Collected by: James Roman
Collected date/time: 01/24/23 13:40
Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1995963	1	01/27/23 16:47	01/27/23 17:04	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1996287	1	01/28/23 08:09	01/29/23 17:39	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	5	01/27/23 14:07	01/29/23 18:30	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1996044	50	01/27/23 14:07	01/29/23 20:08	LD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.4		1	01/27/2023 17:27	WG1995962

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.107		0.0191	0.0424	1	01/29/2023 17:13	WG1996287

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11100		146	1060	100	01/29/2023 19:42	WG1996044
Arsenic	5.90		0.106	1.06	5	01/29/2023 18:47	WG1996044
Barium	109		3.22	53.0	100	01/29/2023 19:42	WG1996044
Chromium	9.49		0.314	5.30	5	01/29/2023 18:47	WG1996044
Copper	28.0		0.140	5.30	5	01/29/2023 18:47	WG1996044

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.6		1	01/27/2023 17:27	WG1995962

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0299	J	0.0190	0.0423	1	01/29/2023 17:16	WG1996287

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	13800		146	1060	100	01/29/2023 19:45	WG1996044
Arsenic	6.67		0.106	1.06	5	01/29/2023 18:50	WG1996044
Barium	207		3.21	52.8	100	01/29/2023 19:45	WG1996044
Chromium	11.7		0.313	5.28	5	01/29/2023 18:50	WG1996044
Copper	29.4		0.139	5.28	5	01/29/2023 18:50	WG1996044

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.2		1	01/27/2023 17:04	WG1995963

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0200	0.0444	1	01/29/2023 17:19	WG1996287

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	15500		153	1110	100	01/29/2023 19:48	WG1996044
Arsenic	6.43		0.111	1.11	5	01/29/2023 18:53	WG1996044
Barium	208		3.37	55.5	100	01/29/2023 19:48	WG1996044
Chromium	8.95		0.328	5.55	5	01/29/2023 18:53	WG1996044
Copper	18.9		0.146	5.55	5	01/29/2023 18:53	WG1996044

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.5		1	01/27/2023 17:04	WG1995963

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	01/29/2023 17:21	WG1996287

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	6330		69.4	503	50	01/29/2023 19:52	WG1996044
Arsenic	12.2		0.101	1.01	5	01/29/2023 19:06	WG1996044
Barium	59.5		0.153	2.51	5	01/29/2023 19:06	WG1996044
Chromium	6.83		0.298	5.03	5	01/29/2023 19:06	WG1996044
Copper	24.5		0.133	5.03	5	01/29/2023 19:06	WG1996044

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.6		1	01/27/2023 17:04	WG1995963

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0401	1	01/29/2023 17:29	WG1996287

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	6040		69.3	502	50	01/29/2023 19:55	WG1996044
Arsenic	8.66		0.100	1.00	5	01/29/2023 19:09	WG1996044
Barium	54.3		0.153	2.51	5	01/29/2023 19:09	WG1996044
Chromium	5.75		0.297	5.02	5	01/29/2023 19:09	WG1996044
Copper	27.3		0.132	5.02	5	01/29/2023 19:09	WG1996044

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.8		1	01/27/2023 17:04	WG1995963

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0180	0.0401	1	01/29/2023 17:31	WG1996287

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5270		69.1	501	50	01/29/2023 19:58	WG1996044
Arsenic	10.1		0.100	1.00	5	01/29/2023 19:12	WG1996044
Barium	66.9		0.152	2.50	5	01/29/2023 19:12	WG1996044
Chromium	6.12		0.297	5.01	5	01/29/2023 19:12	WG1996044
Copper	20.0		0.132	5.01	5	01/29/2023 19:12	WG1996044

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.6		1	01/27/2023 17:04	WG1995963

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	01/29/2023 17:33	WG1996287

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	4420		69.3	502	50	01/29/2023 20:02	WG1996044
Arsenic	7.67		0.100	1.00	5	01/29/2023 19:15	WG1996044
Barium	46.4		0.153	2.51	5	01/29/2023 19:15	WG1996044
Chromium	5.04		0.297	5.02	5	01/29/2023 19:15	WG1996044
Copper	17.9		0.133	5.02	5	01/29/2023 19:15	WG1996044

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.2		1	01/27/2023 17:04	WG1995963

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0403	1	01/29/2023 17:36	WG1996287

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8720		69.6	504	50	01/29/2023 20:05	WG1996044
Arsenic	16.9		0.101	1.01	5	01/29/2023 19:19	WG1996044
Barium	53.7		0.153	2.52	5	01/29/2023 19:19	WG1996044
Chromium	7.14		0.298	5.04	5	01/29/2023 19:19	WG1996044
Copper	53.7		0.133	5.04	5	01/29/2023 19:19	WG1996044

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.7		1	01/27/2023 17:04	WG1995963

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0184	0.0409	1	01/29/2023 17:39	WG1996287

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8200		70.6	512	50	01/29/2023 20:08	WG1996044
Arsenic	8.81	O1	0.102	1.02	5	01/29/2023 18:30	WG1996044
Barium	66.4	J6 O1	0.156	2.56	5	01/29/2023 18:30	WG1996044
Chromium	7.68	O1	0.303	5.12	5	01/29/2023 18:30	WG1996044
Copper	18.8	O1	0.135	5.12	5	01/29/2023 18:30	WG1996044

Method Blank (MB)

(MB) R3885333-1 01/27/23 17:27

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1579782-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1579782-05 01/27/23 17:27 • (DUP) R3885333-3 01/27/23 17:27

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	90.1	90.7	1	0.681		10

Laboratory Control Sample (LCS)

(LCS) R3885333-2 01/27/23 17:27

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

Method Blank (MB)

(MB) R3885331-1 01/27/23 17:04

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1579839-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1579839-03 01/27/23 17:04 • (DUP) R3885331-3 01/27/23 17:04

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	84.6	85.1	1	0.637		10

Laboratory Control Sample (LCS)

(LCS) R3885331-2 01/27/23 17:04

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

QUALITY CONTROL SUMMARY

L1579818-01,02,03,04,05,06,07,08,09

Method Blank (MB)

(MB) R3885484-1 01/29/23 17:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3885484-2 01/29/23 17:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.564	113	80.0-120	

L1579802-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1579802-01 01/29/23 17:06 • (MS) R3885484-3 01/29/23 17:08 • (MSD) R3885484-4 01/29/23 17:11

Analyte	Spike Amount (dry) mg/kg	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.525	U	0.496	0.537	94.4	102	1	75.0-125			7.96	20

QUALITY CONTROL SUMMARY

L1579818-01,02,03,04,05,06,07,08,09

Method Blank (MB)

(MB) R3885478-1 01/29/23 18:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3885478-2 01/29/23 18:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	918	91.8	80.0-120	
Arsenic	100	97.6	97.6	80.0-120	
Barium	100	93.6	93.6	80.0-120	
Chromium	100	95.9	95.9	80.0-120	
Copper	100	92.2	92.2	80.0-120	

L1579818-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1579818-09 01/29/23 18:30 • (MS) R3885478-5 01/29/23 18:40 • (MSD) R3885478-6 01/29/23 18:44

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1020	6930	7740	5550	79.0	0.000	5	75.0-125		J3 V	32.9	20
Arsenic	102	8.81	94.7	90.3	83.9	79.6	5	75.0-125			4.76	20
Barium	102	66.4	155	141	86.8	72.6	5	75.0-125	E	E J6	9.82	20
Chromium	102	7.68	92.7	87.6	83.1	78.1	5	75.0-125			5.67	20
Copper	102	18.8	105	98.6	83.7	78.0	5	75.0-125			5.79	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to: **Ted Norton**

Email To: tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description: **Trentwood WA-Aluminum Dross II**

City/State Collected:

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project # **2494**

Lab Project # **UPRRGOLD-2494**

Collected by (print): James Roman

Site/Facility ID # **DROSS STOCKPILE**

P.O. #

Collected by (signature): J Roman

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed 1/30/2023

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres										Remarks	Sample # (lab only)
SO-2494-P1-01-012423	G	SS	1 ft	1-24-2023	~~1455~~ 1510	1	X											-01
SO-2494-P1-02-012423	"	"	"	"	1455 ~~1500~~	1	X											-02
SO-2494-P1-03-012423	"	"	"	"	1520	1	X											-03
SO-2494-W1-4.0-01B-012423	"	"	4 ft	"	1330	1	X											-04
SO-2494-W1-4.0-02W-012423	"	"	"	"	1335	1	X											-05
SO-2494-W1-4.0-03B-012423	"	"	"	"	1355	1	X											-06
SO-2494-W1-4.0-04W-012423	"	"	"	"	1400	1	X											-07
SO-2494-W1-23-012423	"	"	2 ft	"	1345	1	X											-08
SO-2494-W1-46-012423	"	"	2 ft	"	1340	1	X											-09

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L979818
F076

Acctnum: UPRRGOLD
Template: T222123
Prelogin: P972605
PM: 134 - Mark W. Beasley
PB: 1/24/23
Shipped Via: FedEX Ground

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu by 6020 Hg by 7470 RESULTS NEEDED BY 1/30/2023 SN 12605 SN 12606

pH _____ Temp _____ Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking # 6094 5462 7214

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: ✓Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCl / MeoH TBR	
C Roman	1-26-2023	1615		1	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: NSAD °C Bottles Received: 2-4 +0=2-4 9	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 1-27-23 Time: 0845	Hold: Condition: NCF / OK
			Matt Lyon		

ANALYTICAL REPORT

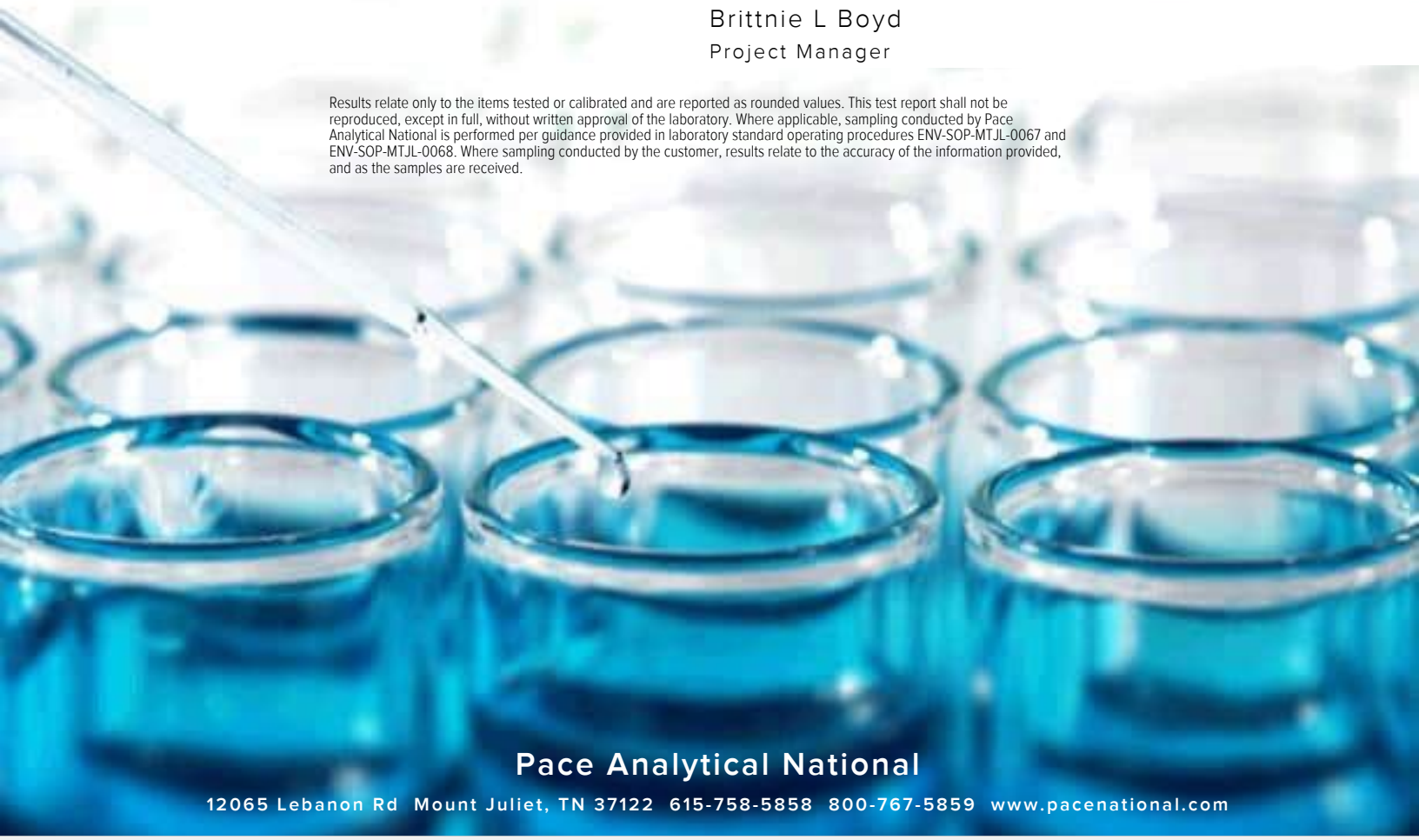
February 08, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1580169
Samples Received:	01/27/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	IMPORTED BACKFILL SOIL AND GRA
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

PBCG-2494-01-012623 L1580169-01 Solid

Collected by: JR/ZS | Collected date/time: 01/26/23 09:15 | Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1997557	1	01/31/23 15:34	01/31/23 15:41	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1997759	1	01/31/23 17:40	02/01/23 09:08	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1997864	1	02/01/23 08:43	02/01/23 19:12	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1996615	39	01/26/23 09:15	01/30/23 21:10	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1997636	1	01/31/23 19:52	02/01/23 01:45	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1997820	1	02/01/23 15:45	02/02/23 15:16	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1997639	1	01/31/23 19:31	02/01/23 05:07	AGW	Mt. Juliet, TN

PBCG-2494-02-012623 L1580169-02 Solid

Collected by: JR/ZS | Collected date/time: 01/26/23 09:25 | Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1997557	1	01/31/23 15:34	01/31/23 15:41	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1997759	1	01/31/23 17:40	02/01/23 09:11	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1997864	1	02/01/23 08:43	02/01/23 19:14	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1996615	37.8	01/26/23 09:25	01/30/23 21:31	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1997636	1	01/31/23 19:52	02/01/23 00:17	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1997820	1	02/01/23 15:45	02/02/23 15:36	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1997639	1	01/31/23 19:31	02/01/23 04:47	AGW	Mt. Juliet, TN

PBCG-2494-03-012623 L1580169-03 Solid

Collected by: JR/ZS | Collected date/time: 01/26/23 09:35 | Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1997557	1	01/31/23 15:34	01/31/23 15:41	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1997759	1	01/31/23 17:40	02/01/23 09:13	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1998079	1	02/01/23 12:03	02/02/23 00:33	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1999380	1	02/03/23 12:33	02/03/23 22:42	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1996615	27.5	01/26/23 09:35	01/30/23 21:51	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1997636	1	01/31/23 19:52	01/31/23 23:52	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1997820	1	02/01/23 15:45	02/02/23 15:56	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1997639	1	01/31/23 19:31	02/01/23 04:27	AGW	Mt. Juliet, TN

TS-2494-01-012623 L1580169-04 Solid

Collected by: JR/ZS | Collected date/time: 01/26/23 12:35 | Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1996709	1	01/30/23 14:50	01/30/23 14:55	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1996590	1	01/29/23 22:42	01/30/23 12:37	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1998079	1	02/01/23 12:03	02/02/23 00:36	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1999380	1	02/03/23 12:33	02/03/23 22:44	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1996615	25	01/26/23 12:35	01/31/23 00:08	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1996678	10	01/30/23 18:41	01/31/23 11:00	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1997219	1	01/31/23 09:56	02/01/23 02:24	AMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1997286	1	02/01/23 09:09	02/02/23 02:17	AMG	Mt. Juliet, TN

TS-2494-02-012623 L1580169-05 Solid

Collected by: JR/ZS | Collected date/time: 01/26/23 12:40 | Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1996709	1	01/30/23 14:50	01/30/23 14:55	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1996590	1	01/29/23 22:42	01/30/23 12:01	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1998079	1	02/01/23 12:03	02/02/23 00:39	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1999380	1	02/03/23 12:33	02/03/23 22:47	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1996615	25	01/26/23 12:40	01/31/23 00:29	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1996678	1	01/30/23 18:41	01/31/23 11:13	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1997219	1	01/31/23 09:56	02/01/23 01:21	AMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1997286	1	02/01/23 09:09	02/02/23 01:06	AMG	Mt. Juliet, TN

TS-2494-03-012623 L1580169-06 Solid

Collected by: JR/ZS | Collected date/time: 01/26/23 12:50 | Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1996709	1	01/30/23 14:50	01/30/23 14:55	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1996590	1	01/29/23 22:42	01/30/23 12:39	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1998079	1	02/01/23 12:03	02/02/23 00:46	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1999380	1	02/03/23 12:33	02/03/23 22:50	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1996615	25	01/26/23 12:50	01/31/23 00:49	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1996678	1	01/30/23 18:41	01/31/23 11:13	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1997219	1	01/31/23 09:56	02/01/23 01:42	AMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1997286	1	02/01/23 09:09	02/02/23 01:24	AMG	Mt. Juliet, TN

TS-2494-04-012623 L1580169-07 Solid

Collected by: JR/ZS | Collected date/time: 01/26/23 12:55 | Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1996709	1	01/30/23 14:50	01/30/23 14:55	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1996590	1	01/29/23 22:42	01/30/23 12:42	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1998079	1	02/01/23 12:03	02/02/23 00:49	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1999380	1	02/03/23 12:33	02/03/23 22:52	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1996615	30.8	01/26/23 12:55	01/31/23 01:10	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1996678	2	01/30/23 18:41	01/31/23 11:26	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1997219	1	01/31/23 09:56	02/01/23 02:03	AMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1997286	1	02/01/23 09:09	02/02/23 01:42	AMG	Mt. Juliet, TN

TS-2494-05-012623 L1580169-08 Solid

Collected by: JR/ZS | Collected date/time: 01/26/23 13:00 | Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1996709	1	01/30/23 14:50	01/30/23 14:55	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1996590	1	01/29/23 22:42	01/30/23 12:44	LAS	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1998079	1	02/01/23 12:03	02/02/23 00:52	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1999380	1	02/03/23 12:33	02/03/23 22:55	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1996615	25	01/26/23 13:00	01/31/23 01:30	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1996678	1	01/30/23 18:41	01/31/23 11:40	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1997219	1	01/31/23 09:56	02/01/23 00:39	AMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1997286	1	02/01/23 09:09	02/02/23 01:59	AMG	Mt. Juliet, TN

SAMPLE SUMMARY

TB-2494-2-012623 L1580169-09 GW

Collected by: JR/ZS
Collected date/time: 01/26/23 12:00
Received date/time: 01/27/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1997815	1	02/01/23 01:46	02/01/23 01:46	DWR	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.1		1	01/31/2023 15:41	WG1997557

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0185	0.0412	1	02/01/2023 09:08	WG1997759

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5550		6.26	10.3	1	02/01/2023 19:12	WG1997864
Arsenic	0.560	J	0.533	2.06	1	02/01/2023 19:12	WG1997864
Barium	67.5		0.0877	0.515	1	02/01/2023 19:12	WG1997864
Cadmium	U		0.0485	0.515	1	02/01/2023 19:12	WG1997864
Chromium	3.18		0.137	1.03	1	02/01/2023 19:12	WG1997864
Copper	18.2		0.412	2.06	1	02/01/2023 19:12	WG1997864
Lead	0.949		0.214	0.515	1	02/01/2023 19:12	WG1997864
Selenium	U		0.787	2.06	1	02/01/2023 19:12	WG1997864
Silver	U		0.131	1.03	1	02/01/2023 19:12	WG1997864

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.38	4.09	39	01/30/2023 21:10	WG1996615
(S) a,a,a-Trifluorotoluene(FID)	*88.9*			*77.0-120*		*01/30/2023 21:10*	WG1996615

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	8.53		1.37	4.12	1	02/01/2023 01:45	WG1997636
Residual Range Organics (RRO)	32.5		3.43	10.3	1	02/01/2023 01:45	WG1997636
(S) o-Terphenyl	*69.9*			*18.0-148*		*02/01/2023 01:45*	WG1997636

Sample Narrative:

L1580169-01 WG1997636: Sample resembles laboratory standard for Hydraulic Oil.

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00555	0.0343	1	02/02/2023 15:16	WG1997820
Acenaphthylene	U		0.00483	0.0343	1	02/02/2023 15:16	WG1997820
Anthracene	U		0.00611	0.0343	1	02/02/2023 15:16	WG1997820
Benzo(a)anthracene	U		0.00604	0.0343	1	02/02/2023 15:16	WG1997820
Benzo(b)fluoranthene	U		0.00639	0.0343	1	02/02/2023 15:16	WG1997820
Benzo(k)fluoranthene	U		0.00610	0.0343	1	02/02/2023 15:16	WG1997820
Benzo(g,h,i)perylene	U		0.00627	0.0343	1	02/02/2023 15:16	WG1997820
Benzo(a)pyrene	U		0.00637	0.0343	1	02/02/2023 15:16	WG1997820
Benzoic acid	U		0.121	1.72	1	02/02/2023 15:16	WG1997820
Benzyl alcohol	U		0.0127	0.343	1	02/02/2023 15:16	WG1997820
Bis(2-chlorethoxy)methane	U		0.0103	0.343	1	02/02/2023 15:16	WG1997820
Bis(2-chloroethyl)ether	U		0.0113	0.343	1	02/02/2023 15:16	WG1997820
2,2-Oxybis(1-Chloropropane)	U		0.0148	0.343	1	02/02/2023 15:16	WG1997820

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Bromophenyl-phenylether	U		0.0120	0.343	1	02/02/2023 15:16	WG1997820
Carbazole	U		0.0106	0.343	1	02/02/2023 15:16	WG1997820
2-Chloronaphthalene	U		0.00602	0.0343	1	02/02/2023 15:16	WG1997820
4-Chloroaniline	U		0.0124	0.343	1	02/02/2023 15:16	WG1997820
4-Chlorophenyl-phenylether	U		0.0119	0.343	1	02/02/2023 15:16	WG1997820
Chrysene	U		0.00682	0.0343	1	02/02/2023 15:16	WG1997820
Dibenz(a,h)anthracene	U		0.00950	0.0343	1	02/02/2023 15:16	WG1997820
Dibenzofuran	U		0.0112	0.343	1	02/02/2023 15:16	WG1997820
3,3-Dichlorobenzidine	U		0.0127	0.343	1	02/02/2023 15:16	WG1997820
2,4-Dinitrotoluene	U		0.00983	0.343	1	02/02/2023 15:16	WG1997820
2,6-Dinitrotoluene	U		0.0112	0.343	1	02/02/2023 15:16	WG1997820
Fluoranthene	U		0.00619	0.0343	1	02/02/2023 15:16	WG1997820
Fluorene	U		0.00558	0.0343	1	02/02/2023 15:16	WG1997820
Hexachlorobenzene	U		0.0121	0.343	1	02/02/2023 15:16	WG1997820
Hexachloro-1,3-butadiene	U		0.0115	0.343	1	02/02/2023 15:16	WG1997820
Hexachlorocyclopentadiene	U		0.0180	0.343	1	02/02/2023 15:16	WG1997820
Hexachloroethane	U		0.0135	0.343	1	02/02/2023 15:16	WG1997820
Indeno(1,2,3-cd)pyrene	U		0.00969	0.0343	1	02/02/2023 15:16	WG1997820
Isophorone	U		0.0105	0.343	1	02/02/2023 15:16	WG1997820
2-Methylnaphthalene	U		0.00445	0.0343	1	02/02/2023 15:16	WG1997820
Naphthalene	U		0.00861	0.0343	1	02/02/2023 15:16	WG1997820
2-Nitroaniline	U		0.0110	0.343	1	02/02/2023 15:16	WG1997820
3-Nitroaniline	U		0.0109	0.343	1	02/02/2023 15:16	WG1997820
4-Nitroaniline	U		0.0100	0.343	1	02/02/2023 15:16	WG1997820
Nitrobenzene	U		0.0119	0.343	1	02/02/2023 15:16	WG1997820
n-Nitrosodimethylamine	U		0.0509	0.343	1	02/02/2023 15:16	WG1997820
n-Nitrosodiphenylamine	U		0.0259	0.343	1	02/02/2023 15:16	WG1997820
n-Nitrosodi-n-propylamine	U		0.0114	0.343	1	02/02/2023 15:16	WG1997820
Phenanthrene	U		0.00681	0.0343	1	02/02/2023 15:16	WG1997820
Benzylbutyl phthalate	U		0.0107	0.343	1	02/02/2023 15:16	WG1997820
Bis(2-ethylhexyl)phthalate	U		0.0434	0.343	1	02/02/2023 15:16	WG1997820
Di-n-butyl phthalate	U		0.0117	0.343	1	02/02/2023 15:16	WG1997820
Diethyl phthalate	U		0.0113	0.343	1	02/02/2023 15:16	WG1997820
Dimethyl phthalate	U		0.0727	0.343	1	02/02/2023 15:16	WG1997820
Di-n-octyl phthalate	U		0.0232	0.343	1	02/02/2023 15:16	WG1997820
Pyrene	U		0.00667	0.0343	1	02/02/2023 15:16	WG1997820
Pyridine	U		0.0227	0.343	1	02/02/2023 15:16	WG1997820
1,2,4-Trichlorobenzene	U		0.0107	0.343	1	02/02/2023 15:16	WG1997820
4-Chloro-3-methylphenol	U		0.0111	0.343	1	02/02/2023 15:16	WG1997820
2-Chlorophenol	U		0.0113	0.343	1	02/02/2023 15:16	WG1997820
2,4-Dichlorophenol	U		0.00999	0.343	1	02/02/2023 15:16	WG1997820
2,4-Dimethylphenol	U		0.00896	0.343	1	02/02/2023 15:16	WG1997820
4,6-Dinitro-2-methylphenol	U		0.0777	0.343	1	02/02/2023 15:16	WG1997820
2,4-Dinitrophenol	U		0.0802	0.343	1	02/02/2023 15:16	WG1997820
2-Methylphenol	U		0.0103	0.343	1	02/02/2023 15:16	WG1997820
3&4-Methyl Phenol	U		0.0107	0.343	1	02/02/2023 15:16	WG1997820
2-Nitrophenol	U		0.0123	0.343	1	02/02/2023 15:16	WG1997820
4-Nitrophenol	U		0.0107	0.343	1	02/02/2023 15:16	WG1997820
Pentachlorophenol	U		0.00923	0.343	1	02/02/2023 15:16	WG1997820
Phenol	U		0.0138	0.343	1	02/02/2023 15:16	WG1997820
2,4,5-Trichlorophenol	U		0.0116	0.343	1	02/02/2023 15:16	WG1997820
2,4,6-Trichlorophenol	U		0.0110	0.343	1	02/02/2023 15:16	WG1997820
(S) 2-Fluorophenol	*57.3*			*12.0-120*		*02/02/2023 15:16*	WG1997820
(S) Phenol-d5	*51.9*			*10.0-120*		*02/02/2023 15:16*	WG1997820
(S) Nitrobenzene-d5	*48.0*			*10.0-122*		*02/02/2023 15:16*	WG1997820
(S) 2-Fluorobiphenyl	*55.1*			*15.0-120*		*02/02/2023 15:16*	WG1997820

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) 2,4,6-Tribromophenol	*50.9*			*10.0-127*		*02/02/2023 15:16*	WG1997820
(S) p-Terphenyl-d14	*56.3*			*10.0-120*		*02/02/2023 15:16*	WG1997820

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00237	0.00618	1	02/01/2023 05:07	WG1997639
Acenaphthene	U		0.00215	0.00618	1	02/01/2023 05:07	WG1997639
Acenaphthylene	U		0.00222	0.00618	1	02/01/2023 05:07	WG1997639
Benzo(a)anthracene	U		0.00178	0.00618	1	02/01/2023 05:07	WG1997639
Benzo(a)pyrene	U		0.00184	0.00618	1	02/01/2023 05:07	WG1997639
Benzo(b)fluoranthene	U		0.00158	0.00618	1	02/01/2023 05:07	WG1997639
Benzo(g,h,i)perylene	U		0.00182	0.00618	1	02/01/2023 05:07	WG1997639
Benzo(k)fluoranthene	U		0.00221	0.00618	1	02/01/2023 05:07	WG1997639
Chrysene	U		0.00239	0.00618	1	02/01/2023 05:07	WG1997639
Dibenz(a,h)anthracene	U		0.00177	0.00618	1	02/01/2023 05:07	WG1997639
Fluoranthene	U		0.00234	0.00618	1	02/01/2023 05:07	WG1997639
Fluorene	U		0.00211	0.00618	1	02/01/2023 05:07	WG1997639
Indeno(1,2,3-cd)pyrene	U		0.00186	0.00618	1	02/01/2023 05:07	WG1997639
Naphthalene	U		0.00420	0.0206	1	02/01/2023 05:07	WG1997639
Phenanthrene	U		0.00238	0.00618	1	02/01/2023 05:07	WG1997639
Pyrene	U		0.00206	0.00618	1	02/01/2023 05:07	WG1997639
1-Methylnaphthalene	U		0.00462	0.0206	1	02/01/2023 05:07	WG1997639
2-Methylnaphthalene	U		0.00440	0.0206	1	02/01/2023 05:07	WG1997639
2-Chloronaphthalene	U		0.00480	0.0206	1	02/01/2023 05:07	WG1997639
(S) p-Terphenyl-d14	*93.9*			*23.0-120*		*02/01/2023 05:07*	WG1997639
(S) Nitrobenzene-d5	*66.0*			*14.0-149*		*02/01/2023 05:07*	WG1997639
(S) 2-Fluorobiphenyl	*88.0*			*34.0-125*		*02/01/2023 05:07*	WG1997639

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.7		1	01/31/2023 15:41	WG1997557

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0184	0.0409	1	02/01/2023 09:11	WG1997759

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	2470		6.22	10.2	1	02/01/2023 19:14	WG1997864
Arsenic	U		0.530	2.05	1	02/01/2023 19:14	WG1997864
Barium	94.9		0.0872	0.512	1	02/01/2023 19:14	WG1997864
Cadmium	U		0.0482	0.512	1	02/01/2023 19:14	WG1997864
Chromium	0.596	J	0.136	1.02	1	02/01/2023 19:14	WG1997864
Copper	12.5		0.409	2.05	1	02/01/2023 19:14	WG1997864
Lead	U		0.213	0.512	1	02/01/2023 19:14	WG1997864
Selenium	U		0.782	2.05	1	02/01/2023 19:14	WG1997864
Silver	U		0.130	1.02	1	02/01/2023 19:14	WG1997864

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.33	3.92	37.8	01/30/2023 21:31	WG1996615
(S) a,a,a-Trifluorotoluene(FID)	*93.4*			*77.0-120*		*01/30/2023 21:31*	WG1996615

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.36	4.09	1	02/01/2023 00:17	WG1997636
Residual Range Organics (RRO)	4.78	J	3.41	10.2	1	02/01/2023 00:17	WG1997636
(S) o-Terphenyl	*71.4*			*18.0-148*		*02/01/2023 00:17*	WG1997636

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00551	0.0341	1	02/02/2023 15:36	WG1997820
Acenaphthylene	U		0.00480	0.0341	1	02/02/2023 15:36	WG1997820
Anthracene	U		0.00607	0.0341	1	02/02/2023 15:36	WG1997820
Benzo(a)anthracene	U		0.00601	0.0341	1	02/02/2023 15:36	WG1997820
Benzo(b)fluoranthene	U		0.00635	0.0341	1	02/02/2023 15:36	WG1997820
Benzo(k)fluoranthene	U		0.00606	0.0341	1	02/02/2023 15:36	WG1997820
Benzo(g,h,i)perylene	U		0.00623	0.0341	1	02/02/2023 15:36	WG1997820
Benzo(a)pyrene	U		0.00633	0.0341	1	02/02/2023 15:36	WG1997820
Benzoic acid	U		0.121	1.71	1	02/02/2023 15:36	WG1997820
Benzyl alcohol	U		0.0126	0.341	1	02/02/2023 15:36	WG1997820
Bis(2-chlorethoxy)methane	U		0.0102	0.341	1	02/02/2023 15:36	WG1997820
Bis(2-chloroethyl)ether	U		0.0113	0.341	1	02/02/2023 15:36	WG1997820
2,2-Oxybis(1-Chloropropane)	U		0.0147	0.341	1	02/02/2023 15:36	WG1997820
4-Bromophenyl-phenylether	U		0.0120	0.341	1	02/02/2023 15:36	WG1997820
Carbazole	U		0.0105	0.341	1	02/02/2023 15:36	WG1997820
2-Chloronaphthalene	U		0.00598	0.0341	1	02/02/2023 15:36	WG1997820

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0123	0.341	1	02/02/2023 15:36	WG1997820
4-Chlorophenyl-phenylether	U		0.0119	0.341	1	02/02/2023 15:36	WG1997820
Chrysene	U		0.00677	0.0341	1	02/02/2023 15:36	WG1997820
Dibenz(a,h)anthracene	U		0.00944	0.0341	1	02/02/2023 15:36	WG1997820
Dibenzofuran	U		0.0112	0.341	1	02/02/2023 15:36	WG1997820
3,3-Dichlorobenzidine	U		0.0126	0.341	1	02/02/2023 15:36	WG1997820
2,4-Dinitrotoluene	U		0.00977	0.341	1	02/02/2023 15:36	WG1997820
2,6-Dinitrotoluene	U		0.0112	0.341	1	02/02/2023 15:36	WG1997820
Fluoranthene	U		0.00615	0.0341	1	02/02/2023 15:36	WG1997820
Fluorene	U		0.00555	0.0341	1	02/02/2023 15:36	WG1997820
Hexachlorobenzene	U		0.0121	0.341	1	02/02/2023 15:36	WG1997820
Hexachloro-1,3-butadiene	U		0.0115	0.341	1	02/02/2023 15:36	WG1997820
Hexachlorocyclopentadiene	U		0.0179	0.341	1	02/02/2023 15:36	WG1997820
Hexachloroethane	U		0.0134	0.341	1	02/02/2023 15:36	WG1997820
Indeno(1,2,3-cd)pyrene	U		0.00963	0.0341	1	02/02/2023 15:36	WG1997820
Isophorone	U		0.0104	0.341	1	02/02/2023 15:36	WG1997820
2-Methylnaphthalene	U		0.00442	0.0341	1	02/02/2023 15:36	WG1997820
Naphthalene	U		0.00855	0.0341	1	02/02/2023 15:36	WG1997820
2-Nitroaniline	U		0.0109	0.341	1	02/02/2023 15:36	WG1997820
3-Nitroaniline	U		0.0108	0.341	1	02/02/2023 15:36	WG1997820
4-Nitroaniline	U		0.00993	0.341	1	02/02/2023 15:36	WG1997820
Nitrobenzene	U		0.0119	0.341	1	02/02/2023 15:36	WG1997820
n-Nitrosodimethylamine	U		0.0505	0.341	1	02/02/2023 15:36	WG1997820
n-Nitrosodiphenylamine	U		0.0258	0.341	1	02/02/2023 15:36	WG1997820
n-Nitrosodi-n-propylamine	U		0.0114	0.341	1	02/02/2023 15:36	WG1997820
Phenanthrene	U		0.00676	0.0341	1	02/02/2023 15:36	WG1997820
Benzylbutyl phthalate	U		0.0106	0.341	1	02/02/2023 15:36	WG1997820
Bis(2-ethylhexyl)phthalate	U		0.0432	0.341	1	02/02/2023 15:36	WG1997820
Di-n-butyl phthalate	U		0.0117	0.341	1	02/02/2023 15:36	WG1997820
Diethyl phthalate	U		0.0113	0.341	1	02/02/2023 15:36	WG1997820
Dimethyl phthalate	U		0.0722	0.341	1	02/02/2023 15:36	WG1997820
Di-n-octyl phthalate	U		0.0230	0.341	1	02/02/2023 15:36	WG1997820
Pyrene	U		0.00663	0.0341	1	02/02/2023 15:36	WG1997820
Pyridine	U		0.0225	0.341	1	02/02/2023 15:36	WG1997820
1,2,4-Trichlorobenzene	U		0.0106	0.341	1	02/02/2023 15:36	WG1997820
4-Chloro-3-methylphenol	U		0.0110	0.341	1	02/02/2023 15:36	WG1997820
2-Chlorophenol	U		0.0113	0.341	1	02/02/2023 15:36	WG1997820
2,4-Dichlorophenol	U		0.00992	0.341	1	02/02/2023 15:36	WG1997820
2,4-Dimethylphenol	U		0.00890	0.341	1	02/02/2023 15:36	WG1997820
4,6-Dinitro-2-methylphenol	U		0.0772	0.341	1	02/02/2023 15:36	WG1997820
2,4-Dinitrophenol	U		0.0797	0.341	1	02/02/2023 15:36	WG1997820
2-Methylphenol	U		0.0102	0.341	1	02/02/2023 15:36	WG1997820
3&4-Methyl Phenol	U		0.0106	0.341	1	02/02/2023 15:36	WG1997820
2-Nitrophenol	U		0.0122	0.341	1	02/02/2023 15:36	WG1997820
4-Nitrophenol	U		0.0106	0.341	1	02/02/2023 15:36	WG1997820
Pentachlorophenol	U		0.00917	0.341	1	02/02/2023 15:36	WG1997820
Phenol	U		0.0137	0.341	1	02/02/2023 15:36	WG1997820
2,4,5-Trichlorophenol	U		0.0116	0.341	1	02/02/2023 15:36	WG1997820
2,4,6-Trichlorophenol	U		0.0109	0.341	1	02/02/2023 15:36	WG1997820
(S) 2-Fluorophenol	*68.4*			*12.0-120*		*02/02/2023 15:36*	WG1997820
(S) Phenol-d5	*62.2*			*10.0-120*		*02/02/2023 15:36*	WG1997820
(S) Nitrobenzene-d5	*57.2*			*10.0-122*		*02/02/2023 15:36*	WG1997820
(S) 2-Fluorobiphenyl	*63.1*			*15.0-120*		*02/02/2023 15:36*	WG1997820
(S) 2,4,6-Tribromophenol	*61.9*			*10.0-127*		*02/02/2023 15:36*	WG1997820
(S) p-Terphenyl-d14	*68.1*			*10.0-120*		*02/02/2023 15:36*	WG1997820

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00235	0.00614	1	02/01/2023 04:47	WG1997639
Acenaphthene	U		0.00214	0.00614	1	02/01/2023 04:47	WG1997639
Acenaphthylene	U		0.00221	0.00614	1	02/01/2023 04:47	WG1997639
Benzo(a)anthracene	U		0.00177	0.00614	1	02/01/2023 04:47	WG1997639
Benzo(a)pyrene	U		0.00183	0.00614	1	02/01/2023 04:47	WG1997639
Benzo(b)fluoranthene	U		0.00157	0.00614	1	02/01/2023 04:47	WG1997639
Benzo(g,h,i)perylene	U		0.00181	0.00614	1	02/01/2023 04:47	WG1997639
Benzo(k)fluoranthene	U		0.00220	0.00614	1	02/01/2023 04:47	WG1997639
Chrysene	U		0.00237	0.00614	1	02/01/2023 04:47	WG1997639
Dibenz(a,h)anthracene	U		0.00176	0.00614	1	02/01/2023 04:47	WG1997639
Fluoranthene	U		0.00232	0.00614	1	02/01/2023 04:47	WG1997639
Fluorene	U		0.00210	0.00614	1	02/01/2023 04:47	WG1997639
Indeno(1,2,3-cd)pyrene	U		0.00185	0.00614	1	02/01/2023 04:47	WG1997639
Naphthalene	U		0.00417	0.0205	1	02/01/2023 04:47	WG1997639
Phenanthrene	U		0.00236	0.00614	1	02/01/2023 04:47	WG1997639
Pyrene	U		0.00205	0.00614	1	02/01/2023 04:47	WG1997639
1-Methylnaphthalene	U		0.00459	0.0205	1	02/01/2023 04:47	WG1997639
2-Methylnaphthalene	U		0.00437	0.0205	1	02/01/2023 04:47	WG1997639
2-Chloronaphthalene	U		0.00477	0.0205	1	02/01/2023 04:47	WG1997639
(S) p-Terphenyl-d14	*91.2*			*23.0-120*		*02/01/2023 04:47*	WG1997639
(S) Nitrobenzene-d5	*68.5*			*14.0-149*		*02/01/2023 04:47*	WG1997639
(S) 2-Fluorobiphenyl	*89.2*			*34.0-125*		*02/01/2023 04:47*	WG1997639

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.3		1	01/31/2023 15:41	WG1997557

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0185	0.0411	1	02/01/2023 09:13	WG1997759

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	1020		6.25	10.3	1	02/02/2023 00:33	WG1998079
Arsenic	0.589	J	0.532	2.06	1	02/02/2023 00:33	WG1998079
Barium	14.8		0.0876	0.514	1	02/03/2023 22:42	WG1999380
Cadmium	U		0.0484	0.514	1	02/02/2023 00:33	WG1998079
Chromium	0.475	J	0.137	1.03	1	02/02/2023 00:33	WG1998079
Copper	5.32		0.411	2.06	1	02/02/2023 00:33	WG1998079
Lead	0.769		0.214	0.514	1	02/02/2023 00:33	WG1998079
Selenium	U		0.785	2.06	1	02/02/2023 00:33	WG1998079
Silver	U		0.131	1.03	1	02/02/2023 00:33	WG1998079

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		0.982	2.90	27.5	01/30/2023 21:51	WG1996615
(S) a,a,a-Trifluorotoluene(FID)	*92.4*			*77.0-120*		*01/30/2023 21:51*	WG1996615

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	2.14	J	1.37	4.11	1	01/31/2023 23:52	WG1997636
Residual Range Organics (RRO)	U		3.42	10.3	1	01/31/2023 23:52	WG1997636
(S) o-Terphenyl	*67.6*			*18.0-148*		*01/31/2023 23:52*	WG1997636

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00554	0.0342	1	02/02/2023 15:56	WG1997820
Acenaphthylene	U		0.00482	0.0342	1	02/02/2023 15:56	WG1997820
Anthracene	U		0.00610	0.0342	1	02/02/2023 15:56	WG1997820
Benzo(a)anthracene	U		0.00603	0.0342	1	02/02/2023 15:56	WG1997820
Benzo(b)fluoranthene	U		0.00638	0.0342	1	02/02/2023 15:56	WG1997820
Benzo(k)fluoranthene	U		0.00609	0.0342	1	02/02/2023 15:56	WG1997820
Benzo(g,h,i)perylene	U		0.00626	0.0342	1	02/02/2023 15:56	WG1997820
Benzo(a)pyrene	U		0.00636	0.0342	1	02/02/2023 15:56	WG1997820
Benzoic acid	U		0.121	1.72	1	02/02/2023 15:56	WG1997820
Benzyl alcohol	U		0.0126	0.342	1	02/02/2023 15:56	WG1997820
Bis(2-chlorethoxy)methane	U		0.0103	0.342	1	02/02/2023 15:56	WG1997820
Bis(2-chloroethyl)ether	U		0.0113	0.342	1	02/02/2023 15:56	WG1997820
2,2-Oxybis(1-Chloropropane)	U		0.0148	0.342	1	02/02/2023 15:56	WG1997820
4-Bromophenyl-phenylether	U		0.0120	0.342	1	02/02/2023 15:56	WG1997820
Carbazole	U		0.0106	0.342	1	02/02/2023 15:56	WG1997820
2-Chloronaphthalene	U		0.00601	0.0342	1	02/02/2023 15:56	WG1997820

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0123	0.342	1	02/02/2023 15:56	WG1997820
4-Chlorophenyl-phenylether	U		0.0119	0.342	1	02/02/2023 15:56	WG1997820
Chrysene	U		0.00681	0.0342	1	02/02/2023 15:56	WG1997820
Dibenz(a,h)anthracene	U		0.00949	0.0342	1	02/02/2023 15:56	WG1997820
Dibenzofuran	U		0.0112	0.342	1	02/02/2023 15:56	WG1997820
3,3-Dichlorobenzidine	U		0.0126	0.342	1	02/02/2023 15:56	WG1997820
2,4-Dinitrotoluene	U		0.00982	0.342	1	02/02/2023 15:56	WG1997820
2,6-Dinitrotoluene	U		0.0112	0.342	1	02/02/2023 15:56	WG1997820
Fluoranthene	U		0.00618	0.0342	1	02/02/2023 15:56	WG1997820
Fluorene	U		0.00557	0.0342	1	02/02/2023 15:56	WG1997820
Hexachlorobenzene	U		0.0121	0.342	1	02/02/2023 15:56	WG1997820
Hexachloro-1,3-butadiene	U		0.0115	0.342	1	02/02/2023 15:56	WG1997820
Hexachlorocyclopentadiene	U		0.0180	0.342	1	02/02/2023 15:56	WG1997820
Hexachloroethane	U		0.0135	0.342	1	02/02/2023 15:56	WG1997820
Indeno(1,2,3-cd)pyrene	U		0.00967	0.0342	1	02/02/2023 15:56	WG1997820
Isophorone	U		0.0105	0.342	1	02/02/2023 15:56	WG1997820
2-Methylnaphthalene	U		0.00444	0.0342	1	02/02/2023 15:56	WG1997820
Naphthalene	U		0.00859	0.0342	1	02/02/2023 15:56	WG1997820
2-Nitroaniline	U		0.0110	0.342	1	02/02/2023 15:56	WG1997820
3-Nitroaniline	U		0.0109	0.342	1	02/02/2023 15:56	WG1997820
4-Nitroaniline	U		0.00998	0.342	1	02/02/2023 15:56	WG1997820
Nitrobenzene	U		0.0119	0.342	1	02/02/2023 15:56	WG1997820
n-Nitrosodimethylamine	U		0.0508	0.342	1	02/02/2023 15:56	WG1997820
n-Nitrosodiphenylamine	U		0.0259	0.342	1	02/02/2023 15:56	WG1997820
n-Nitrosodi-n-propylamine	U		0.0114	0.342	1	02/02/2023 15:56	WG1997820
Phenanthrene	U		0.00679	0.0342	1	02/02/2023 15:56	WG1997820
Benzylbutyl phthalate	U		0.0107	0.342	1	02/02/2023 15:56	WG1997820
Bis(2-ethylhexyl)phthalate	U		0.0434	0.342	1	02/02/2023 15:56	WG1997820
Di-n-butyl phthalate	U		0.0117	0.342	1	02/02/2023 15:56	WG1997820
Diethyl phthalate	U		0.0113	0.342	1	02/02/2023 15:56	WG1997820
Dimethyl phthalate	U		0.0726	0.342	1	02/02/2023 15:56	WG1997820
Di-n-octyl phthalate	U		0.0231	0.342	1	02/02/2023 15:56	WG1997820
Pyrene	U		0.00666	0.0342	1	02/02/2023 15:56	WG1997820
Pyridine	U		0.0226	0.342	1	02/02/2023 15:56	WG1997820
1,2,4-Trichlorobenzene	U		0.0107	0.342	1	02/02/2023 15:56	WG1997820
4-Chloro-3-methylphenol	U		0.0111	0.342	1	02/02/2023 15:56	WG1997820
2-Chlorophenol	U		0.0113	0.342	1	02/02/2023 15:56	WG1997820
2,4-Dichlorophenol	U		0.00997	0.342	1	02/02/2023 15:56	WG1997820
2,4-Dimethylphenol	U		0.00894	0.342	1	02/02/2023 15:56	WG1997820
4,6-Dinitro-2-methylphenol	U		0.0776	0.342	1	02/02/2023 15:56	WG1997820
2,4-Dinitrophenol	U		0.0801	0.342	1	02/02/2023 15:56	WG1997820
2-Methylphenol	U		0.0103	0.342	1	02/02/2023 15:56	WG1997820
3&4-Methyl Phenol	U		0.0107	0.342	1	02/02/2023 15:56	WG1997820
2-Nitrophenol	U		0.0122	0.342	1	02/02/2023 15:56	WG1997820
4-Nitrophenol	U		0.0107	0.342	1	02/02/2023 15:56	WG1997820
Pentachlorophenol	U		0.00921	0.342	1	02/02/2023 15:56	WG1997820
Phenol	U		0.0138	0.342	1	02/02/2023 15:56	WG1997820
2,4,5-Trichlorophenol	U		0.0116	0.342	1	02/02/2023 15:56	WG1997820
2,4,6-Trichlorophenol	U		0.0110	0.342	1	02/02/2023 15:56	WG1997820
(S) 2-Fluorophenol	*56.7*			*12.0-120*		*02/02/2023 15:56*	WG1997820
(S) Phenol-d5	*51.6*			*10.0-120*		*02/02/2023 15:56*	WG1997820
(S) Nitrobenzene-d5	*46.0*			*10.0-122*		*02/02/2023 15:56*	WG1997820
(S) 2-Fluorobiphenyl	*50.9*			*15.0-120*		*02/02/2023 15:56*	WG1997820
(S) 2,4,6-Tribromophenol	*47.7*			*10.0-127*		*02/02/2023 15:56*	WG1997820
(S) p-Terphenyl-d14	*55.0*			*10.0-120*		*02/02/2023 15:56*	WG1997820

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00236	0.00617	1	02/01/2023 04:27	WG1997639
Acenaphthene	U		0.00215	0.00617	1	02/01/2023 04:27	WG1997639
Acenaphthylene	U		0.00222	0.00617	1	02/01/2023 04:27	WG1997639
Benzo(a)anthracene	U		0.00178	0.00617	1	02/01/2023 04:27	WG1997639
Benzo(a)pyrene	U		0.00184	0.00617	1	02/01/2023 04:27	WG1997639
Benzo(b)fluoranthene	U		0.00157	0.00617	1	02/01/2023 04:27	WG1997639
Benzo(g,h,i)perylene	U		0.00182	0.00617	1	02/01/2023 04:27	WG1997639
Benzo(k)fluoranthene	U		0.00221	0.00617	1	02/01/2023 04:27	WG1997639
Chrysene	U		0.00238	0.00617	1	02/01/2023 04:27	WG1997639
Dibenz(a,h)anthracene	U		0.00177	0.00617	1	02/01/2023 04:27	WG1997639
Fluoranthene	U		0.00233	0.00617	1	02/01/2023 04:27	WG1997639
Fluorene	U		0.00211	0.00617	1	02/01/2023 04:27	WG1997639
Indeno(1,2,3-cd)pyrene	U		0.00186	0.00617	1	02/01/2023 04:27	WG1997639
Naphthalene	U		0.00419	0.0206	1	02/01/2023 04:27	WG1997639
Phenanthrene	U		0.00237	0.00617	1	02/01/2023 04:27	WG1997639
Pyrene	U		0.00206	0.00617	1	02/01/2023 04:27	WG1997639
1-Methylnaphthalene	U		0.00462	0.0206	1	02/01/2023 04:27	WG1997639
2-Methylnaphthalene	U		0.00439	0.0206	1	02/01/2023 04:27	WG1997639
2-Chloronaphthalene	U		0.00479	0.0206	1	02/01/2023 04:27	WG1997639
(S) p-Terphenyl-d14	*102*			*23.0-120*		*02/01/2023 04:27*	WG1997639
(S) Nitrobenzene-d5	*73.2*			*14.0-149*		*02/01/2023 04:27*	WG1997639
(S) 2-Fluorobiphenyl	*96.0*			*34.0-125*		*02/01/2023 04:27*	WG1997639

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.1		1	01/30/2023 14:55	WG1996709

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0228	0.0506	1	01/30/2023 12:37	WG1996590

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12100		7.68	12.6	1	02/02/2023 00:36	WG1998079
Arsenic	7.58		0.655	2.53	1	02/02/2023 00:36	WG1998079
Barium	117		0.108	0.632	1	02/03/2023 22:44	WG1999380
Cadmium	0.232	J	0.0595	0.632	1	02/02/2023 00:36	WG1998079
Chromium	10.8		0.168	1.26	1	02/02/2023 00:36	WG1998079
Copper	17.1		0.506	2.53	1	02/02/2023 00:36	WG1998079
Lead	15.5		0.263	0.632	1	02/02/2023 00:36	WG1998079
Selenium	U		0.966	2.53	1	02/02/2023 00:36	WG1998079
Silver	U		0.161	1.26	1	02/02/2023 00:36	WG1998079

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.30	3.83	25	01/31/2023 00:08	WG1996615
(S) a,a,a-Trifluorotoluene(FID)	*92.5*			*77.0-120*		*01/31/2023 00:08*	WG1996615

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	19.0	J	16.8	50.6	10	01/31/2023 11:00	WG1996678
Residual Range Organics (RRO)	123	J	42.1	126	10	01/31/2023 11:00	WG1996678
(S) o-Terphenyl	*100*			*18.0-148*		*01/31/2023 11:00*	WG1996678

Sample Narrative:

L1580169-04 WG1996678: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00681	0.0421	1	02/01/2023 02:24	WG1997219
Acenaphthylene	U	J3	0.00593	0.0421	1	02/01/2023 02:24	WG1997219
Anthracene	U	J3	0.00750	0.0421	1	02/01/2023 02:24	WG1997219
Benzo(a)anthracene	U	J3	0.00742	0.0421	1	02/01/2023 02:24	WG1997219
Benzo(b)fluoranthene	U	J3	0.00785	0.0421	1	02/01/2023 02:24	WG1997219
Benzo(k)fluoranthene	U	J3	0.00748	0.0421	1	02/01/2023 02:24	WG1997219
Benzo(g,h,i)perylene	U	J3	0.00770	0.0421	1	02/01/2023 02:24	WG1997219
Benzo(a)pyrene	U	J3	0.00782	0.0421	1	02/01/2023 02:24	WG1997219
Benzoic acid	U	J3	0.149	2.11	1	02/01/2023 02:24	WG1997219
Benzyl alcohol	U		0.0155	0.421	1	02/01/2023 02:24	WG1997219
Bis(2-chlorethoxy)methane	U		0.0126	0.421	1	02/01/2023 02:24	WG1997219
Bis(2-chloroethyl)ether	U		0.0139	0.421	1	02/01/2023 02:24	WG1997219
2,2-Oxybis(1-Chloropropane)	U		0.0182	0.421	1	02/01/2023 02:24	WG1997219

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Bromophenyl-phenylether	U	J3	0.0148	0.421	1	02/01/2023 02:24	WG1997219
Carbazole	U	J3	0.0130	0.421	1	02/01/2023 02:24	WG1997219
2-Chloronaphthalene	U		0.00739	0.0421	1	02/01/2023 02:24	WG1997219
4-Chloroaniline	U		0.0152	0.421	1	02/01/2023 02:24	WG1997219
4-Chlorophenyl-phenylether	U	J3	0.0147	0.421	1	02/01/2023 02:24	WG1997219
Chrysene	U	J3	0.00837	0.0421	1	02/01/2023 02:24	WG1997219
Dibenz(a,h)anthracene	U	J3	0.0117	0.0421	1	02/01/2023 02:24	WG1997219
Dibenzofuran	U	J3	0.0138	0.421	1	02/01/2023 02:24	WG1997219
3,3-Dichlorobenzidine	U	J3	0.0155	0.421	1	02/01/2023 02:24	WG1997219
2,4-Dinitrotoluene	U		0.0121	0.421	1	02/01/2023 02:24	WG1997219
2,6-Dinitrotoluene	U		0.0138	0.421	1	02/01/2023 02:24	WG1997219
Fluoranthene	U	J3	0.00760	0.0421	1	02/01/2023 02:24	WG1997219
Fluorene	U	J3	0.00685	0.0421	1	02/01/2023 02:24	WG1997219
Hexachlorobenzene	U	J3	0.0149	0.421	1	02/01/2023 02:24	WG1997219
Hexachloro-1,3-butadiene	U		0.0142	0.421	1	02/01/2023 02:24	WG1997219
Hexachlorocyclopentadiene	U	J3 J6	0.0221	0.421	1	02/01/2023 02:24	WG1997219
Hexachloroethane	U	J6	0.0166	0.421	1	02/01/2023 02:24	WG1997219
Indeno(1,2,3-cd)pyrene	U	J3	0.0119	0.0421	1	02/01/2023 02:24	WG1997219
Isophorone	U		0.0129	0.421	1	02/01/2023 02:24	WG1997219
2-Methylnaphthalene	U		0.00546	0.0421	1	02/01/2023 02:24	WG1997219
Naphthalene	U		0.0106	0.0421	1	02/01/2023 02:24	WG1997219
2-Nitroaniline	U		0.0135	0.421	1	02/01/2023 02:24	WG1997219
3-Nitroaniline	U	J3	0.0134	0.421	1	02/01/2023 02:24	WG1997219
4-Nitroaniline	U		0.0123	0.421	1	02/01/2023 02:24	WG1997219
Nitrobenzene	U		0.0147	0.421	1	02/01/2023 02:24	WG1997219
n-Nitrosodimethylamine	U		0.0624	0.421	1	02/01/2023 02:24	WG1997219
n-Nitrosodiphenylamine	U	J3	0.0319	0.421	1	02/01/2023 02:24	WG1997219
n-Nitrosodi-n-propylamine	U		0.0140	0.421	1	02/01/2023 02:24	WG1997219
Phenanthrene	U	J3	0.00835	0.0421	1	02/01/2023 02:24	WG1997219
Benzylbutyl phthalate	U	J3	0.0131	0.421	1	02/01/2023 02:24	WG1997219
Bis(2-ethylhexyl)phthalate	U	J3	0.0533	0.421	1	02/01/2023 02:24	WG1997219
Di-n-butyl phthalate	U	J3	0.0144	0.421	1	02/01/2023 02:24	WG1997219
Diethyl phthalate	U	J3	0.0139	0.421	1	02/01/2023 02:24	WG1997219
Dimethyl phthalate	U		0.0892	0.421	1	02/01/2023 02:24	WG1997219
Di-n-octyl phthalate	U	J3	0.0284	0.421	1	02/01/2023 02:24	WG1997219
Pyrene	U	J3	0.00819	0.0421	1	02/01/2023 02:24	WG1997219
Pyridine	U		0.0278	0.421	1	02/01/2023 02:24	WG1997219
1,2,4-Trichlorobenzene	U		0.0131	0.421	1	02/01/2023 02:24	WG1997219
4-Chloro-3-methylphenol	U		0.0137	0.421	1	02/01/2023 02:24	WG1997219
2-Chlorophenol	U		0.0139	0.421	1	02/01/2023 02:24	WG1997219
2,4-Dichlorophenol	U		0.0123	0.421	1	02/01/2023 02:24	WG1997219
2,4-Dimethylphenol	U		0.0110	0.421	1	02/01/2023 02:24	WG1997219
4,6-Dinitro-2-methylphenol	U		0.0954	0.421	1	02/01/2023 02:24	WG1997219
2,4-Dinitrophenol	U		0.0985	0.421	1	02/01/2023 02:24	WG1997219
2-Methylphenol	U		0.0126	0.421	1	02/01/2023 02:24	WG1997219
3&4-Methyl Phenol	U		0.0131	0.421	1	02/01/2023 02:24	WG1997219
2-Nitrophenol	U		0.0150	0.421	1	02/01/2023 02:24	WG1997219
4-Nitrophenol	U		0.0131	0.421	1	02/01/2023 02:24	WG1997219
Pentachlorophenol	U	J3	0.0113	0.421	1	02/01/2023 02:24	WG1997219
Phenol	U		0.0169	0.421	1	02/01/2023 02:24	WG1997219
2,4,5-Trichlorophenol	U	J3	0.0143	0.421	1	02/01/2023 02:24	WG1997219
2,4,6-Trichlorophenol	U		0.0135	0.421	1	02/01/2023 02:24	WG1997219
(S) 2-Fluorophenol	*51.8*			*12.0-120*		*02/01/2023 02:24*	WG1997219
(S) Phenol-d5	*47.1*			*10.0-120*		*02/01/2023 02:24*	WG1997219
(S) Nitrobenzene-d5	*49.1*			*10.0-122*		*02/01/2023 02:24*	WG1997219
(S) 2-Fluorobiphenyl	*53.0*			*15.0-120*		*02/01/2023 02:24*	WG1997219

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) 2,4,6-Tribromophenol	*64.9*			*10.0-127*		*02/01/2023 02:24*	WG1997219
(S) p-Terphenyl-d14	*51.5*			*10.0-120*		*02/01/2023 02:24*	WG1997219

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00291	0.00758	1	02/02/2023 02:17	WG1997286
Acenaphthene	U		0.00264	0.00758	1	02/02/2023 02:17	WG1997286
Acenaphthylene	U		0.00273	0.00758	1	02/02/2023 02:17	WG1997286
Benzo(a)anthracene	U		0.00219	0.00758	1	02/02/2023 02:17	WG1997286
Benzo(a)pyrene	U		0.00226	0.00758	1	02/02/2023 02:17	WG1997286
Benzo(b)fluoranthene	U		0.00193	0.00758	1	02/02/2023 02:17	WG1997286
Benzo(g,h,i)perylene	U		0.00224	0.00758	1	02/02/2023 02:17	WG1997286
Benzo(k)fluoranthene	U		0.00272	0.00758	1	02/02/2023 02:17	WG1997286
Chrysene	U		0.00293	0.00758	1	02/02/2023 02:17	WG1997286
Dibenz(a,h)anthracene	U		0.00217	0.00758	1	02/02/2023 02:17	WG1997286
Fluoranthene	0.00308	J	0.00287	0.00758	1	02/02/2023 02:17	WG1997286
Fluorene	U		0.00259	0.00758	1	02/02/2023 02:17	WG1997286
Indeno(1,2,3-cd)pyrene	U		0.00229	0.00758	1	02/02/2023 02:17	WG1997286
Naphthalene	U		0.00516	0.0253	1	02/02/2023 02:17	WG1997286
Phenanthrene	U		0.00292	0.00758	1	02/02/2023 02:17	WG1997286
Pyrene	0.00257	J	0.00253	0.00758	1	02/02/2023 02:17	WG1997286
1-Methylnaphthalene	U		0.00567	0.0253	1	02/02/2023 02:17	WG1997286
2-Methylnaphthalene	U		0.00540	0.0253	1	02/02/2023 02:17	WG1997286
2-Chloronaphthalene	U		0.00589	0.0253	1	02/02/2023 02:17	WG1997286
(S) p-Terphenyl-d14	*76.3*			*23.0-120*		*02/02/2023 02:17*	WG1997286
(S) Nitrobenzene-d5	*79.0*			*14.0-149*		*02/02/2023 02:17*	WG1997286
(S) 2-Fluorobiphenyl	*72.0*			*34.0-125*		*02/02/2023 02:17*	WG1997286

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.7		1	01/30/2023 14:55	WG1996709

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0215	0.0478	1	01/30/2023 12:01	WG1996590

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11700		7.26	11.9	1	02/02/2023 00:39	WG1998079
Arsenic	33.2		0.619	2.39	1	02/02/2023 00:39	WG1998079
Barium	127		0.102	0.597	1	02/03/2023 22:47	WG1999380
Cadmium	0.200	J	0.0563	0.597	1	02/02/2023 00:39	WG1998079
Chromium	10.2		0.159	1.19	1	02/02/2023 00:39	WG1998079
Copper	14.8		0.478	2.39	1	02/02/2023 00:39	WG1998079
Lead	15.6		0.249	0.597	1	02/02/2023 00:39	WG1998079
Selenium	2.20	J	0.913	2.39	1	02/02/2023 00:39	WG1998079
Silver	U		0.152	1.19	1	02/02/2023 00:39	WG1998079

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.20	3.55	25	01/31/2023 00:29	WG1996615
(S) a,a,a-Trifluorotoluene(FID)	*91.5*			*77.0-120*		*01/31/2023 00:29*	WG1996615

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	9.65		1.59	4.78	1	01/31/2023 11:13	WG1996678
Residual Range Organics (RRO)	69.2		3.98	11.9	1	01/31/2023 11:13	WG1996678
(S) o-Terphenyl	*44.2*			*18.0-148*		*01/31/2023 11:13*	WG1996678

Sample Narrative:

L1580169-05 WG1996678: Sample resembles laboratory standard for Fuel Oil #6.

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00644	0.0398	1	02/01/2023 01:21	WG1997219
Acenaphthylene	U		0.00560	0.0398	1	02/01/2023 01:21	WG1997219
Anthracene	U		0.00709	0.0398	1	02/01/2023 01:21	WG1997219
Benzo(a)anthracene	U		0.00701	0.0398	1	02/01/2023 01:21	WG1997219
Benzo(b)fluoranthene	U		0.00742	0.0398	1	02/01/2023 01:21	WG1997219
Benzo(k)fluoranthene	U		0.00707	0.0398	1	02/01/2023 01:21	WG1997219
Benzo(g,h,i)perylene	U		0.00728	0.0398	1	02/01/2023 01:21	WG1997219
Benzo(a)pyrene	U		0.00740	0.0398	1	02/01/2023 01:21	WG1997219
Benzoic acid	U		0.141	2.00	1	02/01/2023 01:21	WG1997219
Benzyl alcohol	U		0.0147	0.398	1	02/01/2023 01:21	WG1997219
Bis(2-chlorethoxy)methane	U		0.0119	0.398	1	02/01/2023 01:21	WG1997219
Bis(2-chloroethyl)ether	U		0.0131	0.398	1	02/01/2023 01:21	WG1997219
2,2-Oxybis(1-Chloropropane)	U		0.0172	0.398	1	02/01/2023 01:21	WG1997219

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Bromophenyl-phenylether	U		0.0140	0.398	1	02/01/2023 01:21	WG1997219
Carbazole	U		0.0123	0.398	1	02/01/2023 01:21	WG1997219
2-Chloronaphthalene	U		0.00699	0.0398	1	02/01/2023 01:21	WG1997219
4-Chloroaniline	U		0.0143	0.398	1	02/01/2023 01:21	WG1997219
4-Chlorophenyl-phenylether	U		0.0139	0.398	1	02/01/2023 01:21	WG1997219
Chrysene	U		0.00791	0.0398	1	02/01/2023 01:21	WG1997219
Dibenz(a,h)anthracene	U		0.0110	0.0398	1	02/01/2023 01:21	WG1997219
Dibenzofuran	U		0.0130	0.398	1	02/01/2023 01:21	WG1997219
3,3-Dichlorobenzidine	U		0.0147	0.398	1	02/01/2023 01:21	WG1997219
2,4-Dinitrotoluene	U		0.0114	0.398	1	02/01/2023 01:21	WG1997219
2,6-Dinitrotoluene	U		0.0130	0.398	1	02/01/2023 01:21	WG1997219
Fluoranthene	U		0.00718	0.0398	1	02/01/2023 01:21	WG1997219
Fluorene	U		0.00648	0.0398	1	02/01/2023 01:21	WG1997219
Hexachlorobenzene	U		0.0141	0.398	1	02/01/2023 01:21	WG1997219
Hexachloro-1,3-butadiene	U		0.0134	0.398	1	02/01/2023 01:21	WG1997219
Hexachlorocyclopentadiene	U		0.0209	0.398	1	02/01/2023 01:21	WG1997219
Hexachloroethane	U		0.0157	0.398	1	02/01/2023 01:21	WG1997219
Indeno(1,2,3-cd)pyrene	U		0.0112	0.0398	1	02/01/2023 01:21	WG1997219
Isophorone	U		0.0122	0.398	1	02/01/2023 01:21	WG1997219
2-Methylnaphthalene	U		0.00516	0.0398	1	02/01/2023 01:21	WG1997219
Naphthalene	0.0118	J	0.00999	0.0398	1	02/01/2023 01:21	WG1997219
2-Nitroaniline	U		0.0128	0.398	1	02/01/2023 01:21	WG1997219
3-Nitroaniline	U		0.0127	0.398	1	02/01/2023 01:21	WG1997219
4-Nitroaniline	U		0.0116	0.398	1	02/01/2023 01:21	WG1997219
Nitrobenzene	U		0.0139	0.398	1	02/01/2023 01:21	WG1997219
n-Nitrosodimethylamine	U		0.0590	0.398	1	02/01/2023 01:21	WG1997219
n-Nitrosodiphenylamine	U		0.0301	0.398	1	02/01/2023 01:21	WG1997219
n-Nitrosodi-n-propylamine	U		0.0133	0.398	1	02/01/2023 01:21	WG1997219
Phenanthrene	U		0.00790	0.0398	1	02/01/2023 01:21	WG1997219
Benzylbutyl phthalate	U		0.0124	0.398	1	02/01/2023 01:21	WG1997219
Bis(2-ethylhexyl)phthalate	U		0.0504	0.398	1	02/01/2023 01:21	WG1997219
Di-n-butyl phthalate	U		0.0136	0.398	1	02/01/2023 01:21	WG1997219
Diethyl phthalate	U		0.0131	0.398	1	02/01/2023 01:21	WG1997219
Dimethyl phthalate	U		0.0844	0.398	1	02/01/2023 01:21	WG1997219
Di-n-octyl phthalate	U		0.0269	0.398	1	02/01/2023 01:21	WG1997219
Pyrene	U		0.00774	0.0398	1	02/01/2023 01:21	WG1997219
Pyridine	U		0.0263	0.398	1	02/01/2023 01:21	WG1997219
1,2,4-Trichlorobenzene	U		0.0124	0.398	1	02/01/2023 01:21	WG1997219
4-Chloro-3-methylphenol	U		0.0129	0.398	1	02/01/2023 01:21	WG1997219
2-Chlorophenol	U		0.0131	0.398	1	02/01/2023 01:21	WG1997219
2,4-Dichlorophenol	U		0.0116	0.398	1	02/01/2023 01:21	WG1997219
2,4-Dimethylphenol	U		0.0104	0.398	1	02/01/2023 01:21	WG1997219
4,6-Dinitro-2-methylphenol	U		0.0902	0.398	1	02/01/2023 01:21	WG1997219
2,4-Dinitrophenol	U		0.0931	0.398	1	02/01/2023 01:21	WG1997219
2-Methylphenol	U		0.0119	0.398	1	02/01/2023 01:21	WG1997219
3&4-Methyl Phenol	U		0.0124	0.398	1	02/01/2023 01:21	WG1997219
2-Nitrophenol	U		0.0142	0.398	1	02/01/2023 01:21	WG1997219
4-Nitrophenol	U		0.0124	0.398	1	02/01/2023 01:21	WG1997219
Pentachlorophenol	U		0.0107	0.398	1	02/01/2023 01:21	WG1997219
Phenol	U		0.0160	0.398	1	02/01/2023 01:21	WG1997219
2,4,5-Trichlorophenol	U		0.0135	0.398	1	02/01/2023 01:21	WG1997219
2,4,6-Trichlorophenol	U		0.0128	0.398	1	02/01/2023 01:21	WG1997219
(S) 2-Fluorophenol	*53.1*			*12.0-120*		*02/01/2023 01:21*	WG1997219
(S) Phenol-d5	*47.9*			*10.0-120*		*02/01/2023 01:21*	WG1997219
(S) Nitrobenzene-d5	*50.5*			*10.0-122*		*02/01/2023 01:21*	WG1997219
(S) 2-Fluorobiphenyl	*53.5*			*15.0-120*		*02/01/2023 01:21*	WG1997219

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) 2,4,6-Tribromophenol	*66.1*			*10.0-127*		*02/01/2023 01:21*	WG1997219
(S) p-Terphenyl-d14	*56.0*			*10.0-120*		*02/01/2023 01:21*	WG1997219

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00275	0.00717	1	02/02/2023 01:06	WG1997286
Acenaphthene	U		0.00250	0.00717	1	02/02/2023 01:06	WG1997286
Acenaphthylene	U		0.00258	0.00717	1	02/02/2023 01:06	WG1997286
Benzo(a)anthracene	0.00442	J	0.00207	0.00717	1	02/02/2023 01:06	WG1997286
Benzo(a)pyrene	0.00437	J	0.00214	0.00717	1	02/02/2023 01:06	WG1997286
Benzo(b)fluoranthene	0.00486	J	0.00183	0.00717	1	02/02/2023 01:06	WG1997286
Benzo(g,h,i)perylene	0.00295	J	0.00211	0.00717	1	02/02/2023 01:06	WG1997286
Benzo(k)fluoranthene	U		0.00257	0.00717	1	02/02/2023 01:06	WG1997286
Chrysene	0.00491	J	0.00277	0.00717	1	02/02/2023 01:06	WG1997286
Dibenz(a,h)anthracene	U		0.00206	0.00717	1	02/02/2023 01:06	WG1997286
Fluoranthene	0.00970		0.00271	0.00717	1	02/02/2023 01:06	WG1997286
Fluorene	U		0.00245	0.00717	1	02/02/2023 01:06	WG1997286
Indeno(1,2,3-cd)pyrene	0.00324	J	0.00216	0.00717	1	02/02/2023 01:06	WG1997286
Naphthalene	U		0.00488	0.0239	1	02/02/2023 01:06	WG1997286
Phenanthrene	0.00504	J	0.00276	0.00717	1	02/02/2023 01:06	WG1997286
Pyrene	0.0109		0.00239	0.00717	1	02/02/2023 01:06	WG1997286
1-Methylnaphthalene	U		0.00537	0.0239	1	02/02/2023 01:06	WG1997286
2-Methylnaphthalene	U		0.00510	0.0239	1	02/02/2023 01:06	WG1997286
2-Chloronaphthalene	U		0.00557	0.0239	1	02/02/2023 01:06	WG1997286
(S) p-Terphenyl-d14	*70.5*			*23.0-120*		*02/02/2023 01:06*	WG1997286
(S) Nitrobenzene-d5	*71.5*			*14.0-149*		*02/02/2023 01:06*	WG1997286
(S) 2-Fluorobiphenyl	*68.7*			*34.0-125*		*02/02/2023 01:06*	WG1997286

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.2		1	01/30/2023 14:55	WG1996709

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0214	0.0475	1	01/30/2023 12:39	WG1996590

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11300		7.22	11.9	1	02/02/2023 00:46	WG1998079
Arsenic	7.92		0.615	2.37	1	02/02/2023 00:46	WG1998079
Barium	145		0.101	0.594	1	02/03/2023 22:50	WG1999380
Cadmium	0.176	J	0.0559	0.594	1	02/02/2023 00:46	WG1998079
Chromium	9.67		0.158	1.19	1	02/02/2023 00:46	WG1998079
Copper	15.6		0.475	2.37	1	02/02/2023 00:46	WG1998079
Lead	14.4		0.247	0.594	1	02/02/2023 00:46	WG1998079
Selenium	2.27	J	0.907	2.37	1	02/02/2023 00:46	WG1998079
Silver	U		0.151	1.19	1	02/02/2023 00:46	WG1998079

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.20	3.53	25	01/31/2023 00:49	WG1996615
(S) a,a,a-Trifluorotoluene(FID)	*92.4*			*77.0-120*		*01/31/2023 00:49*	WG1996615

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	9.89	J3	1.58	4.75	1	01/31/2023 11:13	WG1996678
Residual Range Organics (RRO)	68.6		3.95	11.9	1	01/31/2023 11:13	WG1996678
(S) o-Terphenyl	*53.8*			*18.0-148*		*01/31/2023 11:13*	WG1996678

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00640	0.0395	1	02/01/2023 01:42	WG1997219
Acenaphthylene	U		0.00557	0.0395	1	02/01/2023 01:42	WG1997219
Anthracene	U		0.00704	0.0395	1	02/01/2023 01:42	WG1997219
Benzo(a)anthracene	U		0.00697	0.0395	1	02/01/2023 01:42	WG1997219
Benzo(b)fluoranthene	U		0.00737	0.0395	1	02/01/2023 01:42	WG1997219
Benzo(k)fluoranthene	U		0.00703	0.0395	1	02/01/2023 01:42	WG1997219
Benzo(g,h,i)perylene	U		0.00723	0.0395	1	02/01/2023 01:42	WG1997219
Benzo(a)pyrene	U		0.00735	0.0395	1	02/01/2023 01:42	WG1997219
Benzoic acid	U		0.140	1.98	1	02/01/2023 01:42	WG1997219
Benzyl alcohol	U		0.0146	0.395	1	02/01/2023 01:42	WG1997219
Bis(2-chlorethoxy)methane	U		0.0119	0.395	1	02/01/2023 01:42	WG1997219
Bis(2-chloroethyl)ether	U		0.0131	0.395	1	02/01/2023 01:42	WG1997219
2,2-Oxybis(1-Chloropropane)	U		0.0171	0.395	1	02/01/2023 01:42	WG1997219
4-Bromophenyl-phenylether	U		0.0139	0.395	1	02/01/2023 01:42	WG1997219
Carbazole	U		0.0122	0.395	1	02/01/2023 01:42	WG1997219
2-Chloronaphthalene	U		0.00695	0.0395	1	02/01/2023 01:42	WG1997219

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0142	0.395	1	02/01/2023 01:42	WG1997219
4-Chlorophenyl-phenylether	U		0.0138	0.395	1	02/01/2023 01:42	WG1997219
Chrysene	U		0.00786	0.0395	1	02/01/2023 01:42	WG1997219
Dibenz(a,h)anthracene	U		0.0110	0.0395	1	02/01/2023 01:42	WG1997219
Dibenzofuran	U		0.0129	0.395	1	02/01/2023 01:42	WG1997219
3,3-Dichlorobenzidine	U		0.0146	0.395	1	02/01/2023 01:42	WG1997219
2,4-Dinitrotoluene	U		0.0113	0.395	1	02/01/2023 01:42	WG1997219
2,6-Dinitrotoluene	U		0.0129	0.395	1	02/01/2023 01:42	WG1997219
Fluoranthene	U		0.00714	0.0395	1	02/01/2023 01:42	WG1997219
Fluorene	U		0.00643	0.0395	1	02/01/2023 01:42	WG1997219
Hexachlorobenzene	U		0.0140	0.395	1	02/01/2023 01:42	WG1997219
Hexachloro-1,3-butadiene	U		0.0133	0.395	1	02/01/2023 01:42	WG1997219
Hexachlorocyclopentadiene	U		0.0208	0.395	1	02/01/2023 01:42	WG1997219
Hexachloroethane	U		0.0156	0.395	1	02/01/2023 01:42	WG1997219
Indeno(1,2,3-cd)pyrene	U		0.0112	0.0395	1	02/01/2023 01:42	WG1997219
Isophorone	U		0.0121	0.395	1	02/01/2023 01:42	WG1997219
2-Methylnaphthalene	U		0.00513	0.0395	1	02/01/2023 01:42	WG1997219
Naphthalene	0.0218	J	0.00992	0.0395	1	02/01/2023 01:42	WG1997219
2-Nitroaniline	U		0.0127	0.395	1	02/01/2023 01:42	WG1997219
3-Nitroaniline	U		0.0126	0.395	1	02/01/2023 01:42	WG1997219
4-Nitroaniline	U		0.0115	0.395	1	02/01/2023 01:42	WG1997219
Nitrobenzene	U		0.0138	0.395	1	02/01/2023 01:42	WG1997219
n-Nitrosodimethylamine	U		0.0586	0.395	1	02/01/2023 01:42	WG1997219
n-Nitrosodiphenylamine	U		0.0299	0.395	1	02/01/2023 01:42	WG1997219
n-Nitrosodi-n-propylamine	U		0.0132	0.395	1	02/01/2023 01:42	WG1997219
Phenanthrene	U		0.00785	0.0395	1	02/01/2023 01:42	WG1997219
Benzylbutyl phthalate	U		0.0123	0.395	1	02/01/2023 01:42	WG1997219
Bis(2-ethylhexyl)phthalate	U		0.0501	0.395	1	02/01/2023 01:42	WG1997219
Di-n-butyl phthalate	U		0.0135	0.395	1	02/01/2023 01:42	WG1997219
Diethyl phthalate	U		0.0131	0.395	1	02/01/2023 01:42	WG1997219
Dimethyl phthalate	U		0.0838	0.395	1	02/01/2023 01:42	WG1997219
Di-n-octyl phthalate	U		0.0267	0.395	1	02/01/2023 01:42	WG1997219
Pyrene	U		0.00769	0.0395	1	02/01/2023 01:42	WG1997219
Pyridine	U		0.0261	0.395	1	02/01/2023 01:42	WG1997219
1,2,4-Trichlorobenzene	U		0.0123	0.395	1	02/01/2023 01:42	WG1997219
4-Chloro-3-methylphenol	U		0.0128	0.395	1	02/01/2023 01:42	WG1997219
2-Chlorophenol	U		0.0131	0.395	1	02/01/2023 01:42	WG1997219
2,4-Dichlorophenol	U		0.0115	0.395	1	02/01/2023 01:42	WG1997219
2,4-Dimethylphenol	U		0.0103	0.395	1	02/01/2023 01:42	WG1997219
4,6-Dinitro-2-methylphenol	U		0.0896	0.395	1	02/01/2023 01:42	WG1997219
2,4-Dinitrophenol	U		0.0925	0.395	1	02/01/2023 01:42	WG1997219
2-Methylphenol	U		0.0119	0.395	1	02/01/2023 01:42	WG1997219
3&4-Methyl Phenol	U		0.0123	0.395	1	02/01/2023 01:42	WG1997219
2-Nitrophenol	U		0.0141	0.395	1	02/01/2023 01:42	WG1997219
4-Nitrophenol	U		0.0123	0.395	1	02/01/2023 01:42	WG1997219
Pentachlorophenol	U		0.0106	0.395	1	02/01/2023 01:42	WG1997219
Phenol	U		0.0159	0.395	1	02/01/2023 01:42	WG1997219
2,4,5-Trichlorophenol	U		0.0134	0.395	1	02/01/2023 01:42	WG1997219
2,4,6-Trichlorophenol	U		0.0127	0.395	1	02/01/2023 01:42	WG1997219
(S) 2-Fluorophenol	*49.7*			*12.0-120*		*02/01/2023 01:42*	WG1997219
(S) Phenol-d5	*44.6*			*10.0-120*		*02/01/2023 01:42*	WG1997219
(S) Nitrobenzene-d5	*47.1*			*10.0-122*		*02/01/2023 01:42*	WG1997219
(S) 2-Fluorobiphenyl	*51.4*			*15.0-120*		*02/01/2023 01:42*	WG1997219
(S) 2,4,6-Tribromophenol	*65.9*			*10.0-127*		*02/01/2023 01:42*	WG1997219
(S) p-Terphenyl-d14	*56.9*			*10.0-120*		*02/01/2023 01:42*	WG1997219

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00273	0.00712	1	02/02/2023 01:24	WG1997286
Acenaphthene	U		0.00248	0.00712	1	02/02/2023 01:24	WG1997286
Acenaphthylene	U		0.00256	0.00712	1	02/02/2023 01:24	WG1997286
Benzo(a)anthracene	0.00772		0.00205	0.00712	1	02/02/2023 01:24	WG1997286
Benzo(a)pyrene	0.00699	J	0.00213	0.00712	1	02/02/2023 01:24	WG1997286
Benzo(b)fluoranthene	0.00715		0.00182	0.00712	1	02/02/2023 01:24	WG1997286
Benzo(g,h,i)perylene	0.00444	J	0.00210	0.00712	1	02/02/2023 01:24	WG1997286
Benzo(k)fluoranthene	0.00278	J	0.00255	0.00712	1	02/02/2023 01:24	WG1997286
Chrysene	0.00865		0.00275	0.00712	1	02/02/2023 01:24	WG1997286
Dibenz(a,h)anthracene	U		0.00204	0.00712	1	02/02/2023 01:24	WG1997286
Fluoranthene	0.0116		0.00269	0.00712	1	02/02/2023 01:24	WG1997286
Fluorene	U		0.00243	0.00712	1	02/02/2023 01:24	WG1997286
Indeno(1,2,3-cd)pyrene	0.00412	J	0.00215	0.00712	1	02/02/2023 01:24	WG1997286
Naphthalene	U		0.00484	0.0237	1	02/02/2023 01:24	WG1997286
Phenanthrene	0.00628	J	0.00274	0.00712	1	02/02/2023 01:24	WG1997286
Pyrene	0.0132		0.00237	0.00712	1	02/02/2023 01:24	WG1997286
1-Methylnaphthalene	U		0.00533	0.0237	1	02/02/2023 01:24	WG1997286
2-Methylnaphthalene	U		0.00507	0.0237	1	02/02/2023 01:24	WG1997286
2-Chloronaphthalene	U		0.00553	0.0237	1	02/02/2023 01:24	WG1997286
(S) p-Terphenyl-d14	*79.4*			*23.0-120*		*02/02/2023 01:24*	WG1997286
(S) Nitrobenzene-d5	*85.2*			*14.0-149*		*02/02/2023 01:24*	WG1997286
(S) 2-Fluorobiphenyl	*75.6*			*34.0-125*		*02/02/2023 01:24*	WG1997286

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	73.6		1	01/30/2023 14:55	WG1996709

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0244	0.0543	1	01/30/2023 12:42	WG1996590

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8210		8.26	13.6	1	02/02/2023 00:49	WG1998079
Arsenic	6.33		0.703	2.72	1	02/02/2023 00:49	WG1998079
Barium	134		0.116	0.679	1	02/03/2023 22:52	WG1999380
Cadmium	0.118	J	0.0640	0.679	1	02/02/2023 00:49	WG1998079
Chromium	8.04		0.181	1.36	1	02/02/2023 00:49	WG1998079
Copper	18.4		0.543	2.72	1	02/02/2023 00:49	WG1998079
Lead	15.0		0.282	0.679	1	02/02/2023 00:49	WG1998079
Selenium	U		1.04	2.72	1	02/02/2023 00:49	WG1998079
Silver	U		0.172	1.36	1	02/02/2023 00:49	WG1998079

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.72	5.08	30.8	01/31/2023 01:10	WG1996615
(S) a,a,a-Trifluorotoluene(FID)	*92.9*			*77.0-120*		*01/31/2023 01:10*	WG1996615

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	23.6		3.61	10.9	2	01/31/2023 11:26	WG1996678
Residual Range Organics (RRO)	115		9.04	27.2	2	01/31/2023 11:26	WG1996678
(S) o-Terphenyl	*66.4*			*18.0-148*		*01/31/2023 11:26*	WG1996678

Sample Narrative:

L1580169-07 WG1996678: Sample resembles laboratory standard for Fuel Oil #6.

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00732	0.0452	1	02/01/2023 02:03	WG1997219
Acenaphthylene	U		0.00637	0.0452	1	02/01/2023 02:03	WG1997219
Anthracene	U		0.00805	0.0452	1	02/01/2023 02:03	WG1997219
Benzo(a)anthracene	U		0.00797	0.0452	1	02/01/2023 02:03	WG1997219
Benzo(b)fluoranthene	U		0.00843	0.0452	1	02/01/2023 02:03	WG1997219
Benzo(k)fluoranthene	U		0.00804	0.0452	1	02/01/2023 02:03	WG1997219
Benzo(g,h,i)perylene	U		0.00827	0.0452	1	02/01/2023 02:03	WG1997219
Benzo(a)pyrene	U		0.00841	0.0452	1	02/01/2023 02:03	WG1997219
Benzoic acid	U		0.160	2.27	1	02/01/2023 02:03	WG1997219
Benzyl alcohol	U		0.0167	0.452	1	02/01/2023 02:03	WG1997219
Bis(2-chlorethoxy)methane	U		0.0136	0.452	1	02/01/2023 02:03	WG1997219
Bis(2-chloroethyl)ether	U		0.0149	0.452	1	02/01/2023 02:03	WG1997219
2,2-Oxybis(1-Chloropropane)	U		0.0196	0.452	1	02/01/2023 02:03	WG1997219

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Bromophenyl-phenylether	U		0.0159	0.452	1	02/01/2023 02:03	WG1997219
Carbazole	U		0.0140	0.452	1	02/01/2023 02:03	WG1997219
2-Chloronaphthalene	U		0.00794	0.0452	1	02/01/2023 02:03	WG1997219
4-Chloroaniline	U		0.0163	0.452	1	02/01/2023 02:03	WG1997219
4-Chlorophenyl-phenylether	U		0.0158	0.452	1	02/01/2023 02:03	WG1997219
Chrysene	U		0.00899	0.0452	1	02/01/2023 02:03	WG1997219
Dibenz(a,h)anthracene	U		0.0125	0.0452	1	02/01/2023 02:03	WG1997219
Dibenzofuran	U		0.0148	0.452	1	02/01/2023 02:03	WG1997219
3,3-Dichlorobenzidine	U		0.0167	0.452	1	02/01/2023 02:03	WG1997219
2,4-Dinitrotoluene	U		0.0130	0.452	1	02/01/2023 02:03	WG1997219
2,6-Dinitrotoluene	U		0.0148	0.452	1	02/01/2023 02:03	WG1997219
Fluoranthene	U		0.00816	0.0452	1	02/01/2023 02:03	WG1997219
Fluorene	U		0.00736	0.0452	1	02/01/2023 02:03	WG1997219
Hexachlorobenzene	U		0.0160	0.452	1	02/01/2023 02:03	WG1997219
Hexachloro-1,3-butadiene	U		0.0152	0.452	1	02/01/2023 02:03	WG1997219
Hexachlorocyclopentadiene	U		0.0238	0.452	1	02/01/2023 02:03	WG1997219
Hexachloroethane	U		0.0178	0.452	1	02/01/2023 02:03	WG1997219
Indeno(1,2,3-cd)pyrene	U		0.0128	0.0452	1	02/01/2023 02:03	WG1997219
Isophorone	U		0.0139	0.452	1	02/01/2023 02:03	WG1997219
2-Methylnaphthalene	0.0114	J	0.00587	0.0452	1	02/01/2023 02:03	WG1997219
Naphthalene	0.0682		0.0114	0.0452	1	02/01/2023 02:03	WG1997219
2-Nitroaniline	U		0.0145	0.452	1	02/01/2023 02:03	WG1997219
3-Nitroaniline	U		0.0144	0.452	1	02/01/2023 02:03	WG1997219
4-Nitroaniline	U		0.0132	0.452	1	02/01/2023 02:03	WG1997219
Nitrobenzene	U		0.0158	0.452	1	02/01/2023 02:03	WG1997219
n-Nitrosodimethylamine	U		0.0671	0.452	1	02/01/2023 02:03	WG1997219
n-Nitrosodiphenylamine	U		0.0342	0.452	1	02/01/2023 02:03	WG1997219
n-Nitrosodi-n-propylamine	U		0.0151	0.452	1	02/01/2023 02:03	WG1997219
Phenanthrene	U		0.00898	0.0452	1	02/01/2023 02:03	WG1997219
Benzylbutyl phthalate	U		0.0141	0.452	1	02/01/2023 02:03	WG1997219
Bis(2-ethylhexyl)phthalate	U		0.0573	0.452	1	02/01/2023 02:03	WG1997219
Di-n-butyl phthalate	U		0.0155	0.452	1	02/01/2023 02:03	WG1997219
Diethyl phthalate	U		0.0149	0.452	1	02/01/2023 02:03	WG1997219
Dimethyl phthalate	U		0.0959	0.452	1	02/01/2023 02:03	WG1997219
Di-n-octyl phthalate	U		0.0306	0.452	1	02/01/2023 02:03	WG1997219
Pyrene	U		0.00880	0.0452	1	02/01/2023 02:03	WG1997219
Pyridine	U		0.0299	0.452	1	02/01/2023 02:03	WG1997219
1,2,4-Trichlorobenzene	U		0.0141	0.452	1	02/01/2023 02:03	WG1997219
4-Chloro-3-methylphenol	U		0.0147	0.452	1	02/01/2023 02:03	WG1997219
2-Chlorophenol	U		0.0149	0.452	1	02/01/2023 02:03	WG1997219
2,4-Dichlorophenol	U		0.0132	0.452	1	02/01/2023 02:03	WG1997219
2,4-Dimethylphenol	U		0.0118	0.452	1	02/01/2023 02:03	WG1997219
4,6-Dinitro-2-methylphenol	U		0.103	0.452	1	02/01/2023 02:03	WG1997219
2,4-Dinitrophenol	U		0.106	0.452	1	02/01/2023 02:03	WG1997219
2-Methylphenol	U		0.0136	0.452	1	02/01/2023 02:03	WG1997219
3&4-Methyl Phenol	U		0.0141	0.452	1	02/01/2023 02:03	WG1997219
2-Nitrophenol	U		0.0162	0.452	1	02/01/2023 02:03	WG1997219
4-Nitrophenol	U		0.0141	0.452	1	02/01/2023 02:03	WG1997219
Pentachlorophenol	U		0.0122	0.452	1	02/01/2023 02:03	WG1997219
Phenol	U		0.0182	0.452	1	02/01/2023 02:03	WG1997219
2,4,5-Trichlorophenol	U		0.0153	0.452	1	02/01/2023 02:03	WG1997219
2,4,6-Trichlorophenol	U		0.0145	0.452	1	02/01/2023 02:03	WG1997219
(S) 2-Fluorophenol	*56.8*			*12.0-120*		*02/01/2023 02:03*	WG1997219
(S) Phenol-d5	*51.5*			*10.0-120*		*02/01/2023 02:03*	WG1997219
(S) Nitrobenzene-d5	*51.1*			*10.0-122*		*02/01/2023 02:03*	WG1997219
(S) 2-Fluorobiphenyl	*51.1*			*15.0-120*		*02/01/2023 02:03*	WG1997219

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) 2,4,6-Tribromophenol	*66.6*			*10.0-127*		*02/01/2023 02:03*	WG1997219
(S) p-Terphenyl-d14	*54.1*			*10.0-120*		*02/01/2023 02:03*	WG1997219

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00312	0.00815	1	02/02/2023 01:42	WG1997286
Acenaphthene	U		0.00284	0.00815	1	02/02/2023 01:42	WG1997286
Acenaphthylene	U		0.00293	0.00815	1	02/02/2023 01:42	WG1997286
Benzo(a)anthracene	U		0.00235	0.00815	1	02/02/2023 01:42	WG1997286
Benzo(a)pyrene	U		0.00243	0.00815	1	02/02/2023 01:42	WG1997286
Benzo(b)fluoranthene	0.00270	J	0.00208	0.00815	1	02/02/2023 01:42	WG1997286
Benzo(g,h,i)perylene	U		0.00240	0.00815	1	02/02/2023 01:42	WG1997286
Benzo(k)fluoranthene	U		0.00292	0.00815	1	02/02/2023 01:42	WG1997286
Chrysene	U		0.00315	0.00815	1	02/02/2023 01:42	WG1997286
Dibenz(a,h)anthracene	U		0.00234	0.00815	1	02/02/2023 01:42	WG1997286
Fluoranthene	U		0.00308	0.00815	1	02/02/2023 01:42	WG1997286
Fluorene	U		0.00278	0.00815	1	02/02/2023 01:42	WG1997286
Indeno(1,2,3-cd)pyrene	U		0.00246	0.00815	1	02/02/2023 01:42	WG1997286
Naphthalene	U		0.00554	0.0272	1	02/02/2023 01:42	WG1997286
Phenanthrene	U		0.00314	0.00815	1	02/02/2023 01:42	WG1997286
Pyrene	0.00281	J	0.00272	0.00815	1	02/02/2023 01:42	WG1997286
1-Methylnaphthalene	U		0.00610	0.0272	1	02/02/2023 01:42	WG1997286
2-Methylnaphthalene	U		0.00580	0.0272	1	02/02/2023 01:42	WG1997286
2-Chloronaphthalene	U		0.00633	0.0272	1	02/02/2023 01:42	WG1997286
(S) p-Terphenyl-d14	*87.3*			*23.0-120*		*02/02/2023 01:42*	WG1997286
(S) Nitrobenzene-d5	*88.3*			*14.0-149*		*02/02/2023 01:42*	WG1997286
(S) 2-Fluorobiphenyl	*83.2*			*34.0-125*		*02/02/2023 01:42*	WG1997286

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.4		1	01/30/2023 14:55	WG1996709

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0221	0.0492	1	01/30/2023 12:44	WG1996590

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12700		7.47	12.3	1	02/02/2023 00:52	WG1998079
Arsenic	8.08		0.637	2.46	1	02/02/2023 00:52	WG1998079
Barium	133		0.105	0.614	1	02/03/2023 22:55	WG1999380
Cadmium	0.186	J	0.0579	0.614	1	02/02/2023 00:52	WG1998079
Chromium	10.8		0.163	1.23	1	02/02/2023 00:52	WG1998079
Copper	16.3		0.492	2.46	1	02/02/2023 00:52	WG1998079
Lead	16.4		0.256	0.614	1	02/02/2023 00:52	WG1998079
Selenium	U		0.939	2.46	1	02/02/2023 00:52	WG1998079
Silver	U		0.156	1.23	1	02/02/2023 00:52	WG1998079

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.25	3.69	25	01/31/2023 01:30	WG1996615
(S) a,a,a-Trifluorotoluene(FID)	*93.0*			*77.0-120*		*01/31/2023 01:30*	WG1996615

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	10.3		1.63	4.92	1	01/31/2023 11:40	WG1996678
Residual Range Organics (RRO)	63.2		4.09	12.3	1	01/31/2023 11:40	WG1996678
(S) o-Terphenyl	*39.6*			*18.0-148*		*01/31/2023 11:40*	WG1996678

Sample Narrative:

L1580169-08 WG1996678: Sample resembles laboratory standard for Fuel Oil #6.

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00662	0.0409	1	02/01/2023 00:39	WG1997219
Acenaphthylene	U		0.00576	0.0409	1	02/01/2023 00:39	WG1997219
Anthracene	U		0.00729	0.0409	1	02/01/2023 00:39	WG1997219
Benzo(a)anthracene	U		0.00721	0.0409	1	02/01/2023 00:39	WG1997219
Benzo(b)fluoranthene	U		0.00763	0.0409	1	02/01/2023 00:39	WG1997219
Benzo(k)fluoranthene	U		0.00727	0.0409	1	02/01/2023 00:39	WG1997219
Benzo(g,h,i)perylene	U		0.00748	0.0409	1	02/01/2023 00:39	WG1997219
Benzo(a)pyrene	U		0.00761	0.0409	1	02/01/2023 00:39	WG1997219
Benzoic acid	U		0.145	2.05	1	02/01/2023 00:39	WG1997219
Benzyl alcohol	U		0.0151	0.409	1	02/01/2023 00:39	WG1997219
Bis(2-chlorethoxy)methane	U		0.0123	0.409	1	02/01/2023 00:39	WG1997219
Bis(2-chloroethyl)ether	U		0.0135	0.409	1	02/01/2023 00:39	WG1997219
2,2-Oxybis(1-Chloropropane)	U		0.0177	0.409	1	02/01/2023 00:39	WG1997219

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Bromophenyl-phenylether	U		0.0144	0.409	1	02/01/2023 00:39	WG1997219
Carbazole	U		0.0127	0.409	1	02/01/2023 00:39	WG1997219
2-Chloronaphthalene	U		0.00719	0.0409	1	02/01/2023 00:39	WG1997219
4-Chloroaniline	U		0.0147	0.409	1	02/01/2023 00:39	WG1997219
4-Chlorophenyl-phenylether	U		0.0143	0.409	1	02/01/2023 00:39	WG1997219
Chrysene	U		0.00814	0.0409	1	02/01/2023 00:39	WG1997219
Dibenz(a,h)anthracene	U		0.0113	0.0409	1	02/01/2023 00:39	WG1997219
Dibenzofuran	U		0.0134	0.409	1	02/01/2023 00:39	WG1997219
3,3-Dichlorobenzidine	U		0.0151	0.409	1	02/01/2023 00:39	WG1997219
2,4-Dinitrotoluene	U		0.0117	0.409	1	02/01/2023 00:39	WG1997219
2,6-Dinitrotoluene	U		0.0134	0.409	1	02/01/2023 00:39	WG1997219
Fluoranthene	U		0.00739	0.0409	1	02/01/2023 00:39	WG1997219
Fluorene	U		0.00666	0.0409	1	02/01/2023 00:39	WG1997219
Hexachlorobenzene	U		0.0145	0.409	1	02/01/2023 00:39	WG1997219
Hexachloro-1,3-butadiene	U		0.0138	0.409	1	02/01/2023 00:39	WG1997219
Hexachlorocyclopentadiene	U		0.0215	0.409	1	02/01/2023 00:39	WG1997219
Hexachloroethane	U		0.0161	0.409	1	02/01/2023 00:39	WG1997219
Indeno(1,2,3-cd)pyrene	U		0.0116	0.0409	1	02/01/2023 00:39	WG1997219
Isophorone	U		0.0125	0.409	1	02/01/2023 00:39	WG1997219
2-Methylnaphthalene	U		0.00531	0.0409	1	02/01/2023 00:39	WG1997219
Naphthalene	U		0.0103	0.0409	1	02/01/2023 00:39	WG1997219
2-Nitroaniline	U		0.0131	0.409	1	02/01/2023 00:39	WG1997219
3-Nitroaniline	U		0.0130	0.409	1	02/01/2023 00:39	WG1997219
4-Nitroaniline	U		0.0119	0.409	1	02/01/2023 00:39	WG1997219
Nitrobenzene	U		0.0143	0.409	1	02/01/2023 00:39	WG1997219
n-Nitrosodimethylamine	U		0.0607	0.409	1	02/01/2023 00:39	WG1997219
n-Nitrosodiphenylamine	U		0.0310	0.409	1	02/01/2023 00:39	WG1997219
n-Nitrosodi-n-propylamine	U		0.0136	0.409	1	02/01/2023 00:39	WG1997219
Phenanthrene	U		0.00812	0.0409	1	02/01/2023 00:39	WG1997219
Benzylbutyl phthalate	U		0.0128	0.409	1	02/01/2023 00:39	WG1997219
Bis(2-ethylhexyl)phthalate	U		0.0519	0.409	1	02/01/2023 00:39	WG1997219
Di-n-butyl phthalate	U		0.0140	0.409	1	02/01/2023 00:39	WG1997219
Diethyl phthalate	U		0.0135	0.409	1	02/01/2023 00:39	WG1997219
Dimethyl phthalate	U		0.0868	0.409	1	02/01/2023 00:39	WG1997219
Di-n-octyl phthalate	U		0.0276	0.409	1	02/01/2023 00:39	WG1997219
Pyrene	U		0.00796	0.0409	1	02/01/2023 00:39	WG1997219
Pyridine	U		0.0270	0.409	1	02/01/2023 00:39	WG1997219
1,2,4-Trichlorobenzene	U		0.0128	0.409	1	02/01/2023 00:39	WG1997219
4-Chloro-3-methylphenol	U		0.0133	0.409	1	02/01/2023 00:39	WG1997219
2-Chlorophenol	U		0.0135	0.409	1	02/01/2023 00:39	WG1997219
2,4-Dichlorophenol	U		0.0119	0.409	1	02/01/2023 00:39	WG1997219
2,4-Dimethylphenol	U		0.0107	0.409	1	02/01/2023 00:39	WG1997219
4,6-Dinitro-2-methylphenol	U		0.0928	0.409	1	02/01/2023 00:39	WG1997219
2,4-Dinitrophenol	U		0.0957	0.409	1	02/01/2023 00:39	WG1997219
2-Methylphenol	U		0.0123	0.409	1	02/01/2023 00:39	WG1997219
3&4-Methyl Phenol	U		0.0128	0.409	1	02/01/2023 00:39	WG1997219
2-Nitrophenol	U		0.0146	0.409	1	02/01/2023 00:39	WG1997219
4-Nitrophenol	U		0.0128	0.409	1	02/01/2023 00:39	WG1997219
Pentachlorophenol	U		0.0110	0.409	1	02/01/2023 00:39	WG1997219
Phenol	U		0.0165	0.409	1	02/01/2023 00:39	WG1997219
2,4,5-Trichlorophenol	U		0.0139	0.409	1	02/01/2023 00:39	WG1997219
2,4,6-Trichlorophenol	U		0.0131	0.409	1	02/01/2023 00:39	WG1997219
(S) 2-Fluorophenol	*34.1*			*12.0-120*		*02/01/2023 00:39*	WG1997219
(S) Phenol-d5	*31.4*			*10.0-120*		*02/01/2023 00:39*	WG1997219
(S) Nitrobenzene-d5	*30.5*			*10.0-122*		*02/01/2023 00:39*	WG1997219
(S) 2-Fluorobiphenyl	*34.1*			*15.0-120*		*02/01/2023 00:39*	WG1997219

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) 2,4,6-Tribromophenol	*42.0*			*10.0-127*		*02/01/2023 00:39*	WG1997219
(S) p-Terphenyl-d14	*40.5*			*10.0-120*		*02/01/2023 00:39*	WG1997219

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00283	0.00737	1	02/02/2023 01:59	WG1997286
Acenaphthene	U		0.00257	0.00737	1	02/02/2023 01:59	WG1997286
Acenaphthylene	U		0.00265	0.00737	1	02/02/2023 01:59	WG1997286
Benzo(a)anthracene	U		0.00213	0.00737	1	02/02/2023 01:59	WG1997286
Benzo(a)pyrene	U		0.00220	0.00737	1	02/02/2023 01:59	WG1997286
Benzo(b)fluoranthene	U		0.00188	0.00737	1	02/02/2023 01:59	WG1997286
Benzo(g,h,i)perylene	U		0.00218	0.00737	1	02/02/2023 01:59	WG1997286
Benzo(k)fluoranthene	U		0.00264	0.00737	1	02/02/2023 01:59	WG1997286
Chrysene	U		0.00285	0.00737	1	02/02/2023 01:59	WG1997286
Dibenz(a,h)anthracene	U		0.00211	0.00737	1	02/02/2023 01:59	WG1997286
Fluoranthene	U		0.00279	0.00737	1	02/02/2023 01:59	WG1997286
Fluorene	U		0.00252	0.00737	1	02/02/2023 01:59	WG1997286
Indeno(1,2,3-cd)pyrene	U		0.00222	0.00737	1	02/02/2023 01:59	WG1997286
Naphthalene	U		0.00501	0.0246	1	02/02/2023 01:59	WG1997286
Phenanthrene	U		0.00284	0.00737	1	02/02/2023 01:59	WG1997286
Pyrene	U		0.00246	0.00737	1	02/02/2023 01:59	WG1997286
1-Methylnaphthalene	U		0.00552	0.0246	1	02/02/2023 01:59	WG1997286
2-Methylnaphthalene	U		0.00525	0.0246	1	02/02/2023 01:59	WG1997286
2-Chloronaphthalene	U		0.00573	0.0246	1	02/02/2023 01:59	WG1997286
(S) p-Terphenyl-d14	*78.7*			*23.0-120*		*02/02/2023 01:59*	WG1997286
(S) Nitrobenzene-d5	*79.1*			*14.0-149*		*02/02/2023 01:59*	WG1997286
(S) 2-Fluorobiphenyl	*73.7*			*34.0-125*		*02/02/2023 01:59*	WG1997286

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	0.0405	B J	0.0316	0.100	1	02/01/2023 01:46	WG1997815
(S) a,a,a-Trifluorotoluene(FID)	*98.6*			*78.0-120*		*02/01/2023 01:46*	WG1997815

Method Blank (MB)

(MB) R3885936-1 01/30/23 14:55

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00400			

L1580169-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1580169-04 01/30/23 14:55 • (DUP) R3885936-3 01/30/23 14:55

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	79.1	81.5	1	3.01		10

Laboratory Control Sample (LCS)

(LCS) R3885936-2 01/30/23 14:55

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	99.9	85.0-115	

Method Blank (MB)

(MB) R3886316-1 01/31/23 15:41

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1580567-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1580567-01 01/31/23 15:41 • (DUP) R3886316-3 01/31/23 15:41

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	84.9	85.0	1	0.113		10

Laboratory Control Sample (LCS)

(LCS) R3886316-2 01/31/23 15:41

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

QUALITY CONTROL SUMMARY

L1580169-04,05,06,07,08

Method Blank (MB)

(MB) R3885689-1 01/30/23 11:51

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3885689-2 01/30/23 11:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.539	108	80.0-120	

L1580169-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580169-05 01/30/23 12:01 • (MS) R3885689-3 01/30/23 12:04 • (MSD) R3885689-4 01/30/23 12:06

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.597	U	0.589	0.635	98.6	106	1	75.0-125			7.46	20

Method Blank (MB)

(MB) R3886328-1 02/01/23 08:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3886328-2 02/01/23 08:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.471	94.2	80.0-120	

L1580522-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580522-01 02/01/23 09:01 • (MS) R3886328-3 02/01/23 09:03 • (MSD) R3886328-4 02/01/23 09:06

Analyte	Spike Amount (dry) mg/kg	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.503	U	0.485	0.478	96.3	94.9	1	75.0-125			1.46	20

Method Blank (MB)

(MB) R3886554-1 02/01/23 18:53

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.08	10.0
Arsenic	U		0.518	2.00
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Chromium	U		0.133	1.00
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Selenium	U		0.764	2.00
Silver	U		0.127	1.00

Laboratory Control Sample (LCS)

(LCS) R3886554-2 02/01/23 18:56

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	1010	101	80.0-120	
Arsenic	100	98.1	98.1	80.0-120	
Barium	100	104	104	80.0-120	
Cadmium	100	99.9	99.9	80.0-120	
Chromium	100	98.3	98.3	80.0-120	
Copper	100	103	103	80.0-120	
Lead	100	98.8	98.8	80.0-120	
Selenium	100	99.1	99.1	80.0-120	
Silver	20.0	19.6	97.8	80.0-120	

L1580763-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580763-08 02/01/23 18:59 • (MS) R3886554-5 02/01/23 19:07 • (MSD) R3886554-6 02/01/23 19:09

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	22600	30000	28000	733	531	1	75.0-125	V	V	6.96	20
Arsenic	100	3.93	99.6	98.8	95.7	94.8	1	75.0-125			0.866	20
Barium	100	173	433	268	260	95.3	1	75.0-125	J5	J3	47.0	20
Cadmium	100	U	99.6	99.3	99.6	99.3	1	75.0-125			0.277	20
Chromium	100	18.8	117	117	98.6	98.6	1	75.0-125			0.0223	20
Copper	100	10.7	125	120	114	110	1	75.0-125			3.52	20
Lead	100	12.4	134	112	121	99.4	1	75.0-125			18.0	20
Selenium	100	U	95.6	93.9	95.6	93.9	1	75.0-125			1.78	20
Silver	20.0	U	19.1	19.9	95.7	99.7	1	75.0-125			4.12	20

Method Blank (MB)

(MB) R3886602-1 02/02/23 00:14

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.08	10.0
Arsenic	U		0.518	2.00
Cadmium	U		0.0471	0.500
Chromium	U		0.133	1.00
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Selenium	U		0.764	2.00
Silver	U		0.127	1.00

Laboratory Control Sample (LCS)

(LCS) R3886602-2 02/02/23 00:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	1020	102	80.0-120	
Arsenic	100	97.4	97.4	80.0-120	
Cadmium	100	104	104	80.0-120	
Chromium	100	103	103	80.0-120	
Copper	100	104	104	80.0-120	
Lead	100	102	102	80.0-120	
Selenium	100	99.4	99.4	80.0-120	
Silver	20.0	19.6	97.8	80.0-120	

L1580660-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580660-05 02/02/23 00:19 • (MS) R3886602-5 02/02/23 00:28 • (MSD) R3886602-6 02/02/23 00:31

Analyte	Spike Amount (dry) mg/kg	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1020	4540	5690	5360	113	80.9	1	75.0-125			5.98	20
Arsenic	102	6.00	109	106	101	98.2	1	75.0-125			2.65	20
Cadmium	102	0.153	109	105	107	103	1	75.0-125			4.15	20
Chromium	102	10.6	107	103	95.1	90.7	1	75.0-125			4.24	20
Copper	102	10.2	119	114	108	102	1	75.0-125			4.68	20
Lead	102	6.10	108	103	100	95.9	1	75.0-125			4.00	20
Selenium	102	1.80	107	101	103	97.9	1	75.0-125			5.18	20
Silver	20.3	U	21.5	20.9	106	103	1	75.0-125			3.16	20

Method Blank (MB)

(MB) R3887471-1 02/03/23 22:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500

Laboratory Control Sample (LCS)

(LCS) R3887471-2 02/03/23 22:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	86.4	86.4	80.0-120	

L1579975-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1579975-01 02/03/23 22:15 • (MS) R3887471-5 02/03/23 22:23 • (MSD) R3887471-6 02/03/23 22:26

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	109	72.6	169	158	88.8	78.6	1	75.0-125			6.77	20

Method Blank (MB)

(MB) R3886180-2 01/30/23 12:08

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Gasoline Range Organics-NWTPH	U		0.848	2.50
(S) a,a,a-Trifluorotoluene(FID)	*90.7*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3886180-1 01/30/23 10:50

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5.50	5.24	95.3	71.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*102*	*77.0-120*	

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3886940-2 01/31/23 22:33

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Gasoline Range Organics-NWTPH	0.0570	J	0.0316	0.100
(S) a,a,a-Trifluorotoluene(FID)	*99.1*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3886940-1 01/31/23 21:49

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5.50	6.20	113	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*105*	*78.0-120*	

Method Blank (MB)

(MB) R3886102-1 01/31/23 02:20

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*65.3*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3886102-2 01/31/23 02:46

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Diesel Range Organics (DRO)	50.0	37.7	75.4	50.0-150	
(S) o-Terphenyl			*91.0*	*18.0-148*	

L1580169-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580169-06 01/31/23 11:13 • (MS) R3886102-3 01/31/23 11:26 • (MSD) R3886102-4 01/31/23 11:40

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	59.4	9.89	62.2	47.3	88.1	62.9	1	50.0-150		J3	27.3	20
(S) o-Terphenyl					*68.8*	*53.5*		*18.0-148*				

Method Blank (MB)

(MB) R3886287-2 01/31/23 23:39

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*63.5*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3886287-1 01/31/23 23:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Diesel Range Organics (DRO)	50.0	30.2	60.4	50.0-150	
(S) o-Terphenyl			*69.7*	*18.0-148*	

L1580309-62 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580309-62 02/01/23 02:23 • (MS) R3886287-3 02/01/23 02:36 • (MSD) R3886287-4 02/01/23 02:48

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	50.0	178	247	229	138	102	10	50.0-150			7.56	20
(S) o-Terphenyl					*68.8*	*63.7*		*18.0-148*				

Method Blank (MB)

(MB) R3886469-2 01/31/23 23:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00539	0.0333
Acenaphthylene	U		0.00469	0.0333
Anthracene	U		0.00593	0.0333
Benzo(a)anthracene	U		0.00587	0.0333
Benzo(b)fluoranthene	U		0.00621	0.0333
Benzo(k)fluoranthene	U		0.00592	0.0333
Benzo(g,h,i)perylene	U		0.00609	0.0333
Benzo(a)pyrene	U		0.00619	0.0333
Benzoic Acid	U		0.118	1.67
Benzyl Alcohol	U		0.0123	0.333
Bis(2-chlorethoxy)methane	U		0.0100	0.333
Bis(2-chloroethyl)ether	U		0.0110	0.333
2,2-oxybis(1-chloropropane)	U		0.0144	0.333
4-Bromophenyl-phenylether	U		0.0117	0.333
Carbazole	U		0.0103	0.333
2-Chloronaphthalene	U		0.00585	0.0333
4-Chloroaniline	U		0.0120	0.333
4-Chlorophenyl-phenylether	U		0.0116	0.333
Chrysene	U		0.00662	0.0333
Dibenz(a,h)anthracene	U		0.00923	0.0333
Dibenzofuran	U		0.0109	0.333
3,3-Dichlorobenzidine	U		0.0123	0.333
2,4-Dinitrotoluene	U		0.00955	0.333
2,6-Dinitrotoluene	U		0.0109	0.333
Fluoranthene	U		0.00601	0.0333
Fluorene	U		0.00542	0.0333
Hexachlorobenzene	U		0.0118	0.333
Hexachloro-1,3-butadiene	U		0.0112	0.333
Hexachlorocyclopentadiene	U		0.0175	0.333
Hexachloroethane	U		0.0131	0.333
Indeno(1,2,3-cd)pyrene	U		0.00941	0.0333
Isophorone	U		0.0102	0.333
2-Methylnaphthalene	U		0.00432	0.0333
Naphthalene	U		0.00836	0.0333
2-Nitroaniline	U		0.0107	0.333
3-Nitroaniline	U		0.0106	0.333
4-Nitroaniline	U		0.00971	0.333
Nitrobenzene	U		0.0116	0.333
n-Nitrosodimethylamine	U		0.0494	0.333
n-Nitrosodiphenylamine	U		0.0252	0.333

Method Blank (MB)

(MB) R3886469-2 01/31/23 23:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
n-Nitrosodi-n-propylamine	U		0.0111	0.333
Phenanthrene	U		0.00661	0.0333
Benzylbutyl phthalate	U		0.0104	0.333
Bis(2-ethylhexyl)phthalate	U		0.0422	0.333
Di-n-butyl phthalate	U		0.0114	0.333
Diethyl phthalate	U		0.0110	0.333
Dimethyl phthalate	U		0.0706	0.333
Di-n-octyl phthalate	U		0.0225	0.333
Pyrene	U		0.00648	0.0333
Pyridine	U		0.0220	0.333
1,2,4-Trichlorobenzene	U		0.0104	0.333
4-Chloro-3-methylphenol	U		0.0108	0.333
2-Chlorophenol	U		0.0110	0.333
2,4-Dichlorophenol	U		0.00970	0.333
2,4-Dimethylphenol	U		0.00870	0.333
4,6-Dinitro-2-methylphenol	U		0.0755	0.333
2,4-Dinitrophenol	U		0.0779	0.333
2-Methylphenol	U		0.0100	0.333
3&4-Methyl Phenol	U		0.0104	0.333
2-Nitrophenol	U		0.0119	0.333
4-Nitrophenol	U		0.0104	0.333
Pentachlorophenol	U		0.00896	0.333
Phenol	U		0.0134	0.333
2,4,5-Trichlorophenol	U		0.0113	0.333
2,4,6-Trichlorophenol	U		0.0107	0.333
(S) 2-Fluorophenol	*72.1*			*12.0-120*
(S) Phenol-d5	*65.8*			*10.0-120*
(S) Nitrobenzene-d5	*64.6*			*10.0-122*
(S) 2-Fluorobiphenyl	*72.7*			*15.0-120*
(S) 2,4,6-Tribromophenol	*76.3*			*10.0-127*
(S) p-Terphenyl-d14	*88.9*			*10.0-120*

Laboratory Control Sample (LCS)

(LCS) R3886469-1 01/31/23 23:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.666	0.463	69.5	38.0-120	
Acenaphthylene	0.666	0.503	75.5	40.0-120	

Laboratory Control Sample (LCS)

(LCS) R3886469-1 01/31/23 23:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.666	0.455	68.3	42.0-120	
Benzo(a)anthracene	0.666	0.563	84.5	44.0-120	
Benzo(b)fluoranthene	0.666	0.534	80.2	43.0-120	
Benzo(k)fluoranthene	0.666	0.511	76.7	44.0-120	
Benzo(g,h,i)perylene	0.666	0.573	86.0	43.0-120	
Benzo(a)pyrene	0.666	0.578	86.8	45.0-120	
Benzoic Acid	1.33	0.357	26.8	10.0-120	
Benzyl Alcohol	0.666	0.449	67.4	10.0-120	
Bis(2-chlorethoxy)methane	0.666	0.365	54.8	20.0-120	
Bis(2-chloroethyl)ether	0.666	0.483	72.5	16.0-120	
2,2-Oxybis(1-Chloropropane)	0.666	0.413	62.0	23.0-120	
4-Bromophenyl-phenylether	0.666	0.529	79.4	40.0-120	
Carbazole	0.666	0.499	74.9	48.0-120	
2-Chloronaphthalene	0.666	0.472	70.9	35.0-120	
4-Chloroaniline	0.666	0.280	42.0	18.0-120	
4-Chlorophenyl-phenylether	0.666	0.528	79.3	40.0-120	
Chrysene	0.666	0.508	76.3	43.0-120	
Dibenz(a,h)anthracene	0.666	0.562	84.4	44.0-120	
Dibenzofuran	0.666	0.483	72.5	44.0-120	
3,3-Dichlorobenzidine	1.33	0.901	67.7	28.0-120	
2,4-Dinitrotoluene	0.666	0.541	81.2	45.0-120	
2,6-Dinitrotoluene	0.666	0.521	78.2	42.0-120	
Fluoranthene	0.666	0.543	81.5	44.0-120	
Fluorene	0.666	0.488	73.3	41.0-120	
Hexachlorobenzene	0.666	0.510	76.6	39.0-120	
Hexachloro-1,3-butadiene	0.666	0.438	65.8	15.0-120	
Hexachlorocyclopentadiene	0.666	0.454	68.2	15.0-120	
Hexachloroethane	0.666	0.401	60.2	17.0-120	
Indeno(1,2,3-cd)pyrene	0.666	0.550	82.6	45.0-120	
Isophorone	0.666	0.355	53.3	23.0-120	
2-Methylnaphthalene	0.666	0.396	59.5	34.0-120	
Naphthalene	0.666	0.366	55.0	18.0-120	
2-Nitroaniline	0.666	0.447	67.1	46.0-120	
3-Nitroaniline	0.666	0.428	64.3	36.0-120	
4-Nitroaniline	0.666	0.541	81.2	36.0-120	
Nitrobenzene	0.666	0.374	56.2	17.0-120	
n-Nitrosodimethylamine	0.666	0.374	56.2	10.0-125	
n-Nitrosodiphenylamine	0.666	0.417	62.6	40.0-120	
n-Nitrosodi-n-propylamine	0.666	0.415	62.3	26.0-120	
Phenanthrene	0.666	0.466	70.0	42.0-120	

Laboratory Control Sample (LCS)

(LCS) R3886469-1 01/31/23 23:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzylbutyl phthalate	0.666	0.505	75.8	40.0-120	
Bis(2-ethylhexyl)phthalate	0.666	0.503	75.5	41.0-120	
Di-n-butyl phthalate	0.666	0.463	69.5	43.0-120	
Diethyl phthalate	0.666	0.511	76.7	43.0-120	
Dimethyl phthalate	0.666	0.509	76.4	43.0-120	
Di-n-octyl phthalate	0.666	0.502	75.4	40.0-120	
Pyrene	0.666	0.517	77.6	41.0-120	
Pyridine	0.666	0.275	41.3	10.0-120	
1,2,4-Trichlorobenzene	0.666	0.414	62.2	17.0-120	
4-Chloro-3-methylphenol	0.666	0.417	62.6	28.0-120	
2-Chlorophenol	0.666	0.437	65.6	28.0-120	
2,4-Dichlorophenol	0.666	0.426	64.0	25.0-120	
2,4-Dimethylphenol	0.666	0.364	54.7	15.0-120	
4,6-Dinitro-2-methylphenol	0.666	0.480	72.1	16.0-120	
2,4-Dinitrophenol	0.666	0.330	49.5	10.0-120	
2-Methylphenol	0.666	0.426	64.0	35.0-120	
3&4-Methyl Phenol	0.666	0.459	68.9	42.0-120	
2-Nitrophenol	0.666	0.433	65.0	20.0-120	
4-Nitrophenol	0.666	0.522	78.4	27.0-120	
Pentachlorophenol	0.666	0.467	70.1	29.0-120	
Phenol	0.666	0.457	68.6	28.0-120	
2,4,5-Trichlorophenol	0.666	0.499	74.9	38.0-120	
2,4,6-Trichlorophenol	0.666	0.558	83.8	37.0-120	
(S) 2-Fluorophenol			*73.9*	*12.0-120*	
(S) Phenol-d5			*65.2*	*10.0-120*	
(S) Nitrobenzene-d5			*56.5*	*10.0-122*	
(S) 2-Fluorobiphenyl			*71.2*	*15.0-120*	
(S) 2,4,6-Tribromophenol			*83.0*	*10.0-127*	
(S) p-Terphenyl-d14			*77.8*	*10.0-120*	

L1580169-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580169-04 02/01/23 02:24 • (MS) R3886469-3 02/01/23 02:45 • (MSD) R3886469-4 02/01/23 03:06

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.829	U	0.325	0.445	39.2	53.7	1	18.0-120			31.2	32
Acenaphthylene	0.829	U	0.349	0.485	42.1	58.5	1	25.0-120		J3	32.7	32
Anthracene	0.829	U	0.306	0.450	36.9	54.3	1	22.0-120		J3	38.1	29
Benzo(a)anthracene	0.829	U	0.337	0.521	40.7	62.8	1	25.0-120		J3	42.7	29

L1580169-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580169-04 02/01/23 02:24 • (MS) R3886469-3 02/01/23 02:45 • (MSD) R3886469-4 02/01/23 03:06

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzo(b)fluoranthene	0.829	U	0.316	0.497	38.1	59.9	1	19.0-122		J3	44.5	31
Benzo(k)fluoranthene	0.829	U	0.298	0.458	36.0	55.2	1	23.0-120		J3	42.1	30
Benzo(g,h,i)perylene	0.829	U	0.291	0.428	35.1	51.7	1	10.0-120		J3	38.3	33
Benzo(a)pyrene	0.829	U	0.346	0.540	41.8	65.1	1	24.0-120		J3	43.7	30
Benzoic Acid	1.66	U	0.765	1.25	46.2	75.6	1	10.0-152		J3	48.4	40
Benzyl Alcohol	0.829	U	0.373	0.459	45.0	55.3	1	10.0-136			20.7	40
Bis(2-chlorethoxy)methane	0.829	U	0.300	0.358	36.1	43.1	1	10.0-120			17.7	34
Bis(2-chloroethyl)ether	0.829	U	0.372	0.449	44.8	54.1	1	10.0-120			18.8	40
2,2-Oxybis(1-Chloropropane)	0.829	U	0.324	0.387	39.0	46.6	1	10.0-120			17.8	40
4-Bromophenyl-phenylether	0.829	U	0.356	0.523	43.0	63.1	1	27.0-120		J3	37.9	30
Carbazole	0.829	U	0.344	0.482	41.5	58.1	1	31.0-120		J3	33.4	24
2-Chloronaphthalene	0.829	U	0.336	0.449	40.5	54.1	1	20.0-120			28.7	32
4-Chloroaniline	0.829	U	0.178	0.240	21.5	29.0	1	10.0-120			29.6	36
4-Chlorophenyl-phenylether	0.829	U	0.360	0.521	43.4	62.8	1	24.0-120		J3	36.4	29
Chrysene	0.829	U	0.313	0.480	37.8	57.9	1	21.0-120		J3	42.0	29
Dibenz(a,h)anthracene	0.829	U	0.302	0.468	36.4	56.4	1	10.0-120		J3	43.0	32
Dibenzofuran	0.829	U	0.343	0.466	41.3	56.2	1	24.0-120		J3	30.6	30
3,3-Dichlorobenzidine	1.66	U	0.226	0.397	13.7	24.0	1	10.0-120		J3	54.8	34
2,4-Dinitrotoluene	0.829	U	0.391	0.508	47.1	61.3	1	30.0-120			26.2	31
2,6-Dinitrotoluene	0.829	U	0.394	0.516	47.6	62.2	1	25.0-120			26.7	31
Fluoranthene	0.829	U	0.353	0.530	42.5	63.9	1	18.0-126		J3	40.1	32
Fluorene	0.829	U	0.344	0.480	41.5	57.9	1	25.0-120		J3	33.1	30
Hexachlorobenzene	0.829	U	0.351	0.503	42.4	60.7	1	27.0-120		J3	35.5	28
Hexachloro-1,3-butadiene	0.829	U	0.375	0.458	45.3	55.2	1	10.0-120			19.7	38
Hexachlorocyclopentadiene	0.829	U	U	U	0.381	0.204	1	10.0-120	J6	J3 J6	60.4	40
Hexachloroethane	0.829	U	0.0650	0.0895	7.84	10.8	1	10.0-120	J6		31.8	40
Indeno(1,2,3-cd)pyrene	0.829	U	0.303	0.458	36.6	55.2	1	10.0-120		J3	40.5	32
Isophorone	0.829	U	0.297	0.361	35.8	43.6	1	13.0-120			19.6	34
2-Methylnaphthalene	0.829	U	0.310	0.412	37.3	49.7	1	10.0-120			28.4	37
Naphthalene	0.829	U	0.300	0.402	36.1	48.5	1	10.0-120			29.2	35
2-Nitroaniline	0.829	U	0.378	0.475	45.6	57.3	1	24.0-120			22.8	30
3-Nitroaniline	0.829	U	0.201	0.302	24.2	36.4	1	11.0-120		J3	40.2	32
4-Nitroaniline	0.829	U	0.312	0.412	37.7	49.7	1	15.0-120			27.6	31
Nitrobenzene	0.829	U	0.308	0.382	37.2	46.0	1	10.0-120			21.2	36
n-Nitrosodimethylamine	0.829	U	0.288	0.293	34.8	35.4	1	10.0-127			1.74	40
n-Nitrosodiphenylamine	0.829	U	0.284	0.397	34.3	47.9	1	17.0-120		J3	33.0	29
n-Nitrosodi-n-propylamine	0.829	U	0.353	0.421	42.5	50.8	1	10.0-120			17.6	37
Phenanthrene	0.829	U	0.320	0.459	38.6	55.3	1	17.0-120		J3	35.7	31
Benzylbutyl phthalate	0.829	U	0.353	0.552	42.5	66.6	1	23.0-120		J3	44.1	30

L1580169-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580169-04 02/01/23 02:24 • (MS) R3886469-3 02/01/23 02:45 • (MSD) R3886469-4 02/01/23 03:06

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bis(2-ethylhexyl)phthalate	0.829	U	0.384	0.535	46.3	64.5	1	17.0-126		J3	32.7	30
Di-n-butyl phthalate	0.829	U	0.316	0.478	38.1	57.6	1	30.0-120		J3	40.8	29
Diethyl phthalate	0.829	U	0.379	0.504	45.7	60.8	1	26.0-120		J3	28.3	28
Dimethyl phthalate	0.829	U	0.393	0.495	47.4	59.8	1	25.0-120			23.0	29
Di-n-octyl phthalate	0.829	U	0.417	0.588	50.3	70.9	1	21.0-123		J3	34.0	29
Pyrene	0.829	U	0.326	0.499	39.3	60.2	1	16.0-121		J3	42.0	32
Pyridine	0.829	U	0.260	0.294	31.4	35.5	1	10.0-120			12.3	40
1,2,4-Trichlorobenzene	0.829	U	0.337	0.417	40.7	50.3	1	12.0-120			21.1	37
4-Chloro-3-methylphenol	0.829	U	0.351	0.466	42.4	56.2	1	15.0-120			28.1	30
2-Chlorophenol	0.829	U	0.343	0.430	41.3	51.8	1	15.0-120			22.6	37
2,4-Dichlorophenol	0.829	U	0.348	0.449	41.9	54.1	1	20.0-120			25.4	31
2,4-Dimethylphenol	0.829	U	0.284	0.375	34.3	45.3	1	10.0-120			27.6	33
4,6-Dinitro-2-methylphenol	0.829	U	0.308	0.384	37.2	46.3	1	10.0-120			21.9	39
2,4-Dinitrophenol	0.829	U	0.312	0.387	37.7	46.6	1	10.0-121			21.3	40
2-Methylphenol	0.829	U	0.321	0.415	38.7	50.0	1	11.0-120			25.4	40
3&4-Methyl Phenol	0.829	U	0.353	0.447	42.5	54.0	1	12.0-123			23.7	38
2-Nitrophenol	0.829	U	0.379	0.478	45.7	57.6	1	12.0-120			23.0	39
4-Nitrophenol	0.829	U	0.432	0.547	52.1	66.0	1	10.0-137			23.5	32
Pentachlorophenol	0.829	U	0.353	0.498	42.5	60.1	1	10.0-160		J3	34.2	31
Phenol	0.829	U	0.345	0.435	41.6	52.4	1	12.0-120			23.0	38
2,4,5-Trichlorophenol	0.829	U	0.394	0.536	47.6	64.6	1	20.0-120		J3	30.4	30
2,4,6-Trichlorophenol	0.829	U	0.441	0.581	53.2	70.1	1	19.0-120			27.4	32
(S) 2-Fluorophenol					*45.6*	*56.1*		*12.0-120*				
(S) Phenol-d5					*41.5*	*49.8*		*10.0-120*				
(S) Nitrobenzene-d5					*37.5*	*45.4*		*10.0-122*				
(S) 2-Fluorobiphenyl					*39.9*	*55.5*		*15.0-120*				
(S) 2,4,6-Tribromophenol					*52.3*	*70.7*		*10.0-127*				
(S) p-Terphenyl-d14					*38.7*	*62.2*		*10.0-120*				

Method Blank (MB)

(MB) R3887204-2 02/02/23 13:55

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00539	0.0333
Acenaphthylene	U		0.00469	0.0333
Anthracene	U		0.00593	0.0333
Benzo(a)anthracene	U		0.00587	0.0333
Benzo(b)fluoranthene	U		0.00621	0.0333
Benzo(k)fluoranthene	U		0.00592	0.0333
Benzo(g,h,i)perylene	U		0.00609	0.0333
Benzo(a)pyrene	U		0.00619	0.0333
Benzoic Acid	U		0.118	1.67
Benzyl Alcohol	U		0.0123	0.333
Bis(2-chlorethoxy)methane	U		0.0100	0.333
Bis(2-chloroethyl)ether	U		0.0110	0.333
2,2-Oxybis(1-Chloropropane)	U		0.0144	0.333
4-Bromophenyl-phenylether	U		0.0117	0.333
Carbazole	U		0.0103	0.333
2-Chloronaphthalene	U		0.00585	0.0333
4-Chloroaniline	U		0.0120	0.333
4-Chlorophenyl-phenylether	U		0.0116	0.333
Chrysene	U		0.00662	0.0333
Dibenz(a,h)anthracene	U		0.00923	0.0333
Dibenzofuran	U		0.0109	0.333
3,3-Dichlorobenzidine	U		0.0123	0.333
2,4-Dinitrotoluene	U		0.00955	0.333
2,6-Dinitrotoluene	U		0.0109	0.333
Fluoranthene	U		0.00601	0.0333
Fluorene	U		0.00542	0.0333
Hexachlorobenzene	U		0.0118	0.333
Hexachloro-1,3-butadiene	U		0.0112	0.333
Hexachlorocyclopentadiene	U		0.0175	0.333
Hexachloroethane	U		0.0131	0.333
Indeno(1,2,3-cd)pyrene	U		0.00941	0.0333
Isophorone	U		0.0102	0.333
2-Methylnaphthalene	U		0.00432	0.0333
Naphthalene	U		0.00836	0.0333
2-Nitroaniline	U		0.0107	0.333
3-Nitroaniline	U		0.0106	0.333
4-Nitroaniline	U		0.00971	0.333
Nitrobenzene	U		0.0116	0.333
n-Nitrosodimethylamine	U		0.0494	0.333
n-Nitrosodiphenylamine	U		0.0252	0.333

Method Blank (MB)

(MB) R3887204-2 02/02/23 13:55

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
n-Nitrosodi-n-propylamine	U		0.0111	0.333
Phenanthrene	U		0.00661	0.0333
Benzylbutyl phthalate	U		0.0104	0.333
Bis(2-ethylhexyl)phthalate	U		0.0422	0.333
Di-n-butyl phthalate	U		0.0114	0.333
Diethyl phthalate	U		0.0110	0.333
Dimethyl phthalate	U		0.0706	0.333
Di-n-octyl phthalate	U		0.0225	0.333
Pyrene	U		0.00648	0.0333
Pyridine	U		0.0220	0.333
1,2,4-Trichlorobenzene	U		0.0104	0.333
4-Chloro-3-methylphenol	U		0.0108	0.333
2-Chlorophenol	U		0.0110	0.333
2,4-Dichlorophenol	U		0.00970	0.333
2,4-Dimethylphenol	U		0.00870	0.333
4,6-Dinitro-2-methylphenol	U		0.0755	0.333
2,4-Dinitrophenol	U		0.0779	0.333
2-Methylphenol	U		0.0100	0.333
3&4-Methyl Phenol	U		0.0104	0.333
2-Nitrophenol	U		0.0119	0.333
4-Nitrophenol	U		0.0104	0.333
Pentachlorophenol	U		0.00896	0.333
Phenol	U		0.0134	0.333
2,4,5-Trichlorophenol	U		0.0113	0.333
2,4,6-Trichlorophenol	U		0.0107	0.333
(S) 2-Fluorophenol	*45.6*			*12.0-120*
(S) Phenol-d5	*42.8*			*10.0-120*
(S) Nitrobenzene-d5	*39.9*			*10.0-122*
(S) 2-Fluorobiphenyl	*44.1*			*15.0-120*
(S) 2,4,6-Tribromophenol	*33.8*			*10.0-127*
(S) p-Terphenyl-d14	*49.5*			*10.0-120*

Laboratory Control Sample (LCS)

(LCS) R3887204-1 02/02/23 13:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.666	0.323	48.5	38.0-120	
Acenaphthylene	0.666	0.345	51.8	40.0-120	

Laboratory Control Sample (LCS)

(LCS) R3887204-1 02/02/23 13:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.666	0.322	48.3	42.0-120	
Benzo(a)anthracene	0.666	0.364	54.7	44.0-120	
Benzo(b)fluoranthene	0.666	0.347	52.1	43.0-120	
Benzo(k)fluoranthene	0.666	0.358	53.8	44.0-120	
Benzo(g,h,i)perylene	0.666	0.372	55.9	43.0-120	
Benzo(a)pyrene	0.666	0.378	56.8	45.0-120	
Benzoic Acid	1.33	0.141	10.6	10.0-120	
Benzyl Alcohol	0.666	0.311	46.7	10.0-120	
Bis(2-chlorethoxy)methane	0.666	0.280	42.0	20.0-120	
Bis(2-chloroethyl)ether	0.666	0.371	55.7	16.0-120	
2,2-Oxybis(1-Chloropropane)	0.666	0.336	50.5	23.0-120	
4-Bromophenyl-phenylether	0.666	0.350	52.6	40.0-120	
Carbazole	0.666	0.350	52.6	48.0-120	
2-Chloronaphthalene	0.666	0.322	48.3	35.0-120	
4-Chloroaniline	0.666	0.205	30.8	18.0-120	
4-Chlorophenyl-phenylether	0.666	0.355	53.3	40.0-120	
Chrysene	0.666	0.368	55.3	43.0-120	
Dibenz(a,h)anthracene	0.666	0.372	55.9	44.0-120	
Dibenzofuran	0.666	0.329	49.4	44.0-120	
3,3-Dichlorobenzidine	1.33	0.656	49.3	28.0-120	
2,4-Dinitrotoluene	0.666	0.385	57.8	45.0-120	
2,6-Dinitrotoluene	0.666	0.359	53.9	42.0-120	
Fluoranthene	0.666	0.367	55.1	44.0-120	
Fluorene	0.666	0.343	51.5	41.0-120	
Hexachlorobenzene	0.666	0.334	50.2	39.0-120	
Hexachloro-1,3-butadiene	0.666	0.286	42.9	15.0-120	
Hexachlorocyclopentadiene	0.666	0.279	41.9	15.0-120	
Hexachloroethane	0.666	0.299	44.9	17.0-120	
Indeno(1,2,3-cd)pyrene	0.666	0.340	51.1	45.0-120	
Isophorone	0.666	0.263	39.5	23.0-120	
2-Methylnaphthalene	0.666	0.292	43.8	34.0-120	
Naphthalene	0.666	0.277	41.6	18.0-120	
2-Nitroaniline	0.666	0.362	54.4	46.0-120	
3-Nitroaniline	0.666	0.327	49.1	36.0-120	
4-Nitroaniline	0.666	0.378	56.8	36.0-120	
Nitrobenzene	0.666	0.279	41.9	17.0-120	
n-Nitrosodimethylamine	0.666	0.314	47.1	10.0-125	
n-Nitrosodiphenylamine	0.666	0.291	43.7	40.0-120	
n-Nitrosodi-n-propylamine	0.666	0.299	44.9	26.0-120	
Phenanthrene	0.666	0.339	50.9	42.0-120	

Laboratory Control Sample (LCS)

(LCS) R3887204-1 02/02/23 13:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzylbutyl phthalate	0.666	0.363	54.5	40.0-120	
Bis(2-ethylhexyl)phthalate	0.666	0.366	55.0	41.0-120	
Di-n-butyl phthalate	0.666	0.357	53.6	43.0-120	
Diethyl phthalate	0.666	0.348	52.3	43.0-120	
Dimethyl phthalate	0.666	0.346	52.0	43.0-120	
Di-n-octyl phthalate	0.666	0.362	54.4	40.0-120	
Pyrene	0.666	0.354	53.2	41.0-120	
Pyridine	0.666	0.207	31.1	10.0-120	
1,2,4-Trichlorobenzene	0.666	0.290	43.5	17.0-120	
4-Chloro-3-methylphenol	0.666	0.284	42.6	28.0-120	
2-Chlorophenol	0.666	0.311	46.7	28.0-120	
2,4-Dichlorophenol	0.666	0.294	44.1	25.0-120	
2,4-Dimethylphenol	0.666	0.270	40.5	15.0-120	
4,6-Dinitro-2-methylphenol	0.666	0.337	50.6	16.0-120	
2,4-Dinitrophenol	0.666	0.201	30.2	10.0-120	
2-Methylphenol	0.666	0.308	46.2	35.0-120	
3&4-Methyl Phenol	0.666	0.310	46.5	42.0-120	
2-Nitrophenol	0.666	0.320	48.0	20.0-120	
4-Nitrophenol	0.666	0.371	55.7	27.0-120	
Pentachlorophenol	0.666	0.275	41.3	29.0-120	
Phenol	0.666	0.314	47.1	28.0-120	
2,4,5-Trichlorophenol	0.666	0.298	44.7	38.0-120	
2,4,6-Trichlorophenol	0.666	0.317	47.6	37.0-120	
(S) 2-Fluorophenol			*51.2*	*12.0-120*	
(S) Phenol-d5			*46.7*	*10.0-120*	
(S) Nitrobenzene-d5			*37.5*	*10.0-122*	
(S) 2-Fluorobiphenyl			*47.4*	*15.0-120*	
(S) 2,4,6-Tribromophenol			*51.5*	*10.0-127*	
(S) p-Terphenyl-d14			*52.6*	*10.0-120*	

L1580355-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580355-01 02/03/23 10:58 • (MS) R3887558-1 02/03/23 11:18 • (MSD) R3887558-2 02/03/23 11:38

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.683	U	0.312	0.398	45.7	58.9	1	18.0-120			24.4	32
Acenaphthylene	0.683	U	0.339	0.429	49.7	63.4	1	25.0-120			23.4	32
Anthracene	0.683	U	0.299	0.389	43.8	57.5	1	22.0-120			26.1	29
Benzo(a)anthracene	0.683	U	0.341	0.449	50.0	66.4	1	25.0-120			27.3	29

L1580355-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580355-01 02/03/23 10:58 • (MS) R3887558-1 02/03/23 11:18 • (MSD) R3887558-2 02/03/23 11:38

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzo(b)fluoranthene	0.683	U	0.320	0.415	46.9	61.4	1	19.0-122			25.9	31
Benzo(k)fluoranthene	0.683	U	0.316	0.418	46.3	61.9	1	23.0-120			27.9	30
Benzo(g,h,i)perylene	0.683	U	0.365	0.483	53.4	71.4	1	10.0-120			27.9	33
Benzo(a)pyrene	0.683	U	0.363	0.479	53.3	70.8	1	24.0-120			27.4	30
Benzoic Acid	1.36	U	0.813	0.951	59.6	70.3	1	10.0-152			15.7	40
Benzyl Alcohol	0.683	U	0.294	0.386	43.0	57.0	1	10.0-136			27.1	40
Bis(2-chlorethoxy)methane	0.683	U	0.269	0.333	39.5	49.2	1	10.0-120			21.1	34
Bis(2-chloroethyl)ether	0.683	U	0.303	0.381	44.4	56.4	1	10.0-120			22.8	40
2,2-Oxybis(1-Chloropropane)	0.683	U	0.309	0.399	45.2	59.1	1	10.0-120			25.7	40
4-Bromophenyl-phenylether	0.683	U	0.333	0.425	48.8	62.8	1	27.0-120			24.3	30
Carbazole	0.683	U	0.321	0.425	47.1	62.8	1	31.0-120		J3	27.8	24
2-Chloronaphthalene	0.683	U	0.318	0.401	46.6	59.4	1	20.0-120			23.2	32
4-Chloroaniline	0.683	U	0.186	0.255	27.2	37.7	1	10.0-120			31.2	36
4-Chlorophenyl-phenylether	0.683	U	0.329	0.411	48.1	60.8	1	24.0-120			22.3	29
Chrysene	0.683	U	0.341	0.442	50.0	65.3	1	21.0-120			25.6	29
Dibenz(a,h)anthracene	0.683	U	0.361	0.485	52.9	71.7	1	10.0-120			29.2	32
Dibenzofuran	0.683	U	0.319	0.403	46.7	59.5	1	24.0-120			23.1	30
3,3-Dichlorobenzidine	1.36	U	0.591	0.765	43.3	56.6	1	10.0-120			25.7	34
2,4-Dinitrotoluene	0.683	U	0.365	0.481	53.4	71.1	1	30.0-120			27.5	31
2,6-Dinitrotoluene	0.683	U	0.318	0.414	46.6	61.3	1	25.0-120			26.3	31
Fluoranthene	0.683	U	0.341	0.452	50.0	66.9	1	18.0-126			28.0	32
Fluorene	0.683	U	0.328	0.408	48.0	60.3	1	25.0-120			21.8	30
Hexachlorobenzene	0.683	U	0.301	0.397	44.1	58.7	1	27.0-120			27.5	28
Hexachloro-1,3-butadiene	0.683	U	0.275	0.340	40.2	50.3	1	10.0-120			21.3	38
Hexachlorocyclopentadiene	0.683	U	0.287	0.344	42.1	50.9	1	10.0-120			18.1	40
Hexachloroethane	0.683	U	0.288	0.363	42.3	53.8	1	10.0-120			23.0	40
Indeno(1,2,3-cd)pyrene	0.683	U	0.356	0.466	52.2	68.9	1	10.0-120			26.7	32
Isophorone	0.683	U	0.260	0.325	38.1	48.1	1	13.0-120			22.4	34
2-Methylnaphthalene	0.683	U	0.272	0.339	39.8	50.2	1	10.0-120			22.1	37
Naphthalene	0.683	U	0.263	0.330	38.5	48.8	1	10.0-120			22.5	35
2-Nitroaniline	0.683	U	0.331	0.446	48.5	65.9	1	24.0-120			29.7	30
3-Nitroaniline	0.683	U	0.318	0.434	46.6	64.2	1	11.0-120			30.9	32
4-Nitroaniline	0.683	U	0.498	0.654	72.9	96.7	1	15.0-120			27.2	31
Nitrobenzene	0.683	U	0.264	0.330	38.7	48.8	1	10.0-120			22.1	36
n-Nitrosodimethylamine	0.683	U	0.285	0.386	41.8	57.0	1	10.0-127			29.9	40
n-Nitrosodiphenylamine	0.683	U	0.262	0.345	38.4	51.1	1	17.0-120			27.5	29
n-Nitrosodi-n-propylamine	0.683	U	0.299	0.397	43.8	58.7	1	10.0-120			28.2	37
Phenanthrene	0.683	U	0.316	0.410	46.3	60.6	1	17.0-120			25.9	31
Benzylbutyl phthalate	0.683	U	0.351	0.459	51.4	67.8	1	23.0-120			26.6	30

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

L1580355-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580355-01 02/03/23 10:58 • (MS) R3887558-1 02/03/23 11:18 • (MSD) R3887558-2 02/03/23 11:38

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bis(2-ethylhexyl)phthalate	0.683	U	0.349	0.454	51.1	67.2	1	17.0-126			26.3	30
Di-n-butyl phthalate	0.683	U	0.328	0.427	48.0	63.1	1	30.0-120			26.3	29
Diethyl phthalate	0.683	U	0.362	0.454	53.1	67.2	1	26.0-120			22.5	28
Dimethyl phthalate	0.683	U	0.315	0.416	46.1	61.6	1	25.0-120			27.7	29
Di-n-octyl phthalate	0.683	U	0.375	0.484	55.0	71.6	1	21.0-123			25.3	29
Pyrene	0.683	U	0.313	0.403	45.8	59.5	1	16.0-121			25.1	32
Pyridine	0.683	U	0.219	0.280	32.0	41.4	1	10.0-120			24.6	40
1,2,4-Trichlorobenzene	0.683	U	0.269	0.328	39.5	48.4	1	12.0-120			19.5	37
4-Chloro-3-methylphenol	0.683	U	0.239	0.315	35.0	46.6	1	15.0-120			27.5	30
2-Chlorophenol	0.683	U	0.288	0.379	42.3	56.1	1	15.0-120			27.2	37
2,4-Dichlorophenol	0.683	U	0.241	0.312	35.3	46.1	1	20.0-120			25.6	31
2,4-Dimethylphenol	0.683	U	0.221	0.289	32.4	42.8	1	10.0-120			26.9	33
4,6-Dinitro-2-methylphenol	0.683	U	0.401	0.531	58.8	78.6	1	10.0-120			27.9	39
2,4-Dinitrophenol	0.683	U	0.413	0.538	60.5	79.5	1	10.0-121			26.2	40
2-Methylphenol	0.683	U	0.262	0.340	38.4	50.3	1	11.0-120			26.0	40
3&4-Methyl Phenol	0.683	U	0.255	0.334	37.3	49.4	1	12.0-123			26.9	38
2-Nitrophenol	0.683	U	0.311	0.393	45.5	58.1	1	12.0-120			23.4	39
4-Nitrophenol	0.683	U	0.408	0.558	59.8	82.5	1	10.0-137			31.1	32
Pentachlorophenol	0.683	U	0.0612	0.313	8.96	46.3	1	10.0-160	J6	J3	135	31
Phenol	0.683	U	0.278	0.355	40.7	52.5	1	12.0-120			24.4	38
2,4,5-Trichlorophenol	0.683	U	0.267	0.376	39.2	55.6	1	20.0-120		J3	33.8	30
2,4,6-Trichlorophenol	0.683	U	0.284	0.393	41.6	58.1	1	19.0-120		J3	32.1	32
(S) 2-Fluorophenol					*44.1*	*62.0*		*12.0-120*				
(S) Phenol-d5					*40.6*	*55.8*		*10.0-120*				
(S) Nitrobenzene-d5					*36.5*	*47.8*		*10.0-122*				
(S) 2-Fluorobiphenyl					*45.5*	*60.6*		*15.0-120*				
(S) 2,4,6-Tribromophenol					*43.0*	*67.7*		*10.0-127*				
(S) p-Terphenyl-d14					*43.0*	*60.9*		*10.0-120*				

Method Blank (MB)

(MB) R3886673-2 02/01/23 20:41

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) p-Terphenyl-d14	*77.5*			*23.0-120*
(S) Nitrobenzene-d5	*75.2*			*14.0-149*
(S) 2-Fluorobiphenyl	*72.7*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3886673-1 02/01/23 20:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0622	77.8	50.0-126	
Acenaphthene	0.0800	0.0640	80.0	50.0-120	
Acenaphthylene	0.0800	0.0652	81.5	50.0-120	
Benzo(a)anthracene	0.0800	0.0670	83.8	45.0-120	
Benzo(a)pyrene	0.0800	0.0564	70.5	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0563	70.4	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0566	70.8	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0577	72.1	49.0-125	
Chrysene	0.0800	0.0657	82.1	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0580	72.5	47.0-125	
Fluoranthene	0.0800	0.0660	82.5	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3886673-1 02/01/23 20:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0637	79.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0626	78.3	46.0-125	
Naphthalene	0.0800	0.0648	81.0	50.0-120	
Phenanthrene	0.0800	0.0612	76.5	47.0-120	
Pyrene	0.0800	0.0694	86.8	43.0-123	
1-Methylnaphthalene	0.0800	0.0679	84.9	51.0-121	
2-Methylnaphthalene	0.0800	0.0699	87.4	50.0-120	
2-Chloronaphthalene	0.0800	0.0598	74.8	50.0-120	
(S) p-Terphenyl-d14			*86.2*	*23.0-120*	
(S) Nitrobenzene-d5			*88.8*	*14.0-149*	
(S) 2-Fluorobiphenyl			*83.5*	*34.0-125*	

L1580169-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580169-04 02/02/23 02:17 • (MS) R3886673-3 02/02/23 02:35 • (MSD) R3886673-4 02/02/23 02:52

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0986	U	0.0739	0.0696	75.0	70.6	1	10.0-145			5.99	30
Acenaphthene	0.0986	U	0.0762	0.0719	77.3	72.9	1	14.0-127			5.80	27
Acenaphthylene	0.0986	U	0.0766	0.0733	77.7	74.4	1	21.0-124			4.38	25
Benzo(a)anthracene	0.0986	U	0.0843	0.0798	85.5	80.9	1	10.0-139			5.55	30
Benzo(a)pyrene	0.0986	U	0.0770	0.0737	78.1	74.7	1	10.0-141			4.36	31
Benzo(b)fluoranthene	0.0986	U	0.0659	0.0617	66.8	62.6	1	10.0-140			6.54	36
Benzo(g,h,i)perylene	0.0986	U	0.0647	0.0604	65.6	61.3	1	10.0-140			6.87	33
Benzo(k)fluoranthene	0.0986	U	0.0640	0.0602	64.9	61.0	1	10.0-137			6.11	31
Chrysene	0.0986	U	0.0804	0.0800	81.5	81.2	1	10.0-145			0.473	30
Dibenz(a,h)anthracene	0.0986	U	0.0629	0.0598	63.8	60.6	1	10.0-132			5.15	31
Fluoranthene	0.0986	0.00308	0.0848	0.0767	82.9	74.7	1	10.0-153			10.0	33
Fluorene	0.0986	U	0.0777	0.0713	78.8	72.3	1	11.0-130			8.65	29
Indeno(1,2,3-cd)pyrene	0.0986	U	0.0731	0.0666	74.1	67.6	1	10.0-137			9.23	32
Naphthalene	0.0986	U	0.0781	0.0725	79.2	73.6	1	10.0-135			7.38	27
Phenanthrene	0.0986	U	0.0760	0.0686	77.1	69.6	1	10.0-144			10.1	31
Pyrene	0.0986	0.00257	0.0863	0.0808	85.0	79.3	1	10.0-148			6.66	35
1-Methylnaphthalene	0.0986	U	0.0805	0.0756	81.7	76.7	1	10.0-142			6.32	28
2-Methylnaphthalene	0.0986	U	0.0810	0.0768	82.2	77.9	1	10.0-137			5.28	28
2-Chloronaphthalene	0.0986	U	0.0714	0.0667	72.4	67.7	1	29.0-120			6.77	24
(S) p-Terphenyl-d14					*78.0*	*74.3*		*23.0-120*				
(S) Nitrobenzene-d5					*84.3*	*81.1*		*14.0-149*				
(S) 2-Fluorobiphenyl					*76.1*	*72.1*		*34.0-125*				

Method Blank (MB)

(MB) R3886311-2 02/01/23 01:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) p-Terphenyl-d14	*95.0*			*23.0-120*
(S) Nitrobenzene-d5	*66.1*			*14.0-149*
(S) 2-Fluorobiphenyl	*90.0*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3886311-1 02/01/23 00:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0629	78.6	50.0-126	
Acenaphthene	0.0800	0.0711	88.9	50.0-120	
Acenaphthylene	0.0800	0.0678	84.8	50.0-120	
Benzo(a)anthracene	0.0800	0.0670	83.8	45.0-120	
Benzo(a)pyrene	0.0800	0.0644	80.5	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0747	93.4	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0783	97.9	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0723	90.4	49.0-125	
Chrysene	0.0800	0.0749	93.6	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0704	88.0	47.0-125	
Fluoranthene	0.0800	0.0763	95.4	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3886311-1 02/01/23 00:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0756	94.5	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0728	91.0	46.0-125	
Naphthalene	0.0800	0.0742	92.8	50.0-120	
Phenanthrene	0.0800	0.0722	90.3	47.0-120	
Pyrene	0.0800	0.0791	98.9	43.0-123	
1-Methylnaphthalene	0.0800	0.0776	97.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0786	98.3	50.0-120	
2-Chloronaphthalene	0.0800	0.0720	90.0	50.0-120	
(S) p-Terphenyl-d14			*96.0*	*23.0-120*	
(S) Nitrobenzene-d5			*74.0*	*14.0-149*	
(S) 2-Fluorobiphenyl			*97.8*	*34.0-125*	

L1580355-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580355-01 02/01/23 01:31 • (MS) R3886311-3 02/01/23 01:50 • (MSD) R3886311-4 02/01/23 02:10

Analyte	Spike Amount (dry) mg/kg	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0845	U	0.0716	0.0714	84.8	84.5	1	10.0-145			0.295	30
Acenaphthene	0.0845	U	0.0805	0.0795	95.3	94.0	1	14.0-127			1.32	27
Acenaphthylene	0.0845	U	0.0770	0.0761	91.1	90.0	1	21.0-124			1.24	25
Benzo(a)anthracene	0.0845	U	0.0753	0.0748	89.1	88.5	1	10.0-139			0.704	30
Benzo(a)pyrene	0.0845	U	0.0848	0.0832	100	98.4	1	10.0-141			2.01	31
Benzo(b)fluoranthene	0.0845	U	0.0863	0.0844	102	99.9	1	10.0-140			2.23	36
Benzo(g,h,i)perylene	0.0845	U	0.0920	0.0908	109	107	1	10.0-140			1.39	33
Benzo(k)fluoranthene	0.0845	U	0.0835	0.0799	98.8	94.5	1	10.0-137			4.40	31
Chrysene	0.0845	U	0.0867	0.0848	103	100	1	10.0-145			2.22	30
Dibenz(a,h)anthracene	0.0845	U	0.0800	0.0784	94.6	92.8	1	10.0-132			2.00	31
Fluoranthene	0.0845	U	0.0883	0.0868	105	103	1	10.0-153			1.69	33
Fluorene	0.0845	U	0.0852	0.0836	101	98.9	1	11.0-130			1.88	29
Indeno(1,2,3-cd)pyrene	0.0845	U	0.0800	0.0799	94.6	94.5	1	10.0-137			0.132	32
Naphthalene	0.0845	U	0.0842	0.0820	99.6	97.0	1	10.0-135			2.67	27
Phenanthrene	0.0845	U	0.0816	0.0790	96.5	93.5	1	10.0-144			3.16	31
Pyrene	0.0845	U	0.0926	0.0931	110	110	1	10.0-148			0.569	35
1-Methylnaphthalene	0.0845	U	0.0874	0.0856	103	101	1	10.0-142			2.08	28
2-Methylnaphthalene	0.0845	U	0.0886	0.0870	105	103	1	10.0-137			1.93	28
2-Chloronaphthalene	0.0845	U	0.0820	0.0814	97.0	96.3	1	29.0-120			0.776	24
(S) p-Terphenyl-d14					*131*	*102*		*23.0-120*	J1			
(S) Nitrobenzene-d5					*87.4*	*70.1*		*14.0-149*				
(S) 2-Fluorobiphenyl					*120*	*98.3*		*34.0-125*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

13300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To: tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
James Roman/Zach Schuelke

Site/Facility ID #
IMPORTED BACKFILL SOIL AND

P.O. #

Collected by (signature):
[signature]

Immediately Packed on Ice N___ Y___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed
Standard TAT

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Metals 8ozClr-NoPres	NWTPHDXNOSGT 8ozClr-NoPres	NWTPHGX 40mlAmb/MeOH10ml/Syr	SV8270 8ozClr-NoPres	SV8270PAHSIM 8ozClr-NoPres	Cd, Pb, Se, Ag by 6010					Remarks	Sample # (lab only)
PBCG-2494-01-012623	G	SS	—	1-26-2023	0915	3	X	X	X	X	X	/						-01
PBCG-2494-02-012623	G	SS	—	1-26-2023	0925	3	X	X	X	X	X	/						-02
PBCG-2494-03-012623	G	SS	—	1-26-2023	0935	3	X	X	X	X	X	/						-03
TS-2494-01-012623	|	SS	—	|	1235	3	X	X	X	X	X	/						-04
TS-2494-02-012623	|	SS	—	|	1240	3	X	X	X	X	X	/						-05
TS-2494-03-012623	|	SS	—	|	1250	3	X	X	X	X	X	/						-06
TS-2494-04-012623	|	SS	—	|	1255	3	X	X	X	X	X	/						-07
TS-2494-05-012623	|	SS	—	|	1300	3	X	X	X	X	X	/						-08
TB-2494-1-012623	—	SS	—	|	1200	~~3~~ 1 TBR			/									
TB-2494-2-012623	—	SS	—	|	1200	1			/									-09

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: *metals = Al, As, Ba, Cu, Cr, ~~Hg~~ by 6010
Hg by 7471
SN 12607
CN 12608

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓ Y __N
COC Signed/Accurate: ✓ Y __N
Bottles arrive intact: ✓ Y __N
Correct bottles used: ✓ Y __N
Sufficient volume sent: ✓ Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y ✓ N
RAD Screen <0.5 mR/hr: ✓ Y __N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
[signature]	1-26-2023	1615			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.6 °C Bottles Received: 24	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 1/27/23 Time: 0845	Hold: Condition: NCF / OK

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L580169
J008

Acctnum: UPRRGOLD
Template: T222982
Prelogin: P975097
PM: 134 - Mark W. Beasley
PB: BW 1/16
Shipped Via: FedEX Ground

1/27 NCF- UPRR GOLDER L1560169

R5

Time estimate: oh **Time spent:** oh

Members

Nicolle Faulk (responsible) BB Brittnie Boyd Paul Minnich Robert Rountree

Due on *3 February 2023 5:00 PM* for target *Done*

- [x] Login Clarification needed
- [ ] Chain of custody is incomplete
- [ ] Please specify Metals requested
- [ ] Please specify TCLP requested
- [ ] Received additional samples not listed on COC
- [ ] Sample IDs on containers do not match IDs on COC
- [ ] Client did not "X" analysis
- [x] Chain of Custody is missing
- [ ] If no COC: Received by:_____Matt M
- [ ] If no COC: Date/Time:_____1/27/23 0845
- [ ] If no COC: Temp./Cont.Rec./pH:_____2.4
- [ ] If no COC: Carrier:_____fedex
- [ ] If no COC: Tracking #:_____6094 5462 7214
- [ ] Client informed by call
- [ ] Client informed by Email
- [ ] Client informed by Voicemail
- [x] Date/Time:_____02/06 1136_____
- [x] PM initials:_____BB_____
- [x] Client Contact:_____James Roman_____

Comments

Nicolle Faulk *27 January 2023 11:23 AM*

did not received a coc with these IDs. (PB-03, PB-02, PB-01).

Brittnie Boyd *27 January 2023 12:51 PM*

Were these received with another set of samples?

Nicolle Faulk *27 January 2023 12:59 PM*

L1579818, is the only other UPRRGOLD set logged 1/27. Possible could go with this one

Brittnie Boyd *27 January 2023 1:04 PM*

Did we get a kit in with a tracking number of 619335292806. These were both shipped from Golder last night.

Nicolle Faulk *27 January 2023 1:19 PM*

The kit/empty coolers have already been cleaned by the washroom. No samples/COC has been brought out of the washroom

Brittnie Boyd *27 January 2023 1:52 PM*

There should be another cooler with a tracking number of 619335292806 from UPRR Golder.

Paul Minnich *27 January 2023 10:02 PM*

Other cooler found.

Paul Minnich *27 January 2023 11:07 PM*

L1580169. Trip blank 1 was not found.

Brittnie Boyd *6 February 2023 11:36 AM*

Client notified.

Matthew Shacklock *6 February 2023 1:23 PM*

Done

ANALYTICAL REPORT

February 02, 2023

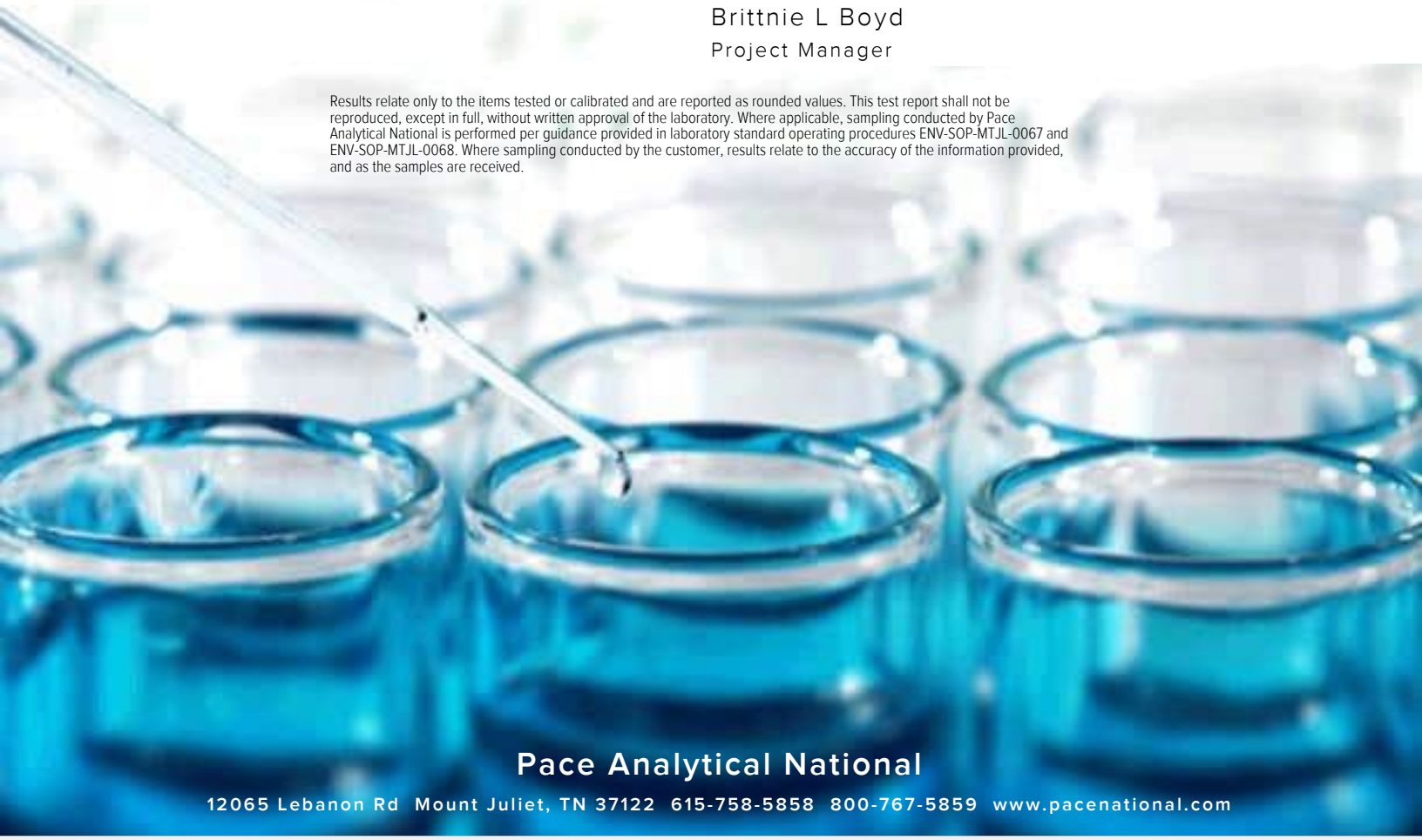
UPRR - Golder Associates

Sample Delivery Group:	L1580579
Samples Received:	01/31/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-P1-PRPL02-012723 L1580579-01 Solid

Collected by: Zachary Schuehle
Collected date/time: 01/27/23 10:45
Received date/time: 01/31/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1997557	1	01/31/23 15:34	01/31/23 15:41	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1997759	1	01/31/23 17:40	02/01/23 09:18	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1997865	200	02/01/23 08:51	02/01/23 19:33	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1997865	5	02/01/23 08:51	02/01/23 18:57	LD	Mt. Juliet, TN

SO-2494-P1-PRPL03-012723 L1580579-02 Solid

Collected by: Zachary Schuehle
Collected date/time: 01/27/23 10:55
Received date/time: 01/31/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1997557	1	01/31/23 15:34	01/31/23 15:41	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1997759	1	01/31/23 17:40	02/01/23 09:26	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1997865	200	02/01/23 08:51	02/01/23 19:37	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1997865	5	02/01/23 08:51	02/01/23 18:24	LD	Mt. Juliet, TN

SO-2494-W1-PRPL02-012723 L1580579-03 Solid

Collected by: Zachary Schuehle
Collected date/time: 01/27/23 11:25
Received date/time: 01/31/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1997557	1	01/31/23 15:34	01/31/23 15:41	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG1997759	1	01/31/23 17:40	02/01/23 09:29	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1997865	200	02/01/23 08:51	02/01/23 19:40	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1997865	5	02/01/23 08:51	02/01/23 19:00	LD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.6		1	01/31/2023 15:41	WG1997557

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0186	0.0414	1	02/01/2023 09:18	WG1997759

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	26300		286	2070	200	02/01/2023 19:33	WG1997865
Arsenic	8.31		0.104	1.04	5	02/01/2023 18:57	WG1997865
Barium	137		6.29	104	200	02/01/2023 19:33	WG1997865
Chromium	17.5		0.306	5.18	5	02/01/2023 18:57	WG1997865
Copper	30.3		0.137	5.18	5	02/01/2023 18:57	WG1997865

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.2		1	01/31/2023 15:41	WG1997557

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0183	0.0407	1	02/01/2023 09:26	WG1997759

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	30200		281	2040	200	02/01/2023 19:37	WG1997865
Arsenic	7.49		0.102	1.02	5	02/01/2023 18:24	WG1997865
Barium	216		6.19	102	200	02/01/2023 19:37	WG1997865
Chromium	14.7		0.301	5.09	5	02/01/2023 18:24	WG1997865
Copper	18.7		0.134	5.09	5	02/01/2023 18:24	WG1997865

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.7		1	01/31/2023 15:41	WG1997557

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0234	J	0.0184	0.0409	1	02/01/2023 09:29	WG1997759

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	25600		283	2050	200	02/01/2023 19:40	WG1997865
Arsenic	6.60		0.102	1.02	5	02/01/2023 19:00	WG1997865
Barium	193		6.22	102	200	02/01/2023 19:40	WG1997865
Chromium	13.5		0.303	5.12	5	02/01/2023 19:00	WG1997865
Copper	34.8		0.135	5.12	5	02/01/2023 19:00	WG1997865

Method Blank (MB)

(MB) R3886316-1 01/31/23 15:41

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1580567-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1580567-01 01/31/23 15:41 • (DUP) R3886316-3 01/31/23 15:41

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	84.9	85.0	1	0.113		10

Laboratory Control Sample (LCS)

(LCS) R3886316-2 01/31/23 15:41

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

QUALITY CONTROL SUMMARY

L1580579-01,02,03

Method Blank (MB)

(MB) R3886328-1 02/01/23 08:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3886328-2 02/01/23 08:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.471	94.2	80.0-120	

L1580522-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580522-01 02/01/23 09:01 • (MS) R3886328-3 02/01/23 09:03 • (MSD) R3886328-4 02/01/23 09:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	U	0.482	0.475	96.3	94.9	1	75.0-125			1.46	20

Method Blank (MB)

(MB) R3886541-1 02/01/23 18:17

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3886541-2 02/01/23 18:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	1100	110	80.0-120	
Arsenic	100	112	112	80.0-120	
Barium	100	110	110	80.0-120	
Chromium	100	113	113	80.0-120	
Copper	100	105	105	80.0-120	

L1580579-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1580579-02 02/01/23 18:24 • (MS) R3886541-5 02/01/23 18:34 • (MSD) R3886541-6 02/01/23 18:37

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1020	27700	32800	32500	501	471	5	75.0-125	V	V	0.947	20
Arsenic	102	7.49	105	108	95.7	98.8	5	75.0-125			2.95	20
Barium	102	199	331	325	129	124	5	75.0-125	J5		1.65	20
Chromium	102	14.7	116	118	99.3	102	5	75.0-125			2.05	20
Copper	102	18.7	113	113	93.0	92.5	5	75.0-125			0.399	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle:
(PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Zachary Schuehle

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):
Zach Schuehle
Immediately
Packed on Ice N___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres	Remarks	Sample # (lab only)
SO-2494-PI-PRPL02-012723	G	SS	1ft	1-27-23	1045	1	X		-01
SO-2494-PI-PRPL03-012723	G	SS	1ft	1-27-23	1055	1	X		-02
SO-2494-PI-PRPL05-012723	G	SS	1ft	1-27-23	1125	1	X		-03
		SS							
		SS							
		SS							
		SS							
		SS							
		SS							
		SS							

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1580579
D029

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P972608**
PM: **134 - Mark W. Beasley**
PB: 2/8/23 acld
Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu by 6020
Hg by 7470

SN 12605
SN 12606

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6094 5462 7236

Sample Receipt Checklist
COC Seal Present/Intact: __NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR
Zach Schuehle	1-30-23	1700		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: NSA2 °C 2.7+0=2.7 Bottles Received: 3
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Maycie T	Date: 1/31/23 Time: 930

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

ANALYTICAL REPORT

February 09, 2023

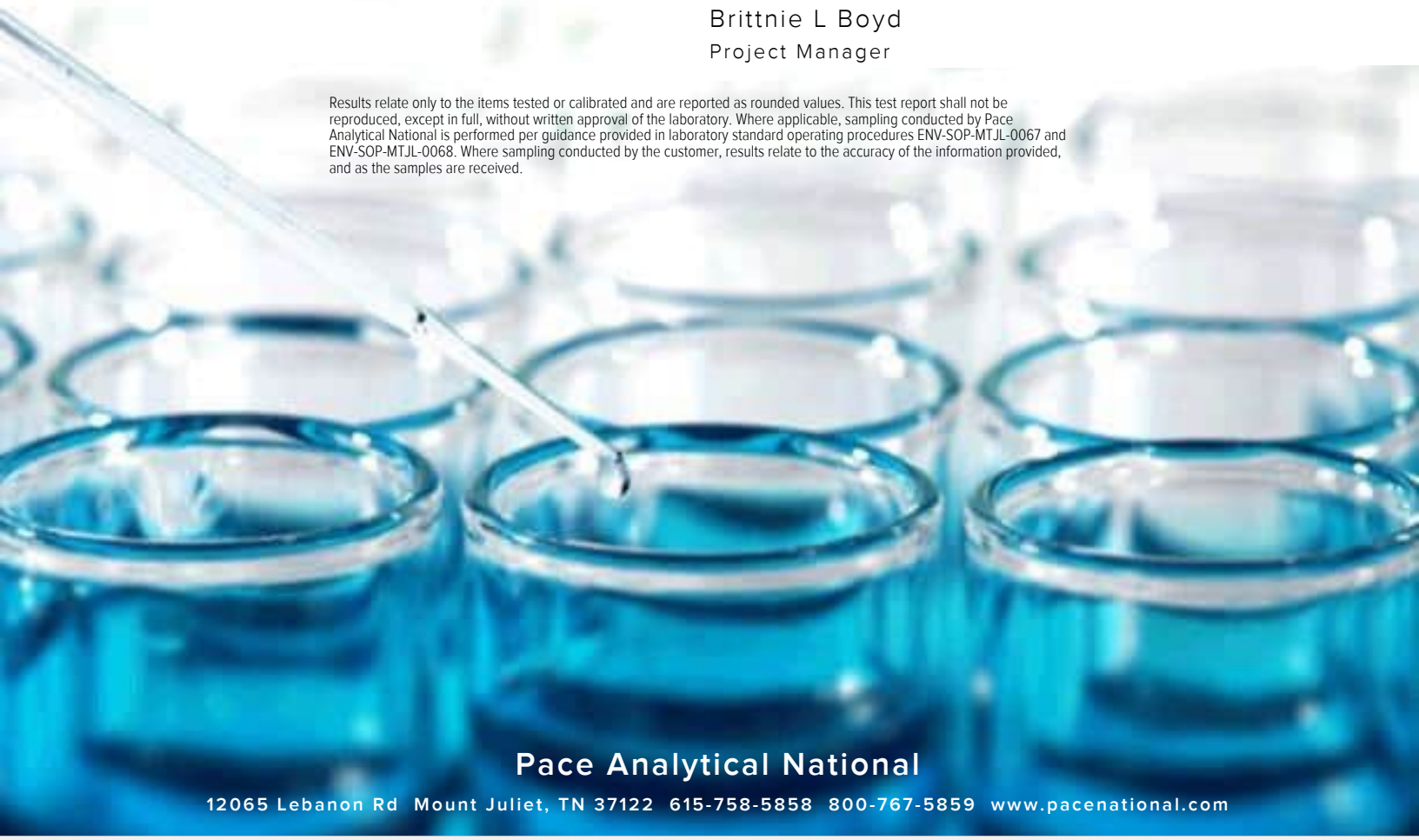
Revised Report

UPRR - Golder Associates

Sample Delivery Group:	L1582227
Samples Received:	02/04/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	IMPORTED BACKFILL SOIL AND GRA
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-W1-07-012723 L1582227-06 Solid

Collected by: Zach Schuehle | Collected date/time: 01/27/23 13:25 | Received date/time: 02/04/23 10:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2000238	1	02/04/23 13:48	02/04/23 14:18	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2000514	1	02/05/23 21:39	02/06/23 08:59	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2000761	100	02/06/23 10:51	02/06/23 19:48	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2000761	5	02/06/23 10:51	02/06/23 19:26	LD	Mt. Juliet, TN

SO-2494-W1-14-012723 L1582227-07 Solid

Collected by: Zach Schuehle | Collected date/time: 01/27/23 13:15 | Received date/time: 02/04/23 10:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2000238	1	02/04/23 13:48	02/04/23 14:18	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2000514	1	02/05/23 21:39	02/06/23 09:01	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2000761	5	02/06/23 10:51	02/06/23 19:29	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2000761	50	02/06/23 10:51	02/06/23 19:52	LD	Mt. Juliet, TN

SO-2494-W1-23-020123 L1582227-08 Solid

Collected by: Zach Schuehle | Collected date/time: 02/01/23 15:05 | Received date/time: 02/04/23 10:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2000238	1	02/04/23 13:48	02/04/23 14:18	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2000514	1	02/05/23 21:39	02/06/23 09:08	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2000773	5	02/06/23 09:56	02/06/23 15:04	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2000773	50	02/06/23 09:56	02/06/23 15:23	JPD	Mt. Juliet, TN

RB-2494-7-020123 L1582227-09 GW

Collected by: Zach Schuehle | Collected date/time: 02/01/23 15:50 | Received date/time: 02/04/23 10:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 245.1	WG2000517	1	02/06/23 09:10	02/06/23 18:07	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2001121	1	02/07/23 08:32	02/07/23 12:22	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Report Revision History

Level II Report - Version 1: 02/09/23 15:16

Project Narrative

Revised Sample IDs

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.6		1	02/04/2023 14:18	WG2000238

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	02/06/2023 08:59	WG2000514

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	15400		139	1000	100	02/06/2023 19:48	WG2000761
Arsenic	11.5		0.100	1.00	5	02/06/2023 19:26	WG2000761
Barium	55.8		0.153	2.51	5	02/06/2023 19:26	WG2000761
Chromium	12.1		0.297	5.02	5	02/06/2023 19:26	WG2000761
Copper	83.5		0.133	5.02	5	02/06/2023 19:26	WG2000761

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.5		1	02/04/2023 14:18	WG2000238

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	02/06/2023 09:01	WG2000514

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	7850		69.4	503	50	02/06/2023 19:52	WG2000761
Arsenic	17.0		0.101	1.01	5	02/06/2023 19:29	WG2000761
Barium	39.8		0.153	2.51	5	02/06/2023 19:29	WG2000761
Chromium	9.58		0.298	5.03	5	02/06/2023 19:29	WG2000761
Copper	23.6		0.133	5.03	5	02/06/2023 19:29	WG2000761

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.5		1	02/04/2023 14:18	WG2000238

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	02/06/2023 09:08	WG2000514

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	7490		69.4	503	50	02/06/2023 15:23	WG2000773
Arsenic	12.1		0.101	1.01	5	02/06/2023 15:04	WG2000773
Barium	59.6		0.153	2.51	5	02/06/2023 15:04	WG2000773
Chromium	9.60		0.298	5.03	5	02/06/2023 15:04	WG2000773
Copper	21.8		0.133	5.03	5	02/06/2023 15:04	WG2000773

Mercury by Method 245.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Mercury	U		0.000100	0.000200	1	02/06/2023 18:07	WG2000517

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Aluminum	0.0353	J	0.0185	0.100	1	02/07/2023 12:22	WG2001121
Arsenic	U		0.000180	0.00200	1	02/07/2023 12:22	WG2001121
Barium	U		0.000381	0.00200	1	02/07/2023 12:22	WG2001121
Chromium	U		0.00124	0.00200	1	02/07/2023 12:22	WG2001121
Copper	U		0.00151	0.00500	1	02/07/2023 12:22	WG2001121

Method Blank (MB)

(MB) R3887776-1 02/04/23 14:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Total Solids	0.00200			

L1582227-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1582227-05 02/04/23 14:18 • (DUP) R3887776-3 02/04/23 14:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	90.0	89.8	1	0.270		10

Laboratory Control Sample (LCS)

(LCS) R3887776-2 02/04/23 14:18

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

Method Blank (MB)

(MB) R3887989-1 02/06/23 17:37

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3887989-4 02/06/23 18:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00289	96.3	85.0-115	

L1581854-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1581854-01 02/06/23 17:47 • (MS) R3887989-2 02/06/23 17:50 • (MSD) R3887989-3 02/06/23 17:52

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	U	0.00279	0.00274	92.9	91.4	1	70.0-130			1.65	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3887723-1 02/06/23 08:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3887723-2 02/06/23 08:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.506	101	80.0-120	

L1582207-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1582207-04 02/06/23 08:16 • (MS) R3887723-3 02/06/23 08:18 • (MSD) R3887723-4 02/06/23 08:21

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.656	U	0.605	0.697	92.3	106	1	75.0-125			14.1	20

QUALITY CONTROL SUMMARY

L1582227-06,07

Method Blank (MB)

(MB) R3887992-1 02/06/23 18:06

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	11.2	J	6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3887992-2 02/06/23 18:09

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	963	96.3	80.0-120	
Arsenic	100	99.0	99.0	80.0-120	
Barium	100	92.1	92.1	80.0-120	
Chromium	100	100	100	80.0-120	
Copper	100	89.9	89.9	80.0-120	

L1582076-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1582076-01 02/06/23 18:12 • (MS) R3887992-5 02/06/23 18:22 • (MSD) R3887992-6 02/06/23 18:26

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	10400	15500	12000	509	163	5	75.0-125	V	J3 V	25.2	20
Arsenic	100	7.11	105	98.9	98.0	91.8	5	75.0-125			6.05	20
Barium	100	189	349	292	160	103	5	75.0-125	J5		17.8	20
Chromium	100	10.2	107	102	96.9	92.0	5	75.0-125			4.62	20
Copper	100	12.2	104	96.2	92.0	84.1	5	75.0-125			7.95	20

Method Blank (MB)

(MB) R3887943-1 02/06/23 13:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3887943-2 02/06/23 13:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	1000	100	80.0-120	
Arsenic	100	99.5	99.5	80.0-120	
Barium	100	95.6	95.6	80.0-120	
Chromium	100	101	101	80.0-120	
Copper	100	91.7	91.7	80.0-120	

L1582196-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1582196-06 02/06/23 13:24 • (MS) R3887943-5 02/06/23 13:35 • (MSD) R3887943-6 02/06/23 13:38

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	9070	9460	8670	39.8	0.000	5	75.0-125	V	V	8.81	20
Arsenic	100	10.8	97.6	96.5	86.8	85.7	5	75.0-125			1.11	20
Barium	100	108	193	187	85.3	79.2	5	75.0-125			3.21	20
Chromium	100	12.8	101	97.2	87.9	84.4	5	75.0-125			3.50	20
Copper	100	39.6	126	117	86.9	77.3	5	75.0-125			7.83	20

Method Blank (MB)

(MB) R3888233-1 02/07/23 12:02

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aluminum	U		0.0185	0.100
Arsenic	U		0.000180	0.00200
Barium	U		0.000381	0.00200
Chromium	U		0.00124	0.00200
Copper	U		0.00151	0.00500

Laboratory Control Sample (LCS)

(LCS) R3888233-2 02/07/23 12:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	5.00	4.71	94.2	80.0-120	
Arsenic	0.0500	0.0481	96.1	80.0-120	
Barium	0.0500	0.0439	87.8	80.0-120	
Chromium	0.0500	0.0495	99.1	80.0-120	
Copper	0.0500	0.0448	89.6	80.0-120	

L1582498-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1582498-01 02/07/23 12:09 • (MS) R3888233-4 02/07/23 12:15 • (MSD) R3888233-5 02/07/23 12:19

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	5.00	0.134	4.80	4.77	93.4	92.7	1	75.0-125			0.656	20
Arsenic	0.0500	U	0.0474	0.0465	94.9	93.0	1	75.0-125			1.92	20
Barium	0.0500	0.101	0.146	0.148	90.8	94.3	1	75.0-125			1.20	20
Chromium	0.0500	0.0702	0.120	0.118	98.6	95.4	1	75.0-125			1.32	20
Copper	0.0500	U	0.0454	0.0447	90.7	89.4	1	75.0-125			1.50	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Report to: **Ted Norton**

Email To: tnorton@golder.com;UPRRSysdat@ghd.com;james.roman@wsp.com

Project Description: **Trentwood WA-Aluminum Dross II**

City/State Collected:

Please Circle: PT MT CT ET

Phone: **425-833-0777**

Client Project # **2494**

Lab Project # **UPRRGOLD-2494**

Collected by (print): Zach Schuehle

Site/Facility ID # **IMPORTED BACKFILL SOIL AND**

P.O. #

Collected by (signature): Zach Schuehle

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
X Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
X Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1566227

J145

Acctnum: **UPRRGOLD**
Template: **T222982**
Prelogin: **P975097**
PM: 134 - Mark W. Beasley
PB: BW 1/16
Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Pres Chk	*Metals 8ozClr-NoPres	NWTPHDXNOSGT 8ozClr-NoPres	NWTPHGX 40mlAmb/MeOH10ml/Syr	SV8270 8ozClr-NoPres	SV8270PAHSIM 8ozClr-NoPres	Al, As, Ba, Cr, Cu, Hg 4ozClr-NoPres	Cd, Pb, Se, Ag by 6010	Al, As, Ba, Cr, Cu, Hg 250mL MDPE w/HNO3	Remarks	Sample # (lab only)
BF2-2494-01-020123	G	SS	—	2-1-23	1215	3		X	X	X	X	X		X			-01
BF2-2494-02-020123	G	SS	—	2-1-23	1220	3		X	X	X	X	X		X			-02
BF2-2494-03-020123	G	SS	—	2-1-23	1225	3		X	X	X	X	X		X			-03
BF2-2494-04-020123	G	SS	—	2-1-23	1230	3		X	X	X	X	X		X			-04
BF2-2494-05-020123	G	SS	—	2-1-23	1235	3		X	X	X	X	X		X			-05
SO-2494-W1-07-012723	G	SS	2ft	1-27-23	1325	1							X				-06
SO-2494-W1-08-012723	G	SS	2ft	1-27-23	1315	1							X				-07
SO-2494-W1-23-020123	G	SS	4ft	2-1-23	1505	1							X				-06
RB-2494-7-020123	G	AQ	—	2-1-23	1550	1									X		

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: *metals = Al, As, Ba, Cu, Cr, ~~Hg~~ by 6010 / Hg by 7471 (for 8oz) pH _____ Temp _____

Al, As, Ba, Cu, Cr by 6020 / Hg by 7471 (for 4oz) Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking # 6094 5462 7225

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Zach Schuehle	2-1-23	1700		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.6 °C Bottles Received: 19
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 2/4 Time: 1020

If preservation required by Login: Date/Time

Hold: Condition: NCF / OK

ANALYTICAL REPORT

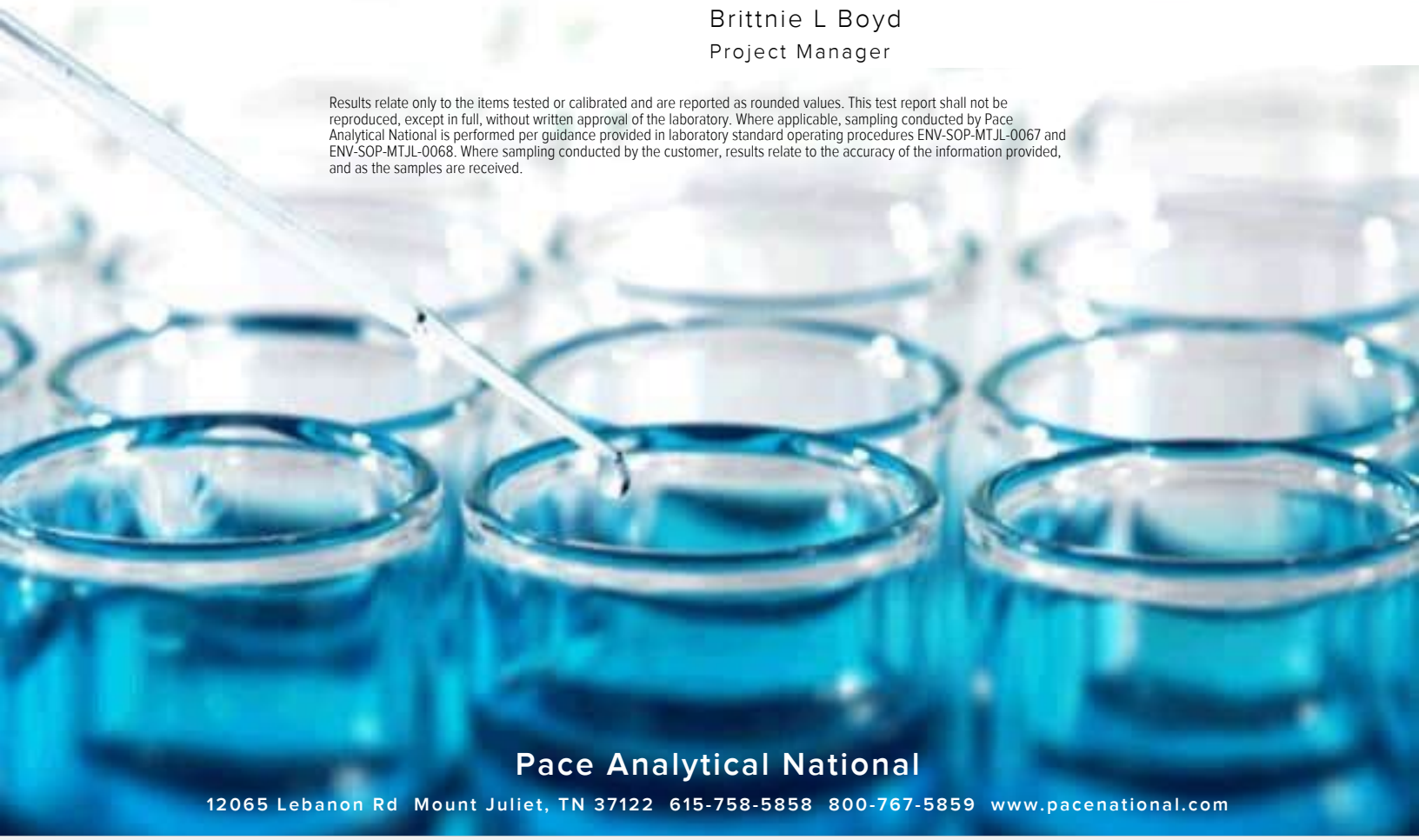
February 13, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1583319
Samples Received:	02/08/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	IMPORTED BACKFILL SOIL AND GRA
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

BF3-2494-02-020723 L1583319-01 Solid

Collected by: Zachary Schuehle | Collected date/time: 02/07/23 12:05 | Received date/time: 02/08/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2002950	1	02/09/23 09:32	02/09/23 09:52	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG2002876	1	02/09/23 08:06	02/09/23 18:48	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2002965	1	02/09/23 07:27	02/09/23 12:53	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2002784	25	02/07/23 12:05	02/08/23 22:29	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2002817	1	02/09/23 05:26	02/09/23 15:12	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2002824	1	02/09/23 05:31	02/09/23 16:03	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2002825	1	02/09/23 15:15	02/10/23 00:24	JRM	Mt. Juliet, TN

BF3-2494-01-020723 L1583319-02 Solid

Collected by: Zachary Schuehle | Collected date/time: 02/07/23 11:55 | Received date/time: 02/08/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2002950	1	02/09/23 09:32	02/09/23 09:52	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG2002876	1	02/09/23 08:06	02/09/23 18:51	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2002965	1	02/09/23 07:27	02/09/23 12:55	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2002784	25	02/07/23 11:55	02/08/23 22:52	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2002817	1	02/09/23 05:26	02/09/23 14:59	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2002824	1	02/09/23 05:31	02/09/23 17:25	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2002825	1	02/09/23 15:15	02/10/23 00:44	JRM	Mt. Juliet, TN

BF3-2494-03-020723 L1583319-03 Solid

Collected by: Zachary Schuehle | Collected date/time: 02/07/23 12:15 | Received date/time: 02/08/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2002950	1	02/09/23 09:32	02/09/23 09:52	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG2002876	1	02/09/23 08:06	02/09/23 19:01	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2002965	1	02/09/23 07:27	02/09/23 12:58	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2002784	25	02/07/23 12:15	02/08/23 23:14	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2002817	1	02/09/23 05:26	02/09/23 13:54	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2002824	1	02/09/23 05:31	02/09/23 16:23	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2002825	1	02/09/23 15:15	02/10/23 01:03	JRM	Mt. Juliet, TN

BF3-2494-04-020723 L1583319-04 Solid

Collected by: Zachary Schuehle | Collected date/time: 02/07/23 12:20 | Received date/time: 02/08/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2002951	1	02/09/23 09:54	02/09/23 10:09	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG2002876	1	02/09/23 08:06	02/09/23 19:03	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2002965	1	02/09/23 07:27	02/09/23 13:01	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2002784	25	02/07/23 12:20	02/08/23 23:36	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2002817	1	02/09/23 05:26	02/09/23 14:20	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2002824	1	02/09/23 05:31	02/09/23 16:44	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2002825	1	02/09/23 15:15	02/10/23 01:23	JRM	Mt. Juliet, TN

BF3-2494-05-020723 L1583319-05 Solid

Collected by: Zachary Schuehle | Collected date/time: 02/07/23 12:30 | Received date/time: 02/08/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2002951	1	02/09/23 09:54	02/09/23 10:09	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG2002876	1	02/09/23 08:06	02/09/23 19:06	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2002965	1	02/09/23 07:27	02/09/23 13:04	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2002784	25	02/07/23 12:30	02/08/23 23:59	KSD	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

SAMPLE SUMMARY

BF3-2494-05-020723 L1583319-05 Solid

Collected by: Zachary Schuehle
Collected date/time: 02/07/23 12:30
Received date/time: 02/08/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2002817	1	02/09/23 05:26	02/09/23 14:07	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2002824	1	02/09/23 05:31	02/09/23 17:04	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2002825	1	02/09/23 15:15	02/10/23 01:42	JRM	Mt. Juliet, TN

TB-2494-1-020723 L1583319-06 GW

Collected by: Zachary Schuehle
Collected date/time: 02/07/23 00:00
Received date/time: 02/08/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2002650	1	02/08/23 17:47	02/08/23 17:47	JHH	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.9		1	02/09/2023 09:52	WG2002950

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0188	0.0417	1	02/09/2023 18:48	WG2002876

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	3620		6.34	10.4	1	02/09/2023 12:53	WG2002965
Arsenic	11.7		0.540	2.08	1	02/09/2023 12:53	WG2002965
Barium	35.9		0.0888	0.521	1	02/09/2023 12:53	WG2002965
Cadmium	0.114	J	0.0491	0.521	1	02/09/2023 12:53	WG2002965
Chromium	3.96		0.139	1.04	1	02/09/2023 12:53	WG2002965
Copper	10.8		0.417	2.08	1	02/09/2023 12:53	WG2002965
Lead	8.29		0.217	0.521	1	02/09/2023 12:53	WG2002965
Selenium	U		0.796	2.08	1	02/09/2023 12:53	WG2002965
Silver	U		0.132	1.04	1	02/09/2023 12:53	WG2002965

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		0.923	2.72	25	02/08/2023 22:29	WG2002784
(S) a,a,a-Trifluorotoluene(FID)	*99.0*			*77.0-120*		*02/08/2023 22:29*	WG2002784

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.39	4.17	1	02/09/2023 15:12	WG2002817
Residual Range Organics (RRO)	U		3.47	10.4	1	02/09/2023 15:12	WG2002817
(S) o-Terphenyl	*72.5*			*18.0-148*		*02/09/2023 15:12*	WG2002817

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00562	0.0347	1	02/09/2023 16:03	WG2002824
Acenaphthylene	U		0.00489	0.0347	1	02/09/2023 16:03	WG2002824
Anthracene	U		0.00618	0.0347	1	02/09/2023 16:03	WG2002824
Benzo(a)anthracene	U		0.00612	0.0347	1	02/09/2023 16:03	WG2002824
Benzo(b)fluoranthene	U		0.00647	0.0347	1	02/09/2023 16:03	WG2002824
Benzo(k)fluoranthene	U		0.00617	0.0347	1	02/09/2023 16:03	WG2002824
Benzo(g,h,i)perylene	U		0.00635	0.0347	1	02/09/2023 16:03	WG2002824
Benzo(a)pyrene	U		0.00645	0.0347	1	02/09/2023 16:03	WG2002824
Benzoic acid	U		0.123	1.74	1	02/09/2023 16:03	WG2002824
Benzyl alcohol	U		0.0128	0.347	1	02/09/2023 16:03	WG2002824
Bis(2-chlorethoxy)methane	U		0.0104	0.347	1	02/09/2023 16:03	WG2002824
Bis(2-chloroethyl)ether	U		0.0115	0.347	1	02/09/2023 16:03	WG2002824
2,2-Oxybis(1-Chloropropane)	U		0.0150	0.347	1	02/09/2023 16:03	WG2002824
4-Bromophenyl-phenylether	U		0.0122	0.347	1	02/09/2023 16:03	WG2002824
Carbazole	U		0.0107	0.347	1	02/09/2023 16:03	WG2002824
2-Chloronaphthalene	U		0.00610	0.0347	1	02/09/2023 16:03	WG2002824

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0125	0.347	1	02/09/2023 16:03	WG2002824
4-Chlorophenyl-phenylether	U		0.0121	0.347	1	02/09/2023 16:03	WG2002824
Chrysene	U		0.00690	0.0347	1	02/09/2023 16:03	WG2002824
Dibenz(a,h)anthracene	U		0.00962	0.0347	1	02/09/2023 16:03	WG2002824
Dibenzofuran	U		0.0114	0.347	1	02/09/2023 16:03	WG2002824
3,3-Dichlorobenzidine	U		0.0128	0.347	1	02/09/2023 16:03	WG2002824
2,4-Dinitrotoluene	U		0.00996	0.347	1	02/09/2023 16:03	WG2002824
2,6-Dinitrotoluene	U		0.0114	0.347	1	02/09/2023 16:03	WG2002824
Fluoranthene	U		0.00626	0.0347	1	02/09/2023 16:03	WG2002824
Fluorene	U		0.00565	0.0347	1	02/09/2023 16:03	WG2002824
Hexachlorobenzene	U		0.0123	0.347	1	02/09/2023 16:03	WG2002824
Hexachloro-1,3-butadiene	U		0.0117	0.347	1	02/09/2023 16:03	WG2002824
Hexachlorocyclopentadiene	U		0.0182	0.347	1	02/09/2023 16:03	WG2002824
Hexachloroethane	U		0.0137	0.347	1	02/09/2023 16:03	WG2002824
Indeno(1,2,3-cd)pyrene	U		0.00981	0.0347	1	02/09/2023 16:03	WG2002824
Isophorone	U		0.0106	0.347	1	02/09/2023 16:03	WG2002824
2-Methylnaphthalene	U		0.00450	0.0347	1	02/09/2023 16:03	WG2002824
Naphthalene	U		0.00871	0.0347	1	02/09/2023 16:03	WG2002824
2-Nitroaniline	U		0.0112	0.347	1	02/09/2023 16:03	WG2002824
3-Nitroaniline	U		0.0110	0.347	1	02/09/2023 16:03	WG2002824
4-Nitroaniline	U		0.0101	0.347	1	02/09/2023 16:03	WG2002824
Nitrobenzene	U		0.0121	0.347	1	02/09/2023 16:03	WG2002824
n-Nitrosodimethylamine	U		0.0515	0.347	1	02/09/2023 16:03	WG2002824
n-Nitrosodiphenylamine	U		0.0263	0.347	1	02/09/2023 16:03	WG2002824
n-Nitrosodi-n-propylamine	U		0.0116	0.347	1	02/09/2023 16:03	WG2002824
Phenanthrene	U		0.00689	0.0347	1	02/09/2023 16:03	WG2002824
Benzylbutyl phthalate	U		0.0108	0.347	1	02/09/2023 16:03	WG2002824
Bis(2-ethylhexyl)phthalate	U		0.0440	0.347	1	02/09/2023 16:03	WG2002824
Di-n-butyl phthalate	U		0.0119	0.347	1	02/09/2023 16:03	WG2002824
Diethyl phthalate	U		0.0115	0.347	1	02/09/2023 16:03	WG2002824
Dimethyl phthalate	U		0.0736	0.347	1	02/09/2023 16:03	WG2002824
Di-n-octyl phthalate	U		0.0235	0.347	1	02/09/2023 16:03	WG2002824
Pyrene	U		0.00675	0.0347	1	02/09/2023 16:03	WG2002824
Pyridine	U		0.0229	0.347	1	02/09/2023 16:03	WG2002824
1,2,4-Trichlorobenzene	U		0.0108	0.347	1	02/09/2023 16:03	WG2002824
4-Chloro-3-methylphenol	U		0.0113	0.347	1	02/09/2023 16:03	WG2002824
2-Chlorophenol	U		0.0115	0.347	1	02/09/2023 16:03	WG2002824
2,4-Dichlorophenol	U		0.0101	0.347	1	02/09/2023 16:03	WG2002824
2,4-Dimethylphenol	U		0.00907	0.347	1	02/09/2023 16:03	WG2002824
4,6-Dinitro-2-methylphenol	U		0.0787	0.347	1	02/09/2023 16:03	WG2002824
2,4-Dinitrophenol	U		0.0812	0.347	1	02/09/2023 16:03	WG2002824
2-Methylphenol	U		0.0104	0.347	1	02/09/2023 16:03	WG2002824
3&4-Methyl Phenol	U		0.0108	0.347	1	02/09/2023 16:03	WG2002824
2-Nitrophenol	U		0.0124	0.347	1	02/09/2023 16:03	WG2002824
4-Nitrophenol	U		0.0108	0.347	1	02/09/2023 16:03	WG2002824
Pentachlorophenol	U		0.00934	0.347	1	02/09/2023 16:03	WG2002824
Phenol	U		0.0140	0.347	1	02/09/2023 16:03	WG2002824
2,4,5-Trichlorophenol	U		0.0118	0.347	1	02/09/2023 16:03	WG2002824
2,4,6-Trichlorophenol	U		0.0112	0.347	1	02/09/2023 16:03	WG2002824
(S) 2-Fluorophenol	*62.8*			*12.0-120*		*02/09/2023 16:03*	WG2002824
(S) Phenol-d5	*57.3*			*10.0-120*		*02/09/2023 16:03*	WG2002824
(S) Nitrobenzene-d5	*55.8*			*10.0-122*		*02/09/2023 16:03*	WG2002824
(S) 2-Fluorobiphenyl	*65.9*			*15.0-120*		*02/09/2023 16:03*	WG2002824
(S) 2,4,6-Tribromophenol	*73.3*			*10.0-127*		*02/09/2023 16:03*	WG2002824
(S) p-Terphenyl-d14	*67.7*			*10.0-120*		*02/09/2023 16:03*	WG2002824

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00240	0.00625	1	02/10/2023 00:24	WG2002825
Acenaphthene	U		0.00218	0.00625	1	02/10/2023 00:24	WG2002825
Acenaphthylene	U		0.00225	0.00625	1	02/10/2023 00:24	WG2002825
Benzo(a)anthracene	U		0.00180	0.00625	1	02/10/2023 00:24	WG2002825
Benzo(a)pyrene	U		0.00187	0.00625	1	02/10/2023 00:24	WG2002825
Benzo(b)fluoranthene	U		0.00159	0.00625	1	02/10/2023 00:24	WG2002825
Benzo(g,h,i)perylene	U		0.00185	0.00625	1	02/10/2023 00:24	WG2002825
Benzo(k)fluoranthene	U		0.00224	0.00625	1	02/10/2023 00:24	WG2002825
Chrysene	U		0.00242	0.00625	1	02/10/2023 00:24	WG2002825
Dibenz(a,h)anthracene	U		0.00179	0.00625	1	02/10/2023 00:24	WG2002825
Fluoranthene	U		0.00237	0.00625	1	02/10/2023 00:24	WG2002825
Fluorene	U		0.00214	0.00625	1	02/10/2023 00:24	WG2002825
Indeno(1,2,3-cd)pyrene	U		0.00189	0.00625	1	02/10/2023 00:24	WG2002825
Naphthalene	U		0.00425	0.0208	1	02/10/2023 00:24	WG2002825
Phenanthrene	U		0.00241	0.00625	1	02/10/2023 00:24	WG2002825
Pyrene	U		0.00208	0.00625	1	02/10/2023 00:24	WG2002825
1-Methylnaphthalene	U		0.00468	0.0208	1	02/10/2023 00:24	WG2002825
2-Methylnaphthalene	U		0.00445	0.0208	1	02/10/2023 00:24	WG2002825
2-Chloronaphthalene	U		0.00486	0.0208	1	02/10/2023 00:24	WG2002825
(S) p-Terphenyl-d14	*90.9*			*23.0-120*		*02/10/2023 00:24*	WG2002825
(S) Nitrobenzene-d5	*64.4*			*14.0-149*		*02/10/2023 00:24*	WG2002825
(S) 2-Fluorobiphenyl	*92.8*			*34.0-125*		*02/10/2023 00:24*	WG2002825

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.3		1	02/09/2023 09:52	WG2002950

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0187	0.0416	1	02/09/2023 18:51	WG2002876

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	4040		6.32	10.4	1	02/09/2023 12:55	WG2002965
Arsenic	5.24		0.538	2.08	1	02/09/2023 12:55	WG2002965
Barium	47.3		0.0885	0.519	1	02/09/2023 12:55	WG2002965
Cadmium	0.0929	J	0.0489	0.519	1	02/09/2023 12:55	WG2002965
Chromium	5.77		0.138	1.04	1	02/09/2023 12:55	WG2002965
Copper	14.6		0.416	2.08	1	02/09/2023 12:55	WG2002965
Lead	7.51		0.216	0.519	1	02/09/2023 12:55	WG2002965
Selenium	U		0.794	2.08	1	02/09/2023 12:55	WG2002965
Silver	U		0.132	1.04	1	02/09/2023 12:55	WG2002965

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		0.920	2.71	25	02/08/2023 22:52	WG2002784
(S) a,a,a-Trifluorotoluene(FID)	*98.6*			*77.0-120*		*02/08/2023 22:52*	WG2002784

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.38	4.16	1	02/09/2023 14:59	WG2002817
Residual Range Organics (RRO)	U		3.46	10.4	1	02/09/2023 14:59	WG2002817
(S) o-Terphenyl	*67.5*			*18.0-148*		*02/09/2023 14:59*	WG2002817

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00560	0.0346	1	02/09/2023 17:25	WG2002824
Acenaphthylene	U		0.00487	0.0346	1	02/09/2023 17:25	WG2002824
Anthracene	U		0.00616	0.0346	1	02/09/2023 17:25	WG2002824
Benzo(a)anthracene	U		0.00610	0.0346	1	02/09/2023 17:25	WG2002824
Benzo(b)fluoranthene	U		0.00645	0.0346	1	02/09/2023 17:25	WG2002824
Benzo(k)fluoranthene	U		0.00615	0.0346	1	02/09/2023 17:25	WG2002824
Benzo(g,h,i)perylene	U		0.00633	0.0346	1	02/09/2023 17:25	WG2002824
Benzo(a)pyrene	U		0.00643	0.0346	1	02/09/2023 17:25	WG2002824
Benzoic acid	U		0.123	1.74	1	02/09/2023 17:25	WG2002824
Benzyl alcohol	U		0.0128	0.346	1	02/09/2023 17:25	WG2002824
Bis(2-chlorethoxy)methane	U		0.0104	0.346	1	02/09/2023 17:25	WG2002824
Bis(2-chloroethyl)ether	U		0.0114	0.346	1	02/09/2023 17:25	WG2002824
2,2-Oxybis(1-Chloropropane)	U		0.0150	0.346	1	02/09/2023 17:25	WG2002824
4-Bromophenyl-phenylether	U		0.0122	0.346	1	02/09/2023 17:25	WG2002824
Carbazole	U		0.0107	0.346	1	02/09/2023 17:25	WG2002824
2-Chloronaphthalene	U		0.00608	0.0346	1	02/09/2023 17:25	WG2002824

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0125	0.346	1	02/09/2023 17:25	WG2002824
4-Chlorophenyl-phenylether	U		0.0121	0.346	1	02/09/2023 17:25	WG2002824
Chrysene	U		0.00688	0.0346	1	02/09/2023 17:25	WG2002824
Dibenz(a,h)anthracene	U		0.00959	0.0346	1	02/09/2023 17:25	WG2002824
Dibenzofuran	U		0.0113	0.346	1	02/09/2023 17:25	WG2002824
3,3-Dichlorobenzidine	U		0.0128	0.346	1	02/09/2023 17:25	WG2002824
2,4-Dinitrotoluene	U		0.00992	0.346	1	02/09/2023 17:25	WG2002824
2,6-Dinitrotoluene	U		0.0113	0.346	1	02/09/2023 17:25	WG2002824
Fluoranthene	U		0.00624	0.0346	1	02/09/2023 17:25	WG2002824
Fluorene	U		0.00563	0.0346	1	02/09/2023 17:25	WG2002824
Hexachlorobenzene	U		0.0123	0.346	1	02/09/2023 17:25	WG2002824
Hexachloro-1,3-butadiene	U		0.0116	0.346	1	02/09/2023 17:25	WG2002824
Hexachlorocyclopentadiene	U		0.0182	0.346	1	02/09/2023 17:25	WG2002824
Hexachloroethane	U		0.0136	0.346	1	02/09/2023 17:25	WG2002824
Indeno(1,2,3-cd)pyrene	U		0.00978	0.0346	1	02/09/2023 17:25	WG2002824
Isophorone	U		0.0106	0.346	1	02/09/2023 17:25	WG2002824
2-Methylnaphthalene	U		0.00449	0.0346	1	02/09/2023 17:25	WG2002824
Naphthalene	U		0.00869	0.0346	1	02/09/2023 17:25	WG2002824
2-Nitroaniline	U		0.0111	0.346	1	02/09/2023 17:25	WG2002824
3-Nitroaniline	U		0.0110	0.346	1	02/09/2023 17:25	WG2002824
4-Nitroaniline	U		0.0101	0.346	1	02/09/2023 17:25	WG2002824
Nitrobenzene	U		0.0121	0.346	1	02/09/2023 17:25	WG2002824
n-Nitrosodimethylamine	U		0.0513	0.346	1	02/09/2023 17:25	WG2002824
n-Nitrosodiphenylamine	U		0.0262	0.346	1	02/09/2023 17:25	WG2002824
n-Nitrosodi-n-propylamine	U		0.0115	0.346	1	02/09/2023 17:25	WG2002824
Phenanthrene	U		0.00687	0.0346	1	02/09/2023 17:25	WG2002824
Benzylbutyl phthalate	U		0.0108	0.346	1	02/09/2023 17:25	WG2002824
Bis(2-ethylhexyl)phthalate	U		0.0438	0.346	1	02/09/2023 17:25	WG2002824
Di-n-butyl phthalate	U		0.0118	0.346	1	02/09/2023 17:25	WG2002824
Diethyl phthalate	U		0.0114	0.346	1	02/09/2023 17:25	WG2002824
Dimethyl phthalate	U		0.0733	0.346	1	02/09/2023 17:25	WG2002824
Di-n-octyl phthalate	U		0.0234	0.346	1	02/09/2023 17:25	WG2002824
Pyrene	U		0.00673	0.0346	1	02/09/2023 17:25	WG2002824
Pyridine	U		0.0229	0.346	1	02/09/2023 17:25	WG2002824
1,2,4-Trichlorobenzene	U		0.0108	0.346	1	02/09/2023 17:25	WG2002824
4-Chloro-3-methylphenol	U		0.0112	0.346	1	02/09/2023 17:25	WG2002824
2-Chlorophenol	U		0.0114	0.346	1	02/09/2023 17:25	WG2002824
2,4-Dichlorophenol	U		0.0101	0.346	1	02/09/2023 17:25	WG2002824
2,4-Dimethylphenol	U		0.00904	0.346	1	02/09/2023 17:25	WG2002824
4,6-Dinitro-2-methylphenol	U		0.0784	0.346	1	02/09/2023 17:25	WG2002824
2,4-Dinitrophenol	U		0.0809	0.346	1	02/09/2023 17:25	WG2002824
2-Methylphenol	U		0.0104	0.346	1	02/09/2023 17:25	WG2002824
3&4-Methyl Phenol	U		0.0108	0.346	1	02/09/2023 17:25	WG2002824
2-Nitrophenol	U		0.0124	0.346	1	02/09/2023 17:25	WG2002824
4-Nitrophenol	U		0.0108	0.346	1	02/09/2023 17:25	WG2002824
Pentachlorophenol	U		0.00931	0.346	1	02/09/2023 17:25	WG2002824
Phenol	U		0.0139	0.346	1	02/09/2023 17:25	WG2002824
2,4,5-Trichlorophenol	U		0.0117	0.346	1	02/09/2023 17:25	WG2002824
2,4,6-Trichlorophenol	U		0.0111	0.346	1	02/09/2023 17:25	WG2002824
(S) 2-Fluorophenol	*60.0*			*12.0-120*		*02/09/2023 17:25*	WG2002824
(S) Phenol-d5	*54.8*			*10.0-120*		*02/09/2023 17:25*	WG2002824
(S) Nitrobenzene-d5	*55.2*			*10.0-122*		*02/09/2023 17:25*	WG2002824
(S) 2-Fluorobiphenyl	*62.3*			*15.0-120*		*02/09/2023 17:25*	WG2002824
(S) 2,4,6-Tribromophenol	*65.2*			*10.0-127*		*02/09/2023 17:25*	WG2002824
(S) p-Terphenyl-d14	*62.9*			*10.0-120*		*02/09/2023 17:25*	WG2002824

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00239	0.00623	1	02/10/2023 00:44	WG2002825
Acenaphthene	U		0.00217	0.00623	1	02/10/2023 00:44	WG2002825
Acenaphthylene	U		0.00224	0.00623	1	02/10/2023 00:44	WG2002825
Benzo(a)anthracene	U		0.00180	0.00623	1	02/10/2023 00:44	WG2002825
Benzo(a)pyrene	U		0.00186	0.00623	1	02/10/2023 00:44	WG2002825
Benzo(b)fluoranthene	U		0.00159	0.00623	1	02/10/2023 00:44	WG2002825
Benzo(g,h,i)perylene	U		0.00184	0.00623	1	02/10/2023 00:44	WG2002825
Benzo(k)fluoranthene	U		0.00223	0.00623	1	02/10/2023 00:44	WG2002825
Chrysene	U		0.00241	0.00623	1	02/10/2023 00:44	WG2002825
Dibenz(a,h)anthracene	U		0.00179	0.00623	1	02/10/2023 00:44	WG2002825
Fluoranthene	U		0.00236	0.00623	1	02/10/2023 00:44	WG2002825
Fluorene	U		0.00213	0.00623	1	02/10/2023 00:44	WG2002825
Indeno(1,2,3-cd)pyrene	U		0.00188	0.00623	1	02/10/2023 00:44	WG2002825
Naphthalene	U		0.00424	0.0208	1	02/10/2023 00:44	WG2002825
Phenanthrene	U		0.00240	0.00623	1	02/10/2023 00:44	WG2002825
Pyrene	U		0.00208	0.00623	1	02/10/2023 00:44	WG2002825
1-Methylnaphthalene	U		0.00466	0.0208	1	02/10/2023 00:44	WG2002825
2-Methylnaphthalene	U		0.00444	0.0208	1	02/10/2023 00:44	WG2002825
2-Chloronaphthalene	U		0.00484	0.0208	1	02/10/2023 00:44	WG2002825
(S) p-Terphenyl-d14	*84.8*			*23.0-120*		*02/10/2023 00:44*	WG2002825
(S) Nitrobenzene-d5	*57.2*			*14.0-149*		*02/10/2023 00:44*	WG2002825
(S) 2-Fluorobiphenyl	*79.7*			*34.0-125*		*02/10/2023 00:44*	WG2002825

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.8		1	02/09/2023 09:52	WG2002950

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0188	0.0418	1	02/09/2023 19:01	WG2002876

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	2170		6.35	10.4	1	02/09/2023 12:58	WG2002965
Arsenic	5.84		0.541	2.09	1	02/09/2023 12:58	WG2002965
Barium	20.2		0.0890	0.522	1	02/09/2023 12:58	WG2002965
Cadmium	0.0885	J	0.0492	0.522	1	02/09/2023 12:58	WG2002965
Chromium	2.16		0.139	1.04	1	02/09/2023 12:58	WG2002965
Copper	7.18		0.418	2.09	1	02/09/2023 12:58	WG2002965
Lead	6.19		0.217	0.522	1	02/09/2023 12:58	WG2002965
Selenium	U		0.798	2.09	1	02/09/2023 12:58	WG2002965
Silver	U		0.133	1.04	1	02/09/2023 12:58	WG2002965

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		0.923	2.72	25	02/08/2023 23:14	WG2002784
(S) a,a,a-Trifluorotoluene(FID)	*98.7*			*77.0-120*		*02/08/2023 23:14*	WG2002784

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	1.61	J	1.39	4.18	1	02/09/2023 13:54	WG2002817
Residual Range Organics (RRO)	11.1		3.48	10.4	1	02/09/2023 13:54	WG2002817
(S) o-Terphenyl	*73.0*			*18.0-148*		*02/09/2023 13:54*	WG2002817

Sample Narrative:

L1583319-03 WG2002817: Sample resembles laboratory standard for Hydraulic Oil.

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00563	0.0348	1	02/09/2023 16:23	WG2002824
Acenaphthylene	U		0.00490	0.0348	1	02/09/2023 16:23	WG2002824
Anthracene	U		0.00619	0.0348	1	02/09/2023 16:23	WG2002824
Benzo(a)anthracene	U		0.00613	0.0348	1	02/09/2023 16:23	WG2002824
Benzo(b)fluoranthene	U		0.00648	0.0348	1	02/09/2023 16:23	WG2002824
Benzo(k)fluoranthene	U		0.00618	0.0348	1	02/09/2023 16:23	WG2002824
Benzo(g,h,i)perylene	U		0.00636	0.0348	1	02/09/2023 16:23	WG2002824
Benzo(a)pyrene	U		0.00646	0.0348	1	02/09/2023 16:23	WG2002824
Benzoic acid	U		0.123	1.74	1	02/09/2023 16:23	WG2002824
Benzyl alcohol	U		0.0128	0.348	1	02/09/2023 16:23	WG2002824
Bis(2-chlorethoxy)methane	U		0.0104	0.348	1	02/09/2023 16:23	WG2002824
Bis(2-chloroethyl)ether	U		0.0115	0.348	1	02/09/2023 16:23	WG2002824
2,2-Oxybis(1-Chloropropane)	U		0.0150	0.348	1	02/09/2023 16:23	WG2002824

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Bromophenyl-phenylether	U		0.0122	0.348	1	02/09/2023 16:23	WG2002824
Carbazole	U		0.0108	0.348	1	02/09/2023 16:23	WG2002824
2-Chloronaphthalene	U		0.00611	0.0348	1	02/09/2023 16:23	WG2002824
4-Chloroaniline	U		0.0125	0.348	1	02/09/2023 16:23	WG2002824
4-Chlorophenyl-phenylether	U		0.0121	0.348	1	02/09/2023 16:23	WG2002824
Chrysene	U		0.00691	0.0348	1	02/09/2023 16:23	WG2002824
Dibenz(a,h)anthracene	U		0.00964	0.0348	1	02/09/2023 16:23	WG2002824
Dibenzofuran	U		0.0114	0.348	1	02/09/2023 16:23	WG2002824
3,3-Dichlorobenzidine	U		0.0128	0.348	1	02/09/2023 16:23	WG2002824
2,4-Dinitrotoluene	U		0.00997	0.348	1	02/09/2023 16:23	WG2002824
2,6-Dinitrotoluene	U		0.0114	0.348	1	02/09/2023 16:23	WG2002824
Fluoranthene	U		0.00627	0.0348	1	02/09/2023 16:23	WG2002824
Fluorene	U		0.00566	0.0348	1	02/09/2023 16:23	WG2002824
Hexachlorobenzene	U		0.0123	0.348	1	02/09/2023 16:23	WG2002824
Hexachloro-1,3-butadiene	U		0.0117	0.348	1	02/09/2023 16:23	WG2002824
Hexachlorocyclopentadiene	U		0.0183	0.348	1	02/09/2023 16:23	WG2002824
Hexachloroethane	U		0.0137	0.348	1	02/09/2023 16:23	WG2002824
Indeno(1,2,3-cd)pyrene	U		0.00982	0.0348	1	02/09/2023 16:23	WG2002824
Isophorone	U		0.0106	0.348	1	02/09/2023 16:23	WG2002824
2-Methylnaphthalene	U		0.00451	0.0348	1	02/09/2023 16:23	WG2002824
Naphthalene	U		0.00873	0.0348	1	02/09/2023 16:23	WG2002824
2-Nitroaniline	U		0.0112	0.348	1	02/09/2023 16:23	WG2002824
3-Nitroaniline	U		0.0111	0.348	1	02/09/2023 16:23	WG2002824
4-Nitroaniline	U		0.0101	0.348	1	02/09/2023 16:23	WG2002824
Nitrobenzene	U		0.0121	0.348	1	02/09/2023 16:23	WG2002824
n-Nitrosodimethylamine	U		0.0516	0.348	1	02/09/2023 16:23	WG2002824
n-Nitrosodiphenylamine	U		0.0263	0.348	1	02/09/2023 16:23	WG2002824
n-Nitrosodi-n-propylamine	U		0.0116	0.348	1	02/09/2023 16:23	WG2002824
Phenanthrene	U		0.00690	0.0348	1	02/09/2023 16:23	WG2002824
Benzylbutyl phthalate	U		0.0109	0.348	1	02/09/2023 16:23	WG2002824
Bis(2-ethylhexyl)phthalate	U		0.0441	0.348	1	02/09/2023 16:23	WG2002824
Di-n-butyl phthalate	U		0.0119	0.348	1	02/09/2023 16:23	WG2002824
Diethyl phthalate	U		0.0115	0.348	1	02/09/2023 16:23	WG2002824
Dimethyl phthalate	U		0.0737	0.348	1	02/09/2023 16:23	WG2002824
Di-n-octyl phthalate	U		0.0235	0.348	1	02/09/2023 16:23	WG2002824
Pyrene	U		0.00677	0.0348	1	02/09/2023 16:23	WG2002824
Pyridine	U		0.0230	0.348	1	02/09/2023 16:23	WG2002824
1,2,4-Trichlorobenzene	U		0.0109	0.348	1	02/09/2023 16:23	WG2002824
4-Chloro-3-methylphenol	U		0.0113	0.348	1	02/09/2023 16:23	WG2002824
2-Chlorophenol	U		0.0115	0.348	1	02/09/2023 16:23	WG2002824
2,4-Dichlorophenol	U		0.0101	0.348	1	02/09/2023 16:23	WG2002824
2,4-Dimethylphenol	U		0.00908	0.348	1	02/09/2023 16:23	WG2002824
4,6-Dinitro-2-methylphenol	U		0.0788	0.348	1	02/09/2023 16:23	WG2002824
2,4-Dinitrophenol	U		0.0813	0.348	1	02/09/2023 16:23	WG2002824
2-Methylphenol	U		0.0104	0.348	1	02/09/2023 16:23	WG2002824
3&4-Methyl Phenol	U		0.0109	0.348	1	02/09/2023 16:23	WG2002824
2-Nitrophenol	U		0.0124	0.348	1	02/09/2023 16:23	WG2002824
4-Nitrophenol	U		0.0109	0.348	1	02/09/2023 16:23	WG2002824
Pentachlorophenol	U		0.00935	0.348	1	02/09/2023 16:23	WG2002824
Phenol	U		0.0140	0.348	1	02/09/2023 16:23	WG2002824
2,4,5-Trichlorophenol	U		0.0118	0.348	1	02/09/2023 16:23	WG2002824
2,4,6-Trichlorophenol	U		0.0112	0.348	1	02/09/2023 16:23	WG2002824
(S) 2-Fluorophenol	*56.9*			*12.0-120*		*02/09/2023 16:23*	WG2002824
(S) Phenol-d5	*50.3*			*10.0-120*		*02/09/2023 16:23*	WG2002824
(S) Nitrobenzene-d5	*50.2*			*10.0-122*		*02/09/2023 16:23*	WG2002824
(S) 2-Fluorobiphenyl	*59.2*			*15.0-120*		*02/09/2023 16:23*	WG2002824

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) 2,4,6-Tribromophenol	*65.9*			*10.0-127*		*02/09/2023 16:23*	WG2002824
(S) p-Terphenyl-d14	*59.5*			*10.0-120*		*02/09/2023 16:23*	WG2002824

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00240	0.00626	1	02/10/2023 01:03	WG2002825
Acenaphthene	U		0.00218	0.00626	1	02/10/2023 01:03	WG2002825
Acenaphthylene	U		0.00226	0.00626	1	02/10/2023 01:03	WG2002825
Benzo(a)anthracene	U		0.00181	0.00626	1	02/10/2023 01:03	WG2002825
Benzo(a)pyrene	U		0.00187	0.00626	1	02/10/2023 01:03	WG2002825
Benzo(b)fluoranthene	U		0.00160	0.00626	1	02/10/2023 01:03	WG2002825
Benzo(g,h,i)perylene	U		0.00185	0.00626	1	02/10/2023 01:03	WG2002825
Benzo(k)fluoranthene	U		0.00224	0.00626	1	02/10/2023 01:03	WG2002825
Chrysene	U		0.00242	0.00626	1	02/10/2023 01:03	WG2002825
Dibenz(a,h)anthracene	U		0.00180	0.00626	1	02/10/2023 01:03	WG2002825
Fluoranthene	U		0.00237	0.00626	1	02/10/2023 01:03	WG2002825
Fluorene	U		0.00214	0.00626	1	02/10/2023 01:03	WG2002825
Indeno(1,2,3-cd)pyrene	U		0.00189	0.00626	1	02/10/2023 01:03	WG2002825
Naphthalene	U		0.00426	0.0209	1	02/10/2023 01:03	WG2002825
Phenanthrene	U		0.00241	0.00626	1	02/10/2023 01:03	WG2002825
Pyrene	U		0.00209	0.00626	1	02/10/2023 01:03	WG2002825
1-Methylnaphthalene	U		0.00469	0.0209	1	02/10/2023 01:03	WG2002825
2-Methylnaphthalene	U		0.00446	0.0209	1	02/10/2023 01:03	WG2002825
2-Chloronaphthalene	U		0.00487	0.0209	1	02/10/2023 01:03	WG2002825
(S) p-Terphenyl-d14	*75.2*			*23.0-120*		*02/10/2023 01:03*	WG2002825
(S) Nitrobenzene-d5	*37.5*			*14.0-149*		*02/10/2023 01:03*	WG2002825
(S) 2-Fluorobiphenyl	*54.0*			*34.0-125*		*02/10/2023 01:03*	WG2002825

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.5		1	02/09/2023 10:09	WG2002951

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0187	0.0414	1	02/09/2023 19:03	WG2002876

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	2550		6.30	10.4	1	02/09/2023 13:01	WG2002965
Arsenic	4.69		0.537	2.07	1	02/09/2023 13:01	WG2002965
Barium	24.0		0.0883	0.518	1	02/09/2023 13:01	WG2002965
Cadmium	0.0947	J	0.0488	0.518	1	02/09/2023 13:01	WG2002965
Chromium	2.93		0.138	1.04	1	02/09/2023 13:01	WG2002965
Copper	10.2		0.414	2.07	1	02/09/2023 13:01	WG2002965
Lead	6.42		0.216	0.518	1	02/09/2023 13:01	WG2002965
Selenium	U		0.792	2.07	1	02/09/2023 13:01	WG2002965
Silver	U		0.132	1.04	1	02/09/2023 13:01	WG2002965

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		0.914	2.70	25	02/08/2023 23:36	WG2002784
(S) a,a,a-Trifluorotoluene(FID)	*99.0*			*77.0-120*		*02/08/2023 23:36*	WG2002784

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.38	4.14	1	02/09/2023 14:20	WG2002817
Residual Range Organics (RRO)	U		3.45	10.4	1	02/09/2023 14:20	WG2002817
(S) o-Terphenyl	*68.5*			*18.0-148*		*02/09/2023 14:20*	WG2002817

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00558	0.0345	1	02/09/2023 16:44	WG2002824
Acenaphthylene	U		0.00486	0.0345	1	02/09/2023 16:44	WG2002824
Anthracene	U		0.00614	0.0345	1	02/09/2023 16:44	WG2002824
Benzo(a)anthracene	U		0.00608	0.0345	1	02/09/2023 16:44	WG2002824
Benzo(b)fluoranthene	U		0.00643	0.0345	1	02/09/2023 16:44	WG2002824
Benzo(k)fluoranthene	U		0.00613	0.0345	1	02/09/2023 16:44	WG2002824
Benzo(g,h,i)perylene	U		0.00631	0.0345	1	02/09/2023 16:44	WG2002824
Benzo(a)pyrene	U		0.00641	0.0345	1	02/09/2023 16:44	WG2002824
Benzoic acid	U		0.122	1.73	1	02/09/2023 16:44	WG2002824
Benzyl alcohol	U		0.0127	0.345	1	02/09/2023 16:44	WG2002824
Bis(2-chlorethoxy)methane	U		0.0104	0.345	1	02/09/2023 16:44	WG2002824
Bis(2-chloroethyl)ether	U		0.0114	0.345	1	02/09/2023 16:44	WG2002824
2,2-Oxybis(1-Chloropropane)	U		0.0149	0.345	1	02/09/2023 16:44	WG2002824
4-Bromophenyl-phenylether	U		0.0121	0.345	1	02/09/2023 16:44	WG2002824
Carbazole	U		0.0107	0.345	1	02/09/2023 16:44	WG2002824
2-Chloronaphthalene	U		0.00606	0.0345	1	02/09/2023 16:44	WG2002824

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0124	0.345	1	02/09/2023 16:44	WG2002824
4-Chlorophenyl-phenylether	U		0.0120	0.345	1	02/09/2023 16:44	WG2002824
Chrysene	U		0.00686	0.0345	1	02/09/2023 16:44	WG2002824
Dibenz(a,h)anthracene	U		0.00956	0.0345	1	02/09/2023 16:44	WG2002824
Dibenzofuran	U		0.0113	0.345	1	02/09/2023 16:44	WG2002824
3,3-Dichlorobenzidine	U		0.0127	0.345	1	02/09/2023 16:44	WG2002824
2,4-Dinitrotoluene	U		0.00990	0.345	1	02/09/2023 16:44	WG2002824
2,6-Dinitrotoluene	U		0.0113	0.345	1	02/09/2023 16:44	WG2002824
Fluoranthene	U		0.00623	0.0345	1	02/09/2023 16:44	WG2002824
Fluorene	U		0.00562	0.0345	1	02/09/2023 16:44	WG2002824
Hexachlorobenzene	U		0.0122	0.345	1	02/09/2023 16:44	WG2002824
Hexachloro-1,3-butadiene	U		0.0116	0.345	1	02/09/2023 16:44	WG2002824
Hexachlorocyclopentadiene	U		0.0181	0.345	1	02/09/2023 16:44	WG2002824
Hexachloroethane	U		0.0136	0.345	1	02/09/2023 16:44	WG2002824
Indeno(1,2,3-cd)pyrene	U		0.00975	0.0345	1	02/09/2023 16:44	WG2002824
Isophorone	U		0.0106	0.345	1	02/09/2023 16:44	WG2002824
2-Methylnaphthalene	U		0.00448	0.0345	1	02/09/2023 16:44	WG2002824
Naphthalene	U		0.00866	0.0345	1	02/09/2023 16:44	WG2002824
2-Nitroaniline	U		0.0111	0.345	1	02/09/2023 16:44	WG2002824
3-Nitroaniline	U		0.0110	0.345	1	02/09/2023 16:44	WG2002824
4-Nitroaniline	U		0.0101	0.345	1	02/09/2023 16:44	WG2002824
Nitrobenzene	U		0.0120	0.345	1	02/09/2023 16:44	WG2002824
n-Nitrosodimethylamine	U		0.0512	0.345	1	02/09/2023 16:44	WG2002824
n-Nitrosodiphenylamine	U		0.0261	0.345	1	02/09/2023 16:44	WG2002824
n-Nitrosodi-n-propylamine	U		0.0115	0.345	1	02/09/2023 16:44	WG2002824
Phenanthrene	U		0.00685	0.0345	1	02/09/2023 16:44	WG2002824
Benzylbutyl phthalate	U		0.0108	0.345	1	02/09/2023 16:44	WG2002824
Bis(2-ethylhexyl)phthalate	U		0.0437	0.345	1	02/09/2023 16:44	WG2002824
Di-n-butyl phthalate	U		0.0118	0.345	1	02/09/2023 16:44	WG2002824
Diethyl phthalate	U		0.0114	0.345	1	02/09/2023 16:44	WG2002824
Dimethyl phthalate	U		0.0732	0.345	1	02/09/2023 16:44	WG2002824
Di-n-octyl phthalate	U		0.0233	0.345	1	02/09/2023 16:44	WG2002824
Pyrene	U		0.00671	0.0345	1	02/09/2023 16:44	WG2002824
Pyridine	U		0.0228	0.345	1	02/09/2023 16:44	WG2002824
1,2,4-Trichlorobenzene	U		0.0108	0.345	1	02/09/2023 16:44	WG2002824
4-Chloro-3-methylphenol	U		0.0112	0.345	1	02/09/2023 16:44	WG2002824
2-Chlorophenol	U		0.0114	0.345	1	02/09/2023 16:44	WG2002824
2,4-Dichlorophenol	U		0.0101	0.345	1	02/09/2023 16:44	WG2002824
2,4-Dimethylphenol	U		0.00901	0.345	1	02/09/2023 16:44	WG2002824
4,6-Dinitro-2-methylphenol	U		0.0782	0.345	1	02/09/2023 16:44	WG2002824
2,4-Dinitrophenol	U		0.0807	0.345	1	02/09/2023 16:44	WG2002824
2-Methylphenol	U		0.0104	0.345	1	02/09/2023 16:44	WG2002824
3&4-Methyl Phenol	U		0.0108	0.345	1	02/09/2023 16:44	WG2002824
2-Nitrophenol	U		0.0123	0.345	1	02/09/2023 16:44	WG2002824
4-Nitrophenol	U		0.0108	0.345	1	02/09/2023 16:44	WG2002824
Pentachlorophenol	U		0.00928	0.345	1	02/09/2023 16:44	WG2002824
Phenol	U		0.0139	0.345	1	02/09/2023 16:44	WG2002824
2,4,5-Trichlorophenol	U		0.0117	0.345	1	02/09/2023 16:44	WG2002824
2,4,6-Trichlorophenol	U		0.0111	0.345	1	02/09/2023 16:44	WG2002824
(S) 2-Fluorophenol	*63.6*			*12.0-120*		*02/09/2023 16:44*	WG2002824
(S) Phenol-d5	*56.7*			*10.0-120*		*02/09/2023 16:44*	WG2002824
(S) Nitrobenzene-d5	*57.8*			*10.0-122*		*02/09/2023 16:44*	WG2002824
(S) 2-Fluorobiphenyl	*66.9*			*15.0-120*		*02/09/2023 16:44*	WG2002824
(S) 2,4,6-Tribromophenol	*69.1*			*10.0-127*		*02/09/2023 16:44*	WG2002824
(S) p-Terphenyl-d14	*68.1*			*10.0-120*		*02/09/2023 16:44*	WG2002824

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00238	0.00622	1	02/10/2023 01:23	WG2002825
Acenaphthene	U		0.00217	0.00622	1	02/10/2023 01:23	WG2002825
Acenaphthylene	U		0.00224	0.00622	1	02/10/2023 01:23	WG2002825
Benzo(a)anthracene	U		0.00179	0.00622	1	02/10/2023 01:23	WG2002825
Benzo(a)pyrene	U		0.00185	0.00622	1	02/10/2023 01:23	WG2002825
Benzo(b)fluoranthene	U		0.00159	0.00622	1	02/10/2023 01:23	WG2002825
Benzo(g,h,i)perylene	U		0.00183	0.00622	1	02/10/2023 01:23	WG2002825
Benzo(k)fluoranthene	U		0.00223	0.00622	1	02/10/2023 01:23	WG2002825
Chrysene	U		0.00240	0.00622	1	02/10/2023 01:23	WG2002825
Dibenz(a,h)anthracene	U		0.00178	0.00622	1	02/10/2023 01:23	WG2002825
Fluoranthene	U		0.00235	0.00622	1	02/10/2023 01:23	WG2002825
Fluorene	U		0.00212	0.00622	1	02/10/2023 01:23	WG2002825
Indeno(1,2,3-cd)pyrene	U		0.00188	0.00622	1	02/10/2023 01:23	WG2002825
Naphthalene	U		0.00423	0.0207	1	02/10/2023 01:23	WG2002825
Phenanthrene	U		0.00239	0.00622	1	02/10/2023 01:23	WG2002825
Pyrene	U		0.00207	0.00622	1	02/10/2023 01:23	WG2002825
1-Methylnaphthalene	U		0.00465	0.0207	1	02/10/2023 01:23	WG2002825
2-Methylnaphthalene	U		0.00442	0.0207	1	02/10/2023 01:23	WG2002825
2-Chloronaphthalene	U		0.00483	0.0207	1	02/10/2023 01:23	WG2002825
(S) p-Terphenyl-d14	*82.9*			*23.0-120*		*02/10/2023 01:23*	WG2002825
(S) Nitrobenzene-d5	*45.2*			*14.0-149*		*02/10/2023 01:23*	WG2002825
(S) 2-Fluorobiphenyl	*63.4*			*34.0-125*		*02/10/2023 01:23*	WG2002825

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.8		1	02/09/2023 10:09	WG2002951

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0186	0.0413	1	02/09/2023 19:06	WG2002876

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	3020		6.28	10.3	1	02/09/2023 13:04	WG2002965
Arsenic	6.74		0.535	2.07	1	02/09/2023 13:04	WG2002965
Barium	25.4		0.0880	0.517	1	02/09/2023 13:04	WG2002965
Cadmium	0.0695	J	0.0487	0.517	1	02/09/2023 13:04	WG2002965
Chromium	2.64		0.137	1.03	1	02/09/2023 13:04	WG2002965
Copper	8.75		0.413	2.07	1	02/09/2023 13:04	WG2002965
Lead	7.49		0.215	0.517	1	02/09/2023 13:04	WG2002965
Selenium	U		0.790	2.07	1	02/09/2023 13:04	WG2002965
Silver	U		0.131	1.03	1	02/09/2023 13:04	WG2002965

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		0.906	2.67	25	02/08/2023 23:59	WG2002784
(S) a,a,a-Trifluorotoluene(FID)	*98.4*			*77.0-120*		*02/08/2023 23:59*	WG2002784

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.37	4.13	1	02/09/2023 14:07	WG2002817
Residual Range Organics (RRO)	U		3.44	10.3	1	02/09/2023 14:07	WG2002817
(S) o-Terphenyl	*74.5*			*18.0-148*		*02/09/2023 14:07*	WG2002817

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00557	0.0344	1	02/09/2023 17:04	WG2002824
Acenaphthylene	U		0.00485	0.0344	1	02/09/2023 17:04	WG2002824
Anthracene	U		0.00613	0.0344	1	02/09/2023 17:04	WG2002824
Benzo(a)anthracene	U		0.00607	0.0344	1	02/09/2023 17:04	WG2002824
Benzo(b)fluoranthene	U		0.00642	0.0344	1	02/09/2023 17:04	WG2002824
Benzo(k)fluoranthene	U		0.00612	0.0344	1	02/09/2023 17:04	WG2002824
Benzo(g,h,i)perylene	U		0.00629	0.0344	1	02/09/2023 17:04	WG2002824
Benzo(a)pyrene	U		0.00640	0.0344	1	02/09/2023 17:04	WG2002824
Benzoic acid	U		0.122	1.73	1	02/09/2023 17:04	WG2002824
Benzyl alcohol	U		0.0127	0.344	1	02/09/2023 17:04	WG2002824
Bis(2-chlorethoxy)methane	U		0.0103	0.344	1	02/09/2023 17:04	WG2002824
Bis(2-chloroethyl)ether	U		0.0114	0.344	1	02/09/2023 17:04	WG2002824
2,2-Oxybis(1-Chloropropane)	U		0.0149	0.344	1	02/09/2023 17:04	WG2002824
4-Bromophenyl-phenylether	U		0.0121	0.344	1	02/09/2023 17:04	WG2002824
Carbazole	U		0.0106	0.344	1	02/09/2023 17:04	WG2002824
2-Chloronaphthalene	U		0.00605	0.0344	1	02/09/2023 17:04	WG2002824

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0124	0.344	1	02/09/2023 17:04	WG2002824
4-Chlorophenyl-phenylether	U		0.0120	0.344	1	02/09/2023 17:04	WG2002824
Chrysene	U		0.00684	0.0344	1	02/09/2023 17:04	WG2002824
Dibenz(a,h)anthracene	U		0.00954	0.0344	1	02/09/2023 17:04	WG2002824
Dibenzofuran	U		0.0113	0.344	1	02/09/2023 17:04	WG2002824
3,3-Dichlorobenzidine	U		0.0127	0.344	1	02/09/2023 17:04	WG2002824
2,4-Dinitrotoluene	U		0.00987	0.344	1	02/09/2023 17:04	WG2002824
2,6-Dinitrotoluene	U		0.0113	0.344	1	02/09/2023 17:04	WG2002824
Fluoranthene	U		0.00621	0.0344	1	02/09/2023 17:04	WG2002824
Fluorene	U		0.00560	0.0344	1	02/09/2023 17:04	WG2002824
Hexachlorobenzene	U		0.0122	0.344	1	02/09/2023 17:04	WG2002824
Hexachloro-1,3-butadiene	U		0.0116	0.344	1	02/09/2023 17:04	WG2002824
Hexachlorocyclopentadiene	U		0.0181	0.344	1	02/09/2023 17:04	WG2002824
Hexachloroethane	U		0.0135	0.344	1	02/09/2023 17:04	WG2002824
Indeno(1,2,3-cd)pyrene	U		0.00972	0.0344	1	02/09/2023 17:04	WG2002824
Isophorone	U		0.0105	0.344	1	02/09/2023 17:04	WG2002824
2-Methylnaphthalene	U		0.00446	0.0344	1	02/09/2023 17:04	WG2002824
Naphthalene	U		0.00864	0.0344	1	02/09/2023 17:04	WG2002824
2-Nitroaniline	U		0.0111	0.344	1	02/09/2023 17:04	WG2002824
3-Nitroaniline	U		0.0110	0.344	1	02/09/2023 17:04	WG2002824
4-Nitroaniline	U		0.0100	0.344	1	02/09/2023 17:04	WG2002824
Nitrobenzene	U		0.0120	0.344	1	02/09/2023 17:04	WG2002824
n-Nitrosodimethylamine	U		0.0511	0.344	1	02/09/2023 17:04	WG2002824
n-Nitrosodiphenylamine	U		0.0260	0.344	1	02/09/2023 17:04	WG2002824
n-Nitrosodi-n-propylamine	U		0.0115	0.344	1	02/09/2023 17:04	WG2002824
Phenanthrene	U		0.00683	0.0344	1	02/09/2023 17:04	WG2002824
Benzylbutyl phthalate	U		0.0107	0.344	1	02/09/2023 17:04	WG2002824
Bis(2-ethylhexyl)phthalate	U		0.0436	0.344	1	02/09/2023 17:04	WG2002824
Di-n-butyl phthalate	U		0.0118	0.344	1	02/09/2023 17:04	WG2002824
Diethyl phthalate	U		0.0114	0.344	1	02/09/2023 17:04	WG2002824
Dimethyl phthalate	U		0.0730	0.344	1	02/09/2023 17:04	WG2002824
Di-n-octyl phthalate	U		0.0233	0.344	1	02/09/2023 17:04	WG2002824
Pyrene	U		0.00670	0.0344	1	02/09/2023 17:04	WG2002824
Pyridine	U		0.0227	0.344	1	02/09/2023 17:04	WG2002824
1,2,4-Trichlorobenzene	U		0.0107	0.344	1	02/09/2023 17:04	WG2002824
4-Chloro-3-methylphenol	U		0.0112	0.344	1	02/09/2023 17:04	WG2002824
2-Chlorophenol	U		0.0114	0.344	1	02/09/2023 17:04	WG2002824
2,4-Dichlorophenol	U		0.0100	0.344	1	02/09/2023 17:04	WG2002824
2,4-Dimethylphenol	U		0.00899	0.344	1	02/09/2023 17:04	WG2002824
4,6-Dinitro-2-methylphenol	U		0.0780	0.344	1	02/09/2023 17:04	WG2002824
2,4-Dinitrophenol	U		0.0805	0.344	1	02/09/2023 17:04	WG2002824
2-Methylphenol	U		0.0103	0.344	1	02/09/2023 17:04	WG2002824
3&4-Methyl Phenol	U		0.0107	0.344	1	02/09/2023 17:04	WG2002824
2-Nitrophenol	U		0.0123	0.344	1	02/09/2023 17:04	WG2002824
4-Nitrophenol	U		0.0107	0.344	1	02/09/2023 17:04	WG2002824
Pentachlorophenol	U		0.00926	0.344	1	02/09/2023 17:04	WG2002824
Phenol	U		0.0138	0.344	1	02/09/2023 17:04	WG2002824
2,4,5-Trichlorophenol	U		0.0117	0.344	1	02/09/2023 17:04	WG2002824
2,4,6-Trichlorophenol	U		0.0111	0.344	1	02/09/2023 17:04	WG2002824
(S) 2-Fluorophenol	*60.3*			*12.0-120*		*02/09/2023 17:04*	WG2002824
(S) Phenol-d5	*53.1*			*10.0-120*		*02/09/2023 17:04*	WG2002824
(S) Nitrobenzene-d5	*52.5*			*10.0-122*		*02/09/2023 17:04*	WG2002824
(S) 2-Fluorobiphenyl	*58.3*			*15.0-120*		*02/09/2023 17:04*	WG2002824
(S) 2,4,6-Tribromophenol	*64.6*			*10.0-127*		*02/09/2023 17:04*	WG2002824
(S) p-Terphenyl-d14	*62.3*			*10.0-120*		*02/09/2023 17:04*	WG2002824

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00238	0.00620	1	02/10/2023 01:42	WG2002825
Acenaphthene	U		0.00216	0.00620	1	02/10/2023 01:42	WG2002825
Acenaphthylene	U		0.00223	0.00620	1	02/10/2023 01:42	WG2002825
Benzo(a)anthracene	U		0.00179	0.00620	1	02/10/2023 01:42	WG2002825
Benzo(a)pyrene	U		0.00185	0.00620	1	02/10/2023 01:42	WG2002825
Benzo(b)fluoranthene	U		0.00158	0.00620	1	02/10/2023 01:42	WG2002825
Benzo(g,h,i)perylene	U		0.00183	0.00620	1	02/10/2023 01:42	WG2002825
Benzo(k)fluoranthene	U		0.00222	0.00620	1	02/10/2023 01:42	WG2002825
Chrysene	U		0.00240	0.00620	1	02/10/2023 01:42	WG2002825
Dibenz(a,h)anthracene	U		0.00178	0.00620	1	02/10/2023 01:42	WG2002825
Fluoranthene	U		0.00235	0.00620	1	02/10/2023 01:42	WG2002825
Fluorene	U		0.00212	0.00620	1	02/10/2023 01:42	WG2002825
Indeno(1,2,3-cd)pyrene	U		0.00187	0.00620	1	02/10/2023 01:42	WG2002825
Naphthalene	U		0.00422	0.0207	1	02/10/2023 01:42	WG2002825
Phenanthrene	U		0.00239	0.00620	1	02/10/2023 01:42	WG2002825
Pyrene	U		0.00207	0.00620	1	02/10/2023 01:42	WG2002825
1-Methylnaphthalene	U		0.00464	0.0207	1	02/10/2023 01:42	WG2002825
2-Methylnaphthalene	U		0.00441	0.0207	1	02/10/2023 01:42	WG2002825
2-Chloronaphthalene	U		0.00482	0.0207	1	02/10/2023 01:42	WG2002825
(S) p-Terphenyl-d14	*86.5*			*23.0-120*		*02/10/2023 01:42*	WG2002825
(S) Nitrobenzene-d5	*50.8*			*14.0-149*		*02/10/2023 01:42*	WG2002825
(S) 2-Fluorobiphenyl	*77.9*			*34.0-125*		*02/10/2023 01:42*	WG2002825

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Gasoline Range Organics-NWTPH	U		0.0316	0.100	1	02/08/2023 17:47	WG2002650
(S) a,a,a-Trifluorotoluene(FID)	*107*			*78.0-120*		*02/08/2023 17:47*	WG2002650

Method Blank (MB)

(MB) R3889363-1 02/09/23 09:52

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1583319-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1583319-02 02/09/23 09:52 • (DUP) R3889363-3 02/09/23 09:52

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	96.3	95.5	1	0.770		10

Laboratory Control Sample (LCS)

(LCS) R3889363-2 02/09/23 09:52

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

Method Blank (MB)

(MB) R3889364-1 02/09/23 10:09

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1583410-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1583410-02 02/09/23 10:09 • (DUP) R3889364-3 02/09/23 10:09

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	82.7	79.1	1	4.41		10

Laboratory Control Sample (LCS)

(LCS) R3889364-2 02/09/23 10:09

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

Method Blank (MB)

(MB) R3889319-1 02/09/23 18:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3889319-4 02/09/23 20:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.514	103	80.0-120	

L1583344-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1583344-07 02/09/23 18:40 • (MS) R3889319-2 02/09/23 18:43 • (MSD) R3889319-3 02/09/23 18:46

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	U	0.652	0.609	130	122	1	75.0-125	J5		6.68	20

Method Blank (MB)

(MB) R3889140-1 02/09/23 12:21

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.08	10.0
Arsenic	U		0.518	2.00
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Chromium	U		0.133	1.00
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Selenium	U		0.764	2.00
Silver	U		0.127	1.00

Laboratory Control Sample (LCS)

(LCS) R3889140-2 02/09/23 12:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	1060	106	80.0-120	
Arsenic	100	98.6	98.6	80.0-120	
Barium	100	106	106	80.0-120	
Cadmium	100	101	101	80.0-120	
Chromium	100	101	101	80.0-120	
Copper	100	102	102	80.0-120	
Lead	100	101	101	80.0-120	
Selenium	100	102	102	80.0-120	
Silver	20.0	19.5	97.3	80.0-120	

L1582144-32 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1582144-32 02/09/23 12:26 • (MS) R3889140-5 02/09/23 12:34 • (MSD) R3889140-6 02/09/23 12:36

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	1330	3840	4670	251	335	1	75.0-125	J5	J5	19.7	20
Arsenic	100	8.04	115	101	107	93.4	1	75.0-125			12.9	20
Barium	100	9.01	134	130	125	121	1	75.0-125			3.39	20
Cadmium	100	U	108	93.9	108	93.9	1	75.0-125			14.3	20
Chromium	100	0.763	109	94.8	108	94.0	1	75.0-125			14.0	20
Copper	100	1.92	113	99.3	111	97.4	1	75.0-125			12.6	20
Lead	100	4.45	119	103	115	99.0	1	75.0-125			14.1	20
Selenium	100	U	110	95.7	110	95.7	1	75.0-125			14.3	20
Silver	20.0	U	20.9	18.2	105	91.0	1	75.0-125			13.9	20

Method Blank (MB)

(MB) R3888968-2 02/08/23 15:51

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Gasoline Range Organics-NWTPH	U		0.0316	0.100
(S) a,a,a-Trifluorotoluene(FID)	*110*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3888968-1 02/08/23 14:42

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5.50	6.02	109	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*101*	*78.0-120*	

Method Blank (MB)

(MB) R3889584-3 02/08/23 22:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPHG C6 - C12	U		0.848	2.50
(S) a,a,a-Trifluorotoluene(FID)	*99.6*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3889584-2 02/08/23 20:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPHG C6 - C12	5.50	4.82	87.6	71.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*98.6*	*77.0-120*	

L1582396-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1582396-09 02/09/23 02:59 • (MS) R3889584-4 02/09/23 05:59 • (MSD) R3889584-5 02/09/23 06:21

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	155	1.94	131	136	83.7	86.6	25.5	50.0-150			3.31	27
(S) a,a,a-Trifluorotoluene(FID)					*101*	*99.3*		*77.0-120*				

Method Blank (MB)

(MB) R3889179-2 02/09/23 12:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*77.5*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3889179-1 02/09/23 12:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Diesel Range Organics (DRO)	50.0	33.7	67.4	50.0-150	
(S) o-Terphenyl			*74.6*	*18.0-148*	

L1583535-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1583535-01 02/09/23 16:04 • (MS) R3889179-3 02/09/23 16:17 • (MSD) R3889179-4 02/09/23 16:30

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	48.3	49.6	79.9	84.6	62.7	72.0	1	50.0-150			5.71	20
(S) o-Terphenyl					*66.3*	*63.4*		*18.0-148*				

Method Blank (MB)

(MB) R3889432-2 02/09/23 15:42

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00539	0.0333
Acenaphthylene	U		0.00469	0.0333
Anthracene	U		0.00593	0.0333
Benzo(a)anthracene	U		0.00587	0.0333
Benzo(b)fluoranthene	U		0.00621	0.0333
Benzo(k)fluoranthene	U		0.00592	0.0333
Benzo(g,h,i)perylene	U		0.00609	0.0333
Benzo(a)pyrene	U		0.00619	0.0333
Benzoic Acid	U		0.118	1.67
Benzyl Alcohol	U		0.0123	0.333
Bis(2-chlorethoxy)methane	U		0.0100	0.333
Bis(2-chloroethyl)ether	U		0.0110	0.333
2,2-oxybis(1-chloropropane)	U		0.0144	0.333
4-Bromophenyl-phenylether	U		0.0117	0.333
Carbazole	U		0.0103	0.333
2-Chloronaphthalene	U		0.00585	0.0333
4-Chloroaniline	U		0.0120	0.333
4-Chlorophenyl-phenylether	U		0.0116	0.333
Chrysene	U		0.00662	0.0333
Dibenz(a,h)anthracene	U		0.00923	0.0333
Dibenzofuran	U		0.0109	0.333
3,3-Dichlorobenzidine	U		0.0123	0.333
2,4-Dinitrotoluene	U		0.00955	0.333
2,6-Dinitrotoluene	U		0.0109	0.333
Fluoranthene	U		0.00601	0.0333
Fluorene	U		0.00542	0.0333
Hexachlorobenzene	U		0.0118	0.333
Hexachloro-1,3-butadiene	U		0.0112	0.333
Hexachlorocyclopentadiene	U		0.0175	0.333
Hexachloroethane	U		0.0131	0.333
Indeno(1,2,3-cd)pyrene	U		0.00941	0.0333
Isophorone	U		0.0102	0.333
2-Methylnaphthalene	U		0.00432	0.0333
Naphthalene	U		0.00836	0.0333
2-Nitroaniline	U		0.0107	0.333
3-Nitroaniline	U		0.0106	0.333
4-Nitroaniline	U		0.00971	0.333
Nitrobenzene	U		0.0116	0.333
n-Nitrosodimethylamine	U		0.0494	0.333
n-Nitrosodiphenylamine	U		0.0252	0.333

Method Blank (MB)

(MB) R3889432-2 02/09/23 15:42

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
n-Nitrosodi-n-propylamine	U		0.0111	0.333
Phenanthrene	U		0.00661	0.0333
Benzylbutyl phthalate	U		0.0104	0.333
Bis(2-ethylhexyl)phthalate	U		0.0422	0.333
Di-n-butyl phthalate	U		0.0114	0.333
Diethyl phthalate	U		0.0110	0.333
Dimethyl phthalate	U		0.0706	0.333
Di-n-octyl phthalate	U		0.0225	0.333
Pyrene	U		0.00648	0.0333
Pyridine	U		0.0220	0.333
1,2,4-Trichlorobenzene	U		0.0104	0.333
4-Chloro-3-methylphenol	U		0.0108	0.333
2-Chlorophenol	U		0.0110	0.333
2,4-Dichlorophenol	U		0.00970	0.333
2,4-Dimethylphenol	U		0.00870	0.333
4,6-Dinitro-2-methylphenol	U		0.0755	0.333
2,4-Dinitrophenol	U		0.0779	0.333
2-Methylphenol	U		0.0100	0.333
3&4-Methyl Phenol	U		0.0104	0.333
2-Nitrophenol	U		0.0119	0.333
4-Nitrophenol	U		0.0104	0.333
Pentachlorophenol	U		0.00896	0.333
Phenol	U		0.0134	0.333
2,4,5-Trichlorophenol	U		0.0113	0.333
2,4,6-Trichlorophenol	U		0.0107	0.333
(S) 2-Fluorophenol	*49.7*			*12.0-120*
(S) Phenol-d5	*45.2*			*10.0-120*
(S) Nitrobenzene-d5	*45.3*			*10.0-122*
(S) 2-Fluorobiphenyl	*54.4*			*15.0-120*
(S) 2,4,6-Tribromophenol	*55.9*			*10.0-127*
(S) p-Terphenyl-d14	*53.8*			*10.0-120*

Laboratory Control Sample (LCS)

(LCS) R3889432-1 02/09/23 15:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.666	0.433	65.0	38.0-120	
Acenaphthylene	0.666	0.461	69.2	40.0-120	

Laboratory Control Sample (LCS)

(LCS) R3889432-1 02/09/23 15:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.666	0.431	64.7	42.0-120	
Benzo(a)anthracene	0.666	0.480	72.1	44.0-120	
Benzo(b)fluoranthene	0.666	0.445	66.8	43.0-120	
Benzo(k)fluoranthene	0.666	0.455	68.3	44.0-120	
Benzo(g,h,i)perylene	0.666	0.548	82.3	43.0-120	
Benzo(a)pyrene	0.666	0.508	76.3	45.0-120	
Benzoic Acid	1.33	0.332	25.0	10.0-120	
Benzyl Alcohol	0.666	0.366	55.0	10.0-120	
Bis(2-chlorethoxy)methane	0.666	0.330	49.5	20.0-120	
Bis(2-chloroethyl)ether	0.666	0.361	54.2	16.0-120	
2,2-Oxybis(1-Chloropropane)	0.666	0.393	59.0	23.0-120	
4-Bromophenyl-phenylether	0.666	0.510	76.6	40.0-120	
Carbazole	0.666	0.446	67.0	48.0-120	
2-Chloronaphthalene	0.666	0.443	66.5	35.0-120	
4-Chloroaniline	0.666	0.244	36.6	18.0-120	
4-Chlorophenyl-phenylether	0.666	0.464	69.7	40.0-120	
Chrysene	0.666	0.478	71.8	43.0-120	
Dibenz(a,h)anthracene	0.666	0.557	83.6	44.0-120	
Dibenzofuran	0.666	0.445	66.8	44.0-120	
3,3-Dichlorobenzidine	1.33	0.932	70.1	28.0-120	
2,4-Dinitrotoluene	0.666	0.505	75.8	45.0-120	
2,6-Dinitrotoluene	0.666	0.460	69.1	42.0-120	
Fluoranthene	0.666	0.490	73.6	44.0-120	
Fluorene	0.666	0.442	66.4	41.0-120	
Hexachlorobenzene	0.666	0.487	73.1	39.0-120	
Hexachloro-1,3-butadiene	0.666	0.414	62.2	15.0-120	
Hexachlorocyclopentadiene	0.666	0.415	62.3	15.0-120	
Hexachloroethane	0.666	0.380	57.1	17.0-120	
Indeno(1,2,3-cd)pyrene	0.666	0.523	78.5	45.0-120	
Isophorone	0.666	0.320	48.0	23.0-120	
2-Methylnaphthalene	0.666	0.364	54.7	34.0-120	
Naphthalene	0.666	0.345	51.8	18.0-120	
2-Nitroaniline	0.666	0.456	68.5	46.0-120	
3-Nitroaniline	0.666	0.450	67.6	36.0-120	
4-Nitroaniline	0.666	0.663	99.5	36.0-120	
Nitrobenzene	0.666	0.323	48.5	17.0-120	
n-Nitrosodimethylamine	0.666	0.316	47.4	10.0-125	
n-Nitrosodiphenylamine	0.666	0.375	56.3	40.0-120	
n-Nitrosodi-n-propylamine	0.666	0.374	56.2	26.0-120	
Phenanthrene	0.666	0.453	68.0	42.0-120	

Laboratory Control Sample (LCS)

(LCS) R3889432-1 02/09/23 15:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzylbutyl phthalate	0.666	0.463	69.5	40.0-120	
Bis(2-ethylhexyl)phthalate	0.666	0.458	68.8	41.0-120	
Di-n-butyl phthalate	0.666	0.443	66.5	43.0-120	
Diethyl phthalate	0.666	0.489	73.4	43.0-120	
Dimethyl phthalate	0.666	0.444	66.7	43.0-120	
Di-n-octyl phthalate	0.666	0.477	71.6	40.0-120	
Pyrene	0.666	0.428	64.3	41.0-120	
Pyridine	0.666	0.219	32.9	10.0-120	
1,2,4-Trichlorobenzene	0.666	0.377	56.6	17.0-120	
4-Chloro-3-methylphenol	0.666	0.330	49.5	28.0-120	
2-Chlorophenol	0.666	0.398	59.8	28.0-120	
2,4-Dichlorophenol	0.666	0.356	53.5	25.0-120	
2,4-Dimethylphenol	0.666	0.300	45.0	15.0-120	
4,6-Dinitro-2-methylphenol	0.666	0.492	73.9	16.0-120	
2,4-Dinitrophenol	0.666	0.403	60.5	10.0-120	
2-Methylphenol	0.666	0.359	53.9	35.0-120	
3&4-Methyl Phenol	0.666	0.352	52.9	42.0-120	
2-Nitrophenol	0.666	0.394	59.2	20.0-120	
4-Nitrophenol	0.666	0.498	74.8	27.0-120	
Pentachlorophenol	0.666	0.512	76.9	29.0-120	
Phenol	0.666	0.355	53.3	28.0-120	
2,4,5-Trichlorophenol	0.666	0.421	63.2	38.0-120	
2,4,6-Trichlorophenol	0.666	0.438	65.8	37.0-120	
(S) 2-Fluorophenol			*61.0*	*12.0-120*	
(S) Phenol-d5			*56.3*	*10.0-120*	
(S) Nitrobenzene-d5			*44.4*	*10.0-122*	
(S) 2-Fluorobiphenyl			*65.8*	*15.0-120*	
(S) 2,4,6-Tribromophenol			*79.3*	*10.0-127*	
(S) p-Terphenyl-d14			*65.8*	*10.0-120*	

Method Blank (MB)

(MB) R3889806-2 02/09/23 22:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) p-Terphenyl-d14	*84.2*			*23.0-120*
(S) Nitrobenzene-d5	*52.3*			*14.0-149*
(S) 2-Fluorobiphenyl	*82.0*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3889806-1 02/09/23 21:47

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0614	76.8	50.0-126	
Acenaphthene	0.0800	0.0617	77.1	50.0-120	
Acenaphthylene	0.0800	0.0645	80.6	50.0-120	
Benzo(a)anthracene	0.0800	0.0631	78.9	45.0-120	
Benzo(a)pyrene	0.0800	0.0621	77.6	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0646	80.7	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0558	69.8	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0641	80.1	49.0-125	
Chrysene	0.0800	0.0655	81.9	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0571	71.4	47.0-125	
Fluoranthene	0.0800	0.0729	91.1	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3889806-1 02/09/23 21:47

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0694	86.8	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0592	74.0	46.0-125	
Naphthalene	0.0800	0.0625	78.1	50.0-120	
Phenanthrene	0.0800	0.0637	79.6	47.0-120	
Pyrene	0.0800	0.0630	78.8	43.0-123	
1-Methylnaphthalene	0.0800	0.0676	84.5	51.0-121	
2-Methylnaphthalene	0.0800	0.0698	87.3	50.0-120	
2-Chloronaphthalene	0.0800	0.0641	80.1	50.0-120	
(S) p-Terphenyl-d14			*91.1*	*23.0-120*	
(S) Nitrobenzene-d5			*57.4*	*14.0-149*	
(S) 2-Fluorobiphenyl			*88.6*	*34.0-125*	

L1583420-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1583420-01 02/09/23 22:26 • (MS) R3889806-3 02/09/23 22:46 • (MSD) R3889806-4 02/09/23 23:05

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0788	U	0.0631	0.0561	80.1	70.8	1	10.0-145			11.7	30
Acenaphthene	0.0788	U	0.0624	0.0568	79.2	71.7	1	14.0-127			9.40	27
Acenaphthylene	0.0788	U	0.0673	0.0587	85.4	74.1	1	21.0-124			13.7	25
Benzo(a)anthracene	0.0788	U	0.0645	0.0584	81.9	73.7	1	10.0-139			9.93	30
Benzo(a)pyrene	0.0788	U	0.0676	0.0604	85.8	76.3	1	10.0-141			11.2	31
Benzo(b)fluoranthene	0.0788	U	0.0674	0.0600	85.5	75.8	1	10.0-140			11.6	36
Benzo(g,h,i)perylene	0.0788	U	0.0560	0.0526	71.1	66.4	1	10.0-140			6.26	33
Benzo(k)fluoranthene	0.0788	U	0.0663	0.0591	84.1	74.6	1	10.0-137			11.5	31
Chrysene	0.0788	U	0.0670	0.0611	85.0	77.1	1	10.0-145			9.21	30
Dibenz(a,h)anthracene	0.0788	U	0.0582	0.0538	73.9	67.9	1	10.0-132			7.86	31
Fluoranthene	0.0788	U	0.0750	0.0665	95.2	84.0	1	10.0-153			12.0	33
Fluorene	0.0788	U	0.0702	0.0636	89.1	80.3	1	11.0-130			9.87	29
Indeno(1,2,3-cd)pyrene	0.0788	U	0.0595	0.0551	75.5	69.6	1	10.0-137			7.68	32
Naphthalene	0.0788	U	0.0647	0.0585	82.1	73.9	1	10.0-135			10.1	27
Phenanthrene	0.0788	U	0.0671	0.0592	85.2	74.7	1	10.0-144			12.5	31
Pyrene	0.0788	U	0.0636	0.0568	80.7	71.7	1	10.0-148			11.3	35
1-Methylnaphthalene	0.0788	U	0.0697	0.0627	88.5	79.2	1	10.0-142			10.6	28
2-Methylnaphthalene	0.0788	U	0.0716	0.0648	90.9	81.8	1	10.0-137			9.97	28
2-Chloronaphthalene	0.0788	U	0.0668	0.0609	84.8	76.9	1	29.0-120			9.24	24
(S) p-Terphenyl-d14					*80.8*	*75.5*		*23.0-120*				
(S) Nitrobenzene-d5					*58.8*	*55.2*		*14.0-149*				
(S) 2-Fluorobiphenyl					*82.9*	*77.8*		*34.0-125*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To: tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Zachary Schuehle

Site/Facility ID #
IMPORTED BACKFILL SOIL AND

P.O. #

Collected by (signature):
Zach Schuehle

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
X Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1583319
A166

Acctnum: **UPRRGOLD**
Template: **T223916**
Prelogin: **P978674**
PM: **829 - Brittnie L Boyd**
PB: 2/2/23
Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Metals 8ozClr-NoPres	NWTPHDX w/o SGT 8ozClr-NoPres	NWTPHGX 40mlAmb/MeOH10ml/Syr	SV8270 8ozClr-NoPres	SV8270PAHSIM 8ozClr-NoPres	Remarks	Sample # (lab only)
BF3-2494-02-020723	G	SS	—	2-7-23	1205	3	X	X	X	X	X		-01
BF3-2494-01-020723	G	SS	—	2-7-23	1155	3	X	X	X	X	X		-02
BF3-2494-03-020723	G	SS	—	2-7-23	1215	3	X	X	X	X	X		-03
BF3-2494-04-020723	G	SS	—	2-7-23	1220	3	X	X	X	X	X		-04
BF3-2494-05-020723	G	SS	—	2-7-23	1230	3	X	X	X	X	X		-05
TB-2494-1-020723	G	SS	—	2-7-23	1200	1			X				-06
		SS											

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: *Metals = Al, Ag, As, Ba, Cd, Cr, Cu, Hg, Pb, Se by 6010

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 609454755044

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: ✓Y __N
RAD Screen <0.5 mR/hr: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: (Yes) / No HCl / MeoH TBR	If preservation required by Login: Date/Time
Zach Schuehle	2-7-23	1700		1	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: NSA? °C 1.8+0=1.8 Bottles Received: 15	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 2-8-23 Time: 0915	Hold: Condition: NCF / (OK)

ANALYTICAL REPORT

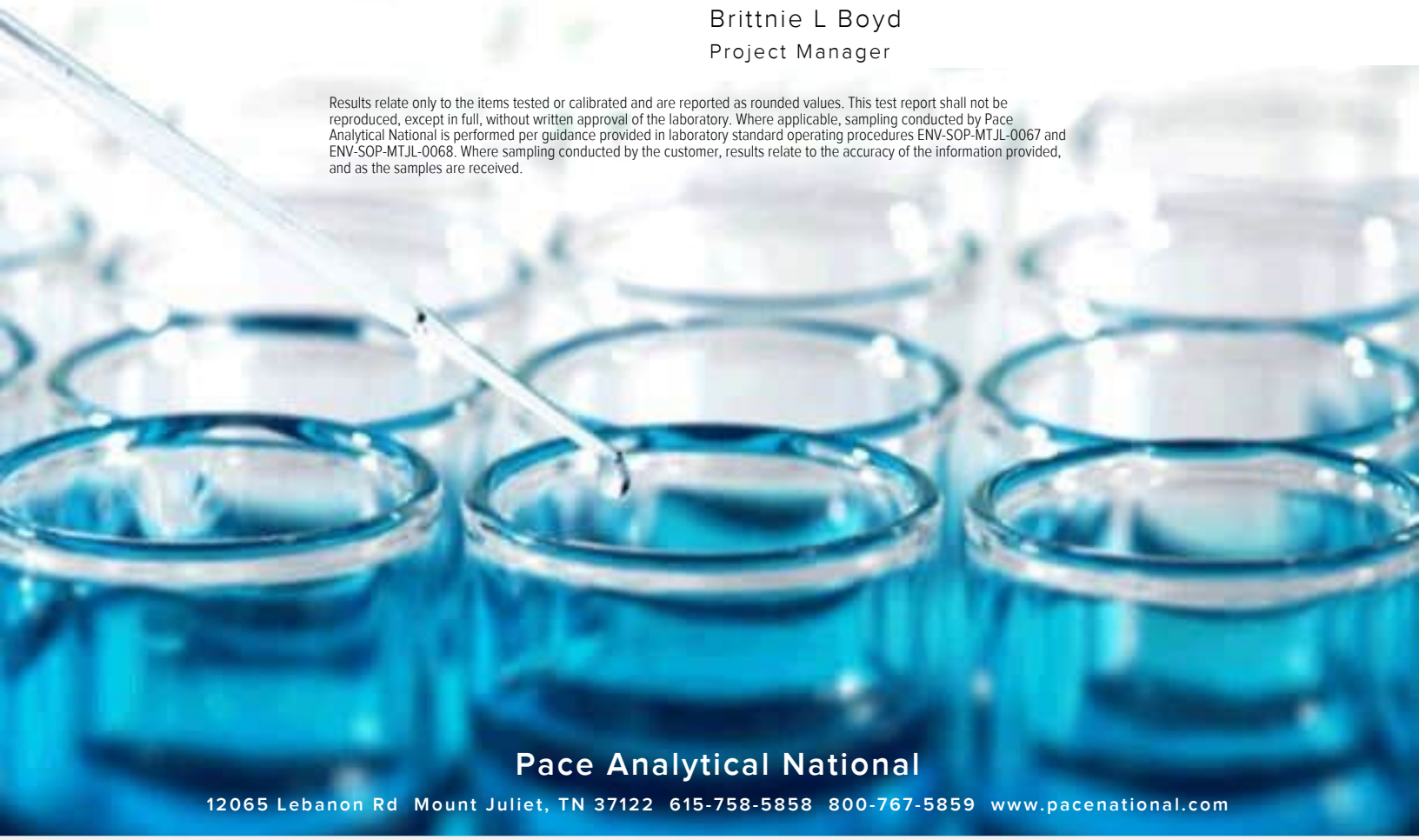
February 10, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1583723
Samples Received:	02/09/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-W1-31-020723 L1583723-01 Solid

Collected by: Zachary Schuehle
Collected date/time: 02/07/23 15:05
Received date/time: 02/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2003176	1	02/09/23 16:36	02/09/23 16:53	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG2003390	1	02/09/23 20:13	02/10/23 09:34	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2003156	5	02/09/23 11:31	02/09/23 13:33	SJM	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.1		1	02/09/2023 16:53	WG2003176

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0510		0.0182	0.0404	1	02/10/2023 09:34	WG2003390

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11800		6.96	50.4	5	02/09/2023 13:33	WG2003156
Arsenic	9.34		0.101	1.01	5	02/09/2023 13:33	WG2003156
Barium	76.9		0.153	2.52	5	02/09/2023 13:33	WG2003156
Chromium	12.9		0.299	5.04	5	02/09/2023 13:33	WG2003156
Copper	52.7		0.133	5.04	5	02/09/2023 13:33	WG2003156

Method Blank (MB)

(MB) R3889401-1 02/09/23 16:53

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1583654-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1583654-01 02/09/23 16:53 • (DUP) R3889401-3 02/09/23 16:53

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	80.6	81.9	1	1.65		10

Laboratory Control Sample (LCS)

(LCS) R3889401-2 02/09/23 16:53

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	99.9	85.0-115	

QUALITY CONTROL SUMMARY

L1583723-01

Method Blank (MB)

(MB) R3889488-1 02/10/23 09:08

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3889488-2 02/10/23 09:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.515	103	80.0-120	

L1583804-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1583804-03 02/10/23 09:13 • (MS) R3889488-3 02/10/23 09:15 • (MSD) R3889488-4 02/10/23 09:18

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.689	0.0299	0.694	0.703	96.5	97.8	1	75.0-125			1.25	20

Method Blank (MB)

(MB) R3889147-1 02/09/23 12:48

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	7.94	J	6.90	50.0
Arsenic	0.142	J	0.100	1.00
Barium	0.971	J	0.152	2.50
Chromium	U		0.297	5.00
Copper	2.07	J	0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3889147-2 02/09/23 12:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	938	93.8	80.0-120	
Arsenic	100	93.8	93.8	80.0-120	
Barium	100	92.4	92.4	80.0-120	
Chromium	100	98.5	98.5	80.0-120	
Copper	100	91.7	91.7	80.0-120	

L1582037-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1582037-01 02/09/23 12:55 • (MS) R3889147-5 02/09/23 13:05 • (MSD) R3889147-6 02/09/23 13:08

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	13800	13600	19000	0.000	526	5	75.0-125	V	J3 V	33.2	20
Arsenic	100	0.658	78.7	77.0	78.0	76.3	5	75.0-125			2.21	20
Barium	100	158	242	281	83.6	122	5	75.0-125			14.8	20
Chromium	100	3.00	87.4	86.5	84.4	83.5	5	75.0-125			0.990	20
Copper	100	15.6	105	109	89.1	93.0	5	75.0-125			3.60	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Zachary Schuehle

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time		Remarks	Sample # (lab only)
SO-2494-W1-31-[illegible]	G	SS	2Ft	2/7/23	1505	1 X		-01

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1563723

D112

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P972607**
PM: 134 - Mark W. Beasley
PB:

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu by 6020 SN14170 pH _____ Temp _____
Hg by 7470 SN14168 Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6295 1064 0705

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

	Date:	Time:		
Relinquished by : (Signature) Zach Schuehle	2-8-23	1700	Received by: (Signature)	Trip Blank Received: Yes (No) HCL / MeoH TBR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: NSAG °C 1.8+0=1.8 Bottles Received: 1
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Kaycie T	Date: 2/9/23 Time: 900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

ANALYTICAL REPORT

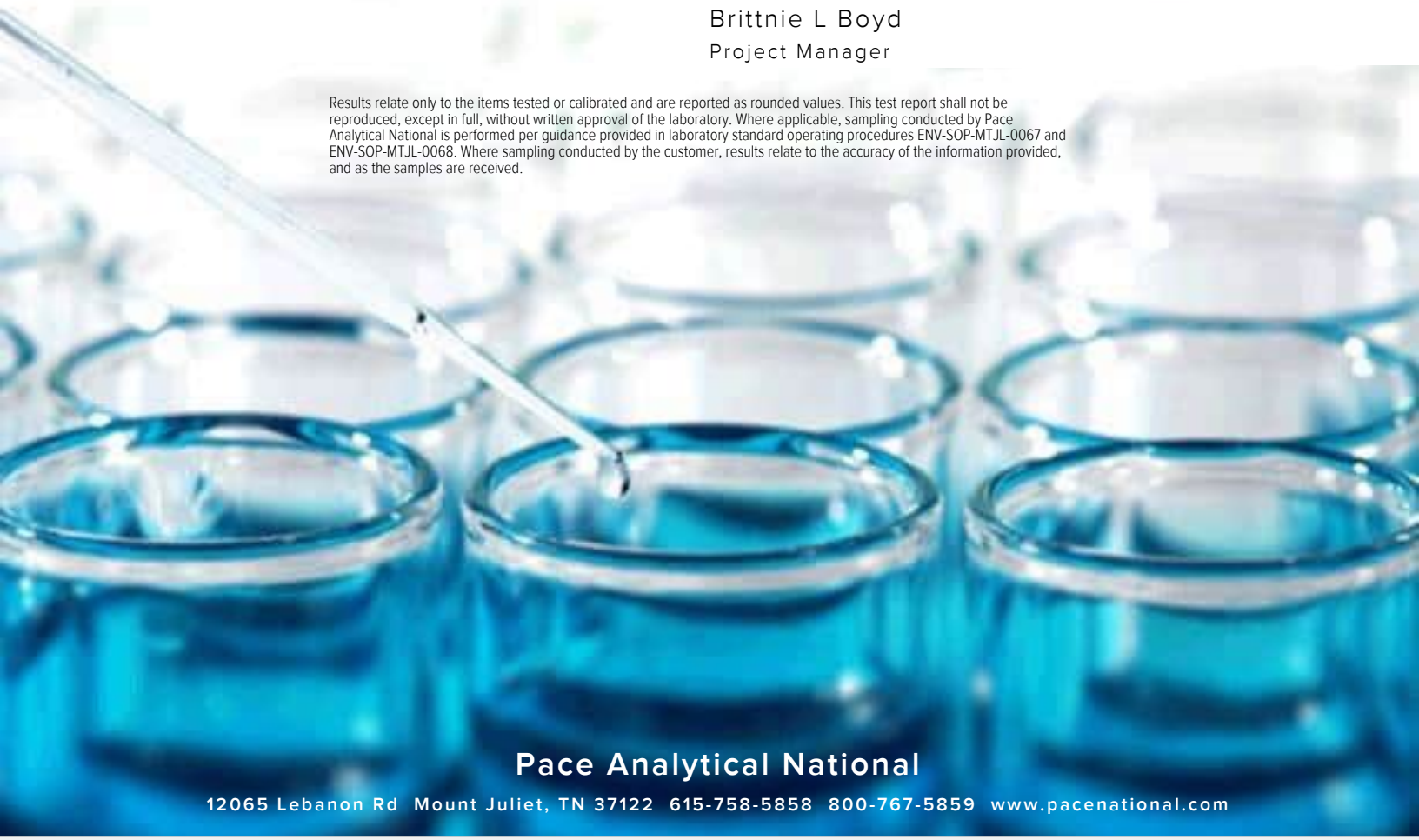
February 15, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1585200
Samples Received:	02/14/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-W1-06-021023 L1585200-01 Solid

Collected by: Zachary S
Collected date/time: 02/10/23 09:40
Received date/time: 02/14/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2005917	1	02/14/23 18:48	02/14/23 19:07	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2006387	1	02/15/23 09:57	02/15/23 11:06	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2006239	5	02/15/23 08:01	02/15/23 13:29	SJM	Mt. Juliet, TN

SO-2494-W1-28-021023 L1585200-02 Solid

Collected by: Zachary S
Collected date/time: 02/10/23 09:55
Received date/time: 02/14/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2005917	1	02/14/23 18:48	02/14/23 19:07	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2006387	1	02/15/23 09:57	02/15/23 11:15	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2006239	5	02/15/23 08:01	02/15/23 13:32	SJM	Mt. Juliet, TN

SO-2494-W1-40-021023 L1585200-03 Solid

Collected by: Zachary S
Collected date/time: 02/10/23 09:50
Received date/time: 02/14/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2005917	1	02/14/23 18:48	02/14/23 19:07	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2006387	1	02/15/23 09:57	02/15/23 11:18	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2006239	5	02/15/23 08:01	02/15/23 13:42	SJM	Mt. Juliet, TN

SO-2494-P1-45-021323 L1585200-04 Solid

Collected by: Zachary S
Collected date/time: 02/13/23 11:30
Received date/time: 02/14/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2005917	1	02/14/23 18:48	02/14/23 19:07	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2006387	1	02/15/23 09:57	02/15/23 11:25	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2006239	5	02/15/23 08:01	02/15/23 13:46	SJM	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.5		1	02/14/2023 19:07	WG2005917

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.157		0.0181	0.0402	1	02/15/2023 11:06	WG2006387

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9170		6.93	50.2	5	02/15/2023 13:29	WG2006239
Arsenic	12.4		0.100	1.00	5	02/15/2023 13:29	WG2006239
Barium	68.8		0.153	2.51	5	02/15/2023 13:29	WG2006239
Chromium	12.3		0.297	5.02	5	02/15/2023 13:29	WG2006239
Copper	89.2		0.133	5.02	5	02/15/2023 13:29	WG2006239

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.2		1	02/14/2023 19:07	WG2005917

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0230	J	0.0181	0.0403	1	02/15/2023 11:15	WG2006387

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11500		6.96	50.4	5	02/15/2023 13:32	WG2006239
Arsenic	12.2		0.101	1.01	5	02/15/2023 13:32	WG2006239
Barium	103		0.153	2.52	5	02/15/2023 13:32	WG2006239
Chromium	12.3		0.298	5.04	5	02/15/2023 13:32	WG2006239
Copper	39.7		0.133	5.04	5	02/15/2023 13:32	WG2006239

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.4		1	02/14/2023 19:07	WG2005917

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0314	J	0.0181	0.0402	1	02/15/2023 11:18	WG2006387

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11800		6.94	50.3	5	02/15/2023 13:42	WG2006239
Arsenic	17.3		0.101	1.01	5	02/15/2023 13:42	WG2006239
Barium	79.9		0.153	2.51	5	02/15/2023 13:42	WG2006239
Chromium	12.7		0.298	5.03	5	02/15/2023 13:42	WG2006239
Copper	55.6		0.133	5.03	5	02/15/2023 13:42	WG2006239

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.0		1	02/14/2023 19:07	WG2005917

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0186	0.0412	1	02/15/2023 11:25	WG2006387

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	16700		7.11	51.5	5	02/15/2023 13:46	WG2006239
Arsenic	7.42		0.103	1.03	5	02/15/2023 13:46	WG2006239
Barium	168		0.157	2.58	5	02/15/2023 13:46	WG2006239
Chromium	10.4		0.305	5.15	5	02/15/2023 13:46	WG2006239
Copper	19.9		0.136	5.15	5	02/15/2023 13:46	WG2006239

Method Blank (MB)

(MB) R3891020-1 02/14/23 19:07

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1585193-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1585193-01 02/14/23 19:07 • (DUP) R3891020-3 02/14/23 19:07

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	89.6	90.0	1	0.529		10

Laboratory Control Sample (LCS)

(LCS) R3891020-2 02/14/23 19:07

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

Method Blank (MB)

(MB) R3891099-1 02/15/23 11:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3891099-2 02/15/23 11:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.568	114	80.0-120	

L1585200-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1585200-01 02/15/23 11:06 • (MS) R3891099-3 02/15/23 11:09 • (MSD) R3891099-4 02/15/23 11:13

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.502	0.157	0.658	0.731	99.7	114	1	75.0-125			10.4	20

Method Blank (MB)

(MB) R3891150-1 02/15/23 13:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	0.225	J	0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3891150-7 02/15/23 13:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	885	88.5	80.0-120	
Arsenic	100	88.7	88.7	80.0-120	
Barium	100	88.0	88.0	80.0-120	
Chromium	100	91.0	91.0	80.0-120	
Copper	100	91.8	91.8	80.0-120	

L1585217-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1585217-01 02/15/23 13:09 • (MS) R3891150-5 02/15/23 13:19 • (MSD) R3891150-6 02/15/23 13:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	5970	8190	6580	221	60.6	5	75.0-125	V	J3 V	21.7	20
Arsenic	100	1.91	89.3	88.7	87.3	86.8	5	75.0-125			0.649	20
Barium	100	1580	1850	1340	269	0.000	5	75.0-125	E V	E J3 V	31.5	20
Chromium	100	6.57	95.0	95.7	88.4	89.1	5	75.0-125			0.703	20
Copper	100	11.4	103	102	91.7	90.6	5	75.0-125			1.07	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Zachary Schuehle

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres									Remarks	Sample # (lab only)
SO-2494-WI-06-021023	G	SS	2ft	2-10-23	940	1	X										-01
SO-2494-WI-28-021023	G	SS	2ft	2-10-23	955	1	X										-02
SO-2494-WI-40-021023	G	SS	2ft	2-10-23	950	1	X										-03
SO-2494-PI-45-021323	G	SS	2ft	2-13-23	1130	1	X										-04
		SS															
		SS															
		SS															
		SS															
		SS															
		SS															

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1585200
D045

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P972607**
PM: 134 - Mark W. Beasley
PB: 2/9/23 dld
Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu by 6020
Hg by 7470

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6295 1084 0716

Trip Blank Received: Yes (No)
HCL / MeoH
TBR

Temp: NSA °C Bottles Received: 4
1.5+0=1.5

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Sample Receipt Checklist
COC Seal Present/Intact: NP ✓Y N
COC Signed/Accurate: ✓Y N
Bottles arrive intact: ✓Y N
Correct bottles used: ✓Y N
Sufficient volume sent: ✓Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: ✓Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Zach Schuehle	2-13-23	1630	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Kayla Z

Date: 2/14/23 Time: 930

ANALYTICAL REPORT

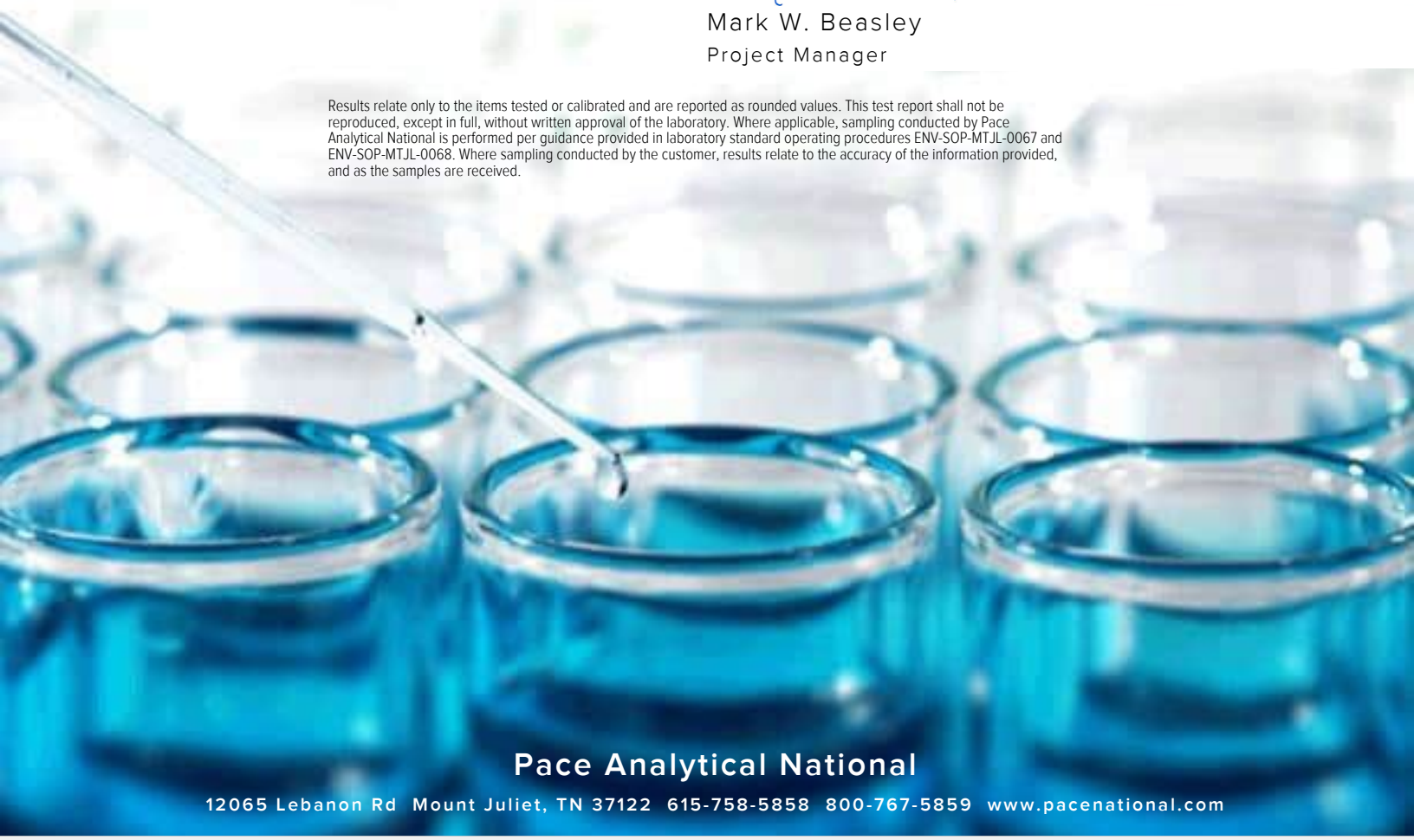
February 16, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1585661
Samples Received:	02/15/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SO-2494-P1-32-021323 L1585661-01 Solid

Collected by: Zachary S | Collected date/time: 02/13/23 15:05 | Received date/time: 02/15/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2006543	1	02/15/23 12:20	02/15/23 12:40	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2007297	1	02/16/23 11:58	02/16/23 13:17	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2006557	5	02/15/23 12:27	02/15/23 17:42	JPD	Mt. Juliet, TN

SO-2494-P1-26-021323 L1585661-02 Solid

Collected by: Zachary S | Collected date/time: 02/13/23 15:15 | Received date/time: 02/15/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2006543	1	02/15/23 12:20	02/15/23 12:40	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2007297	1	02/16/23 11:58	02/16/23 13:20	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2006557	5	02/15/23 12:27	02/15/23 17:45	JPD	Mt. Juliet, TN

SO-2494-W1-14-021423 L1585661-03 Solid

Collected by: Zachary S | Collected date/time: 02/14/23 11:45 | Received date/time: 02/15/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2006543	1	02/15/23 12:20	02/15/23 12:40	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2007297	1	02/16/23 11:58	02/16/23 13:22	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2006557	5	02/15/23 12:27	02/15/23 17:49	JPD	Mt. Juliet, TN

SO-2494-W1-05-021423 L1585661-04 Solid

Collected by: Zachary S | Collected date/time: 02/14/23 12:10 | Received date/time: 02/15/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2006543	1	02/15/23 12:20	02/15/23 12:40	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2007297	1	02/16/23 11:58	02/16/23 13:25	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2006557	5	02/15/23 12:27	02/15/23 17:59	JPD	Mt. Juliet, TN

SO-2494-W1-19-021423 L1585661-05 Solid

Collected by: Zachary S | Collected date/time: 02/14/23 12:20 | Received date/time: 02/15/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2006543	1	02/15/23 12:20	02/15/23 12:40	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2007297	1	02/16/23 11:58	02/16/23 13:27	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2006557	5	02/15/23 12:27	02/15/23 18:02	JPD	Mt. Juliet, TN

SO-2494-W1-33-021423 L1585661-06 Solid

Collected by: Zachary S | Collected date/time: 02/14/23 12:25 | Received date/time: 02/15/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2006543	1	02/15/23 12:20	02/15/23 12:40	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2007297	1	02/16/23 11:58	02/16/23 13:35	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2006557	5	02/15/23 12:27	02/15/23 18:05	JPD	Mt. Juliet, TN

SAMPLE SUMMARY

SO-2494-W1-41-021423 L1585661-07 Solid

Collected by: Zachary S
Collected date/time: 02/14/23 12:35
Received date/time: 02/15/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2006543	1	02/15/23 12:20	02/15/23 12:40	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2007297	1	02/16/23 11:58	02/16/23 13:37	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2006557	5	02/15/23 12:27	02/15/23 17:26	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Mark W. Beasley
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.6		1	02/15/2023 12:40	WG2006543

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0260	J	0.0190	0.0423	1	02/16/2023 13:17	WG2007297

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	13100		7.29	52.8	5	02/15/2023 17:42	WG2006557
Arsenic	6.25		0.106	1.06	5	02/15/2023 17:42	WG2006557
Barium	174		0.161	2.64	5	02/15/2023 17:42	WG2006557
Chromium	13.7		0.313	5.28	5	02/15/2023 17:42	WG2006557
Copper	33.7		0.139	5.28	5	02/15/2023 17:42	WG2006557

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.2		1	02/15/2023 12:40	WG2006543

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0214	J	0.0204	0.0454	1	02/16/2023 13:20	WG2007297

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12300		7.83	56.7	5	02/15/2023 17:45	WG2006557
Arsenic	6.62		0.113	1.13	5	02/15/2023 17:45	WG2006557
Barium	100		0.172	2.84	5	02/15/2023 17:45	WG2006557
Chromium	12.7		0.336	5.67	5	02/15/2023 17:45	WG2006557
Copper	24.8		0.150	5.67	5	02/15/2023 17:45	WG2006557

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.6		1	02/15/2023 12:40	WG2006543

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0197	0.0437	1	02/16/2023 13:22	WG2007297

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	6000		7.53	54.6	5	02/15/2023 17:49	WG2006557
Arsenic	15.0		0.109	1.09	5	02/15/2023 17:49	WG2006557
Barium	44.9		0.166	2.73	5	02/15/2023 17:49	WG2006557
Chromium	6.82		0.323	5.46	5	02/15/2023 17:49	WG2006557
Copper	31.1		0.144	5.46	5	02/15/2023 17:49	WG2006557

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.4		1	02/15/2023 12:40	WG2006543

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0187	0.0415	1	02/16/2023 13:25	WG2007297

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5170		7.15	51.8	5	02/15/2023 17:59	WG2006557
Arsenic	14.3		0.104	1.04	5	02/15/2023 17:59	WG2006557
Barium	48.1		0.158	2.59	5	02/15/2023 17:59	WG2006557
Chromium	6.97		0.307	5.18	5	02/15/2023 17:59	WG2006557
Copper	25.7		0.137	5.18	5	02/15/2023 17:59	WG2006557

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.5		1	02/15/2023 12:40	WG2006543

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	02/16/2023 13:27	WG2007297

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5840		6.93	50.2	5	02/15/2023 18:02	WG2006557
Arsenic	13.7		0.100	1.00	5	02/15/2023 18:02	WG2006557
Barium	64.6		0.153	2.51	5	02/15/2023 18:02	WG2006557
Chromium	6.92		0.297	5.02	5	02/15/2023 18:02	WG2006557
Copper	24.4		0.133	5.02	5	02/15/2023 18:02	WG2006557

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.0		1	02/15/2023 12:40	WG2006543

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0404	1	02/16/2023 13:35	WG2007297

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8600		6.97	50.5	5	02/15/2023 18:05	WG2006557
Arsenic	21.1		0.101	1.01	5	02/15/2023 18:05	WG2006557
Barium	70.8		0.154	2.53	5	02/15/2023 18:05	WG2006557
Chromium	11.9		0.299	5.05	5	02/15/2023 18:05	WG2006557
Copper	30.2		0.133	5.05	5	02/15/2023 18:05	WG2006557

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.0		1	02/15/2023 12:40	WG2006543

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0404	1	02/16/2023 13:37	WG2007297

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10300		6.97	50.5	5	02/15/2023 17:26	WG2006557
Arsenic	8.88		0.101	1.01	5	02/15/2023 17:26	WG2006557
Barium	69.4		0.154	2.53	5	02/15/2023 17:26	WG2006557
Chromium	12.3		0.299	5.05	5	02/15/2023 17:26	WG2006557
Copper	15.3		0.133	5.05	5	02/15/2023 17:26	WG2006557

Method Blank (MB)

(MB) R3891460-1 02/15/23 12:40

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Total Solids	0.00100			

L1585661-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1585661-01 02/15/23 12:40 • (DUP) R3891460-3 02/15/23 12:40

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	94.6	94.7	1	0.0113		10

Laboratory Control Sample (LCS)

(LCS) R3891460-2 02/15/23 12:40

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

QUALITY CONTROL SUMMARY

L1585661-01,02,03,04,05,06,07

Method Blank (MB)

(MB) R3891624-1 02/16/23 13:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3891624-2 02/16/23 13:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.484	96.9	80.0-120	

L1585146-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1585146-01 02/16/23 13:09 • (MS) R3891624-3 02/16/23 13:12 • (MSD) R3891624-4 02/16/23 13:14

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.591	0.0516	0.779	0.918	123	147	1	75.0-125		J5	16.4	20

Method Blank (MB)

(MB) R3891308-1 02/15/23 17:19

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3891308-2 02/15/23 17:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	860	86.0	80.0-120	
Arsenic	100	86.3	86.3	80.0-120	
Barium	100	83.9	83.9	80.0-120	
Chromium	100	88.2	88.2	80.0-120	
Copper	100	90.1	90.1	80.0-120	

L1585661-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1585661-07 02/15/23 17:26 • (MS) R3891308-5 02/15/23 17:36 • (MSD) R3891308-6 02/15/23 17:39

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1010	10300	11200	9750	86.4	0.000	5	75.0-125		V	13.5	20
Arsenic	101	8.88	89.9	94.6	80.2	84.8	5	75.0-125			5.08	20
Barium	101	69.4	144	150	73.6	79.9	5	75.0-125	J6		4.28	20
Chromium	101	12.3	97.2	104	84.1	90.3	5	75.0-125			6.27	20
Copper	101	15.3	101	106	84.7	90.2	5	75.0-125			5.43	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Report to: **Ted Norton**

Email To: **tnorton@golder.com;andrew.guglielmo@wsp.c**

Project Description: **Trentwood WA-Aluminum Dross II**

City/State Collected:

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project # **2494**

Lab Project # **UPRRGOLD-2494**

Collected by (print): Zachary Schuehle

Site/Facility ID # **DROSS STOCKPILE**

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Pres Chk

Analysis / Container / Preservative

Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres	Remarks	Sample # (lab only)
SO-2494-PI-32-021323	G	SS	2ft	2-13-23	1505	1	X		-01
SO-2494-PI-26-021323	G	SS	2ft	2-13-23	1515	1	X		-02
SO-2494-WI-14-021423	G	SS	4 ft	2-14-23	1145	1	X		-03
SO-2494-WI-05-021423	G	SS	2ft	2-14-23	1210	1	X		-04
SO-2494-WI-09-021423	G	SS	2ft	2-14-23	1220	1	X		-05
SO-2494-WI-33-021423	G	SS	2ft	2-14-23	1225	1	X		-06
SO-2494-WI-41-021423	G	SS	2ft	2-14-23	1235	1	X		-07

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1585061

D115

Acctnum: **UPRRGOLD**

Template: **T222123**

Prelogin: **P972607**

PM: 134 - Mark W. Beasley

PB:

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu by 6020
Hg by 7470

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6193 3529 2975

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes (No) HCL / MeoH TBR	If preservation required by Login: Date/Time
Zach Schuehle	2-14-23	1700			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: NSAG °C Bottles Received: 4.2+0=4.2 7	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Kaycie T	Date: 2/15/23 Time: 830	Hold: / Condition: NCF / OK

ANALYTICAL REPORT

February 17, 2023

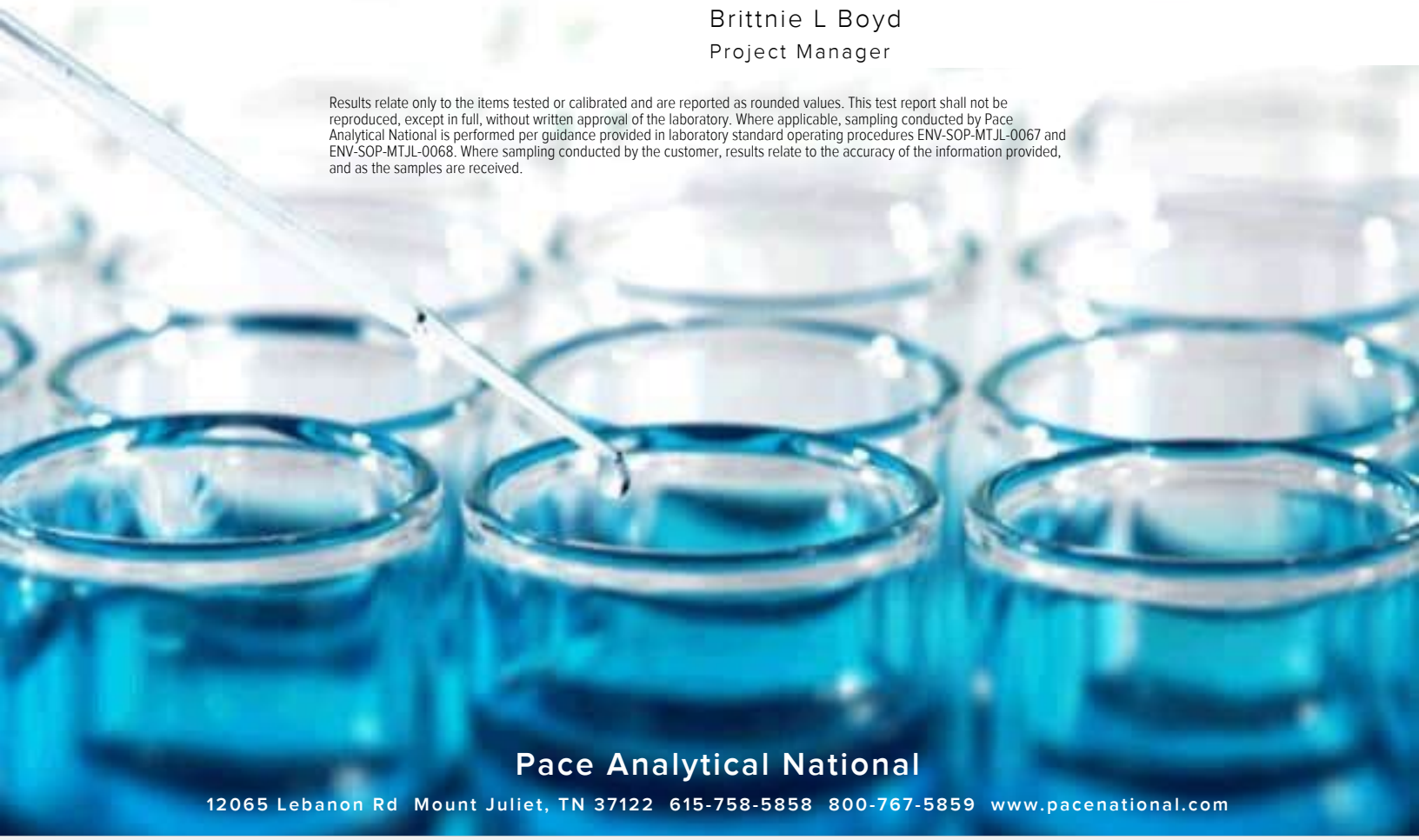
UPRR - Golder Associates

Sample Delivery Group:	L1586281
Samples Received:	02/16/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	IMPORTED BACKFILL SOIL AND GRA
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

BF4-2494-01-021523 L1586281-01 Solid

Collected by: Zachary Schuehle | Collected date/time: 02/15/23 09:10 | Received date/time: 02/16/23 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2007641	1	02/16/23 17:50	02/16/23 18:04	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2007133	1	02/16/23 20:55	02/17/23 09:37	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2007450	5	02/16/23 13:46	02/16/23 16:35	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2007661	25	02/15/23 09:10	02/16/23 23:34	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2007413	10	02/16/23 15:33	02/16/23 22:25	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2007416	10	02/16/23 15:37	02/17/23 10:55	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2007419	1	02/16/23 15:28	02/16/23 21:55	AMG	Mt. Juliet, TN

BF4-2494-02-021523 L1586281-02 Solid

Collected by: Zachary Schuehle | Collected date/time: 02/15/23 09:20 | Received date/time: 02/16/23 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2007641	1	02/16/23 17:50	02/16/23 18:04	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2007133	1	02/16/23 20:55	02/17/23 09:40	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2007450	5	02/16/23 13:46	02/16/23 16:38	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2007661	25	02/15/23 09:20	02/16/23 23:55	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2007413	10	02/16/23 15:33	02/16/23 22:11	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2007416	10	02/16/23 15:37	02/17/23 11:15	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2007419	1	02/16/23 15:28	02/16/23 22:15	AMG	Mt. Juliet, TN

BF4-2494-03-021523 L1586281-03 Solid

Collected by: Zachary Schuehle | Collected date/time: 02/15/23 09:30 | Received date/time: 02/16/23 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2007641	1	02/16/23 17:50	02/16/23 18:04	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2007133	1	02/16/23 20:55	02/17/23 09:42	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2007450	5	02/16/23 13:46	02/16/23 16:18	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2007661	25	02/15/23 09:30	02/17/23 00:15	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2007413	10	02/16/23 15:33	02/16/23 22:37	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2007416	10	02/16/23 15:37	02/17/23 11:35	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2007419	1	02/16/23 15:28	02/16/23 22:35	AMG	Mt. Juliet, TN

BF4-2494-04-021523 L1586281-04 Solid

Collected by: Zachary Schuehle | Collected date/time: 02/15/23 09:35 | Received date/time: 02/16/23 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2007641	1	02/16/23 17:50	02/16/23 18:04	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2007133	1	02/16/23 20:55	02/17/23 09:45	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2007450	5	02/16/23 13:46	02/16/23 16:41	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2007661	25	02/15/23 09:35	02/17/23 00:36	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2007413	10	02/16/23 15:33	02/16/23 22:51	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2007416	20	02/16/23 15:37	02/17/23 00:45	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2007419	1	02/16/23 15:28	02/16/23 22:54	AMG	Mt. Juliet, TN

TB-2494-1-021523 L1586281-05 GW

Collected by: Zachary Schuehle | Collected date/time: 02/15/23 12:00 | Received date/time: 02/16/23 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2007465	1	02/16/23 14:30	02/16/23 14:30	NCC	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.3		1	02/16/2023 18:04	WG2007641

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0378	J	0.0199	0.0443	1	02/17/2023 09:37	WG2007133

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	3230		7.64	55.4	5	02/16/2023 16:35	WG2007450
Arsenic	3.51		0.111	1.11	5	02/16/2023 16:35	WG2007450
Barium	42.5		0.168	2.77	5	02/16/2023 16:35	WG2007450
Chromium	4.18	J	0.328	5.54	5	02/16/2023 16:35	WG2007450
Copper	11.8		0.146	5.54	5	02/16/2023 16:35	WG2007450

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.04	3.06	25	02/16/2023 23:34	WG2007661
(S) a,a,a-Trifluorotoluene(FID)	*96.1*			*77.0-120*		*02/16/2023 23:34*	WG2007661

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	52.9		14.7	44.3	10	02/16/2023 22:25	WG2007413
Residual Range Organics (RRO)	564		36.9	111	10	02/16/2023 22:25	WG2007413
(S) o-Terphenyl	*94.4*			*18.0-148*		*02/16/2023 22:25*	WG2007413

Sample Narrative:

L1586281-01 WG2007413: Sample resembles laboratory standard for Hydraulic Oil.

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.0597	0.369	10	02/17/2023 10:55	WG2007416
Acenaphthylene	U		0.0519	0.369	10	02/17/2023 10:55	WG2007416
Anthracene	U		0.0657	0.369	10	02/17/2023 10:55	WG2007416
Benzo(a)anthracene	0.0917	J	0.0650	0.369	10	02/17/2023 10:55	WG2007416
Benzo(b)fluoranthene	0.120	J	0.0688	0.369	10	02/17/2023 10:55	WG2007416
Benzo(k)fluoranthene	U		0.0656	0.369	10	02/17/2023 10:55	WG2007416
Benzo(g,h,i)perylene	0.0959	J	0.0674	0.369	10	02/17/2023 10:55	WG2007416
Benzo(a)pyrene	0.102	J	0.0685	0.369	10	02/17/2023 10:55	WG2007416
Benzoic acid	U		1.31	18.5	10	02/17/2023 10:55	WG2007416
Benzyl alcohol	U		0.136	3.69	10	02/17/2023 10:55	WG2007416
Bis(2-chlorethoxy)methane	U		0.111	3.69	10	02/17/2023 10:55	WG2007416
Bis(2-chloroethyl)ether	U		0.122	3.69	10	02/17/2023 10:55	WG2007416
2,2-Oxybis(1-Chloropropane)	U		0.159	3.69	10	02/17/2023 10:55	WG2007416
4-Bromophenyl-phenylether	U		0.130	3.69	10	02/17/2023 10:55	WG2007416
Carbazole	U		0.114	3.69	10	02/17/2023 10:55	WG2007416
2-Chloronaphthalene	U		0.0648	0.369	10	02/17/2023 10:55	WG2007416
4-Chloroaniline	U		0.133	3.69	10	02/17/2023 10:55	WG2007416

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chlorophenyl-phenylether	U		0.128	3.69	10	02/17/2023 10:55	WG2007416
Chrysene	0.0862	J	0.0733	0.369	10	02/17/2023 10:55	WG2007416
Dibenz(a,h)anthracene	U		0.102	0.369	10	02/17/2023 10:55	WG2007416
Dibenzofuran	U		0.121	3.69	10	02/17/2023 10:55	WG2007416
3,3-Dichlorobenzidine	U		0.136	3.69	10	02/17/2023 10:55	WG2007416
2,4-Dinitrotoluene	U		0.106	3.69	10	02/17/2023 10:55	WG2007416
2,6-Dinitrotoluene	U		0.121	3.69	10	02/17/2023 10:55	WG2007416
Fluoranthene	0.169	J	0.0666	0.369	10	02/17/2023 10:55	WG2007416
Fluorene	U		0.0600	0.369	10	02/17/2023 10:55	WG2007416
Hexachlorobenzene	U		0.131	3.69	10	02/17/2023 10:55	WG2007416
Hexachloro-1,3-butadiene	U		0.124	3.69	10	02/17/2023 10:55	WG2007416
Hexachlorocyclopentadiene	U		0.194	3.69	10	02/17/2023 10:55	WG2007416
Hexachloroethane	U		0.145	3.69	10	02/17/2023 10:55	WG2007416
Indeno(1,2,3-cd)pyrene	U		0.104	0.369	10	02/17/2023 10:55	WG2007416
Isophorone	U		0.113	3.69	10	02/17/2023 10:55	WG2007416
2-Methylnaphthalene	U		0.0478	0.369	10	02/17/2023 10:55	WG2007416
Naphthalene	U		0.0926	0.369	10	02/17/2023 10:55	WG2007416
2-Nitroaniline	U		0.118	3.69	10	02/17/2023 10:55	WG2007416
3-Nitroaniline	U		0.117	3.69	10	02/17/2023 10:55	WG2007416
4-Nitroaniline	U		0.108	3.69	10	02/17/2023 10:55	WG2007416
Nitrobenzene	U		0.128	3.69	10	02/17/2023 10:55	WG2007416
n-Nitrosodimethylamine	U		0.547	3.69	10	02/17/2023 10:55	WG2007416
n-Nitrosodiphenylamine	U		0.279	3.69	10	02/17/2023 10:55	WG2007416
n-Nitrosodi-n-propylamine	U		0.123	3.69	10	02/17/2023 10:55	WG2007416
Phenanthrene	0.0967	J	0.0732	0.369	10	02/17/2023 10:55	WG2007416
Benzylbutyl phthalate	U		0.115	3.69	10	02/17/2023 10:55	WG2007416
Bis(2-ethylhexyl)phthalate	U		0.467	3.69	10	02/17/2023 10:55	WG2007416
Di-n-butyl phthalate	U		0.126	3.69	10	02/17/2023 10:55	WG2007416
Diethyl phthalate	U		0.122	3.69	10	02/17/2023 10:55	WG2007416
Dimethyl phthalate	U		0.782	3.69	10	02/17/2023 10:55	WG2007416
Di-n-octyl phthalate	U		0.249	3.69	10	02/17/2023 10:55	WG2007416
Pyrene	0.163	J	0.0718	0.369	10	02/17/2023 10:55	WG2007416
Pyridine	U		0.244	3.69	10	02/17/2023 10:55	WG2007416
1,2,4-Trichlorobenzene	U		0.115	3.69	10	02/17/2023 10:55	WG2007416
4-Chloro-3-methylphenol	U		0.120	3.69	10	02/17/2023 10:55	WG2007416
2-Chlorophenol	U		0.122	3.69	10	02/17/2023 10:55	WG2007416
2,4-Dichlorophenol	U		0.107	3.69	10	02/17/2023 10:55	WG2007416
2,4-Dimethylphenol	U		0.0963	3.69	10	02/17/2023 10:55	WG2007416
4,6-Dinitro-2-methylphenol	U		0.836	3.69	10	02/17/2023 10:55	WG2007416
2,4-Dinitrophenol	U		0.863	3.69	10	02/17/2023 10:55	WG2007416
2-Methylphenol	U		0.111	3.69	10	02/17/2023 10:55	WG2007416
3&4-Methyl Phenol	U		0.115	3.69	10	02/17/2023 10:55	WG2007416
2-Nitrophenol	U		0.132	3.69	10	02/17/2023 10:55	WG2007416
4-Nitrophenol	U		0.115	3.69	10	02/17/2023 10:55	WG2007416
Pentachlorophenol	U		0.0992	3.69	10	02/17/2023 10:55	WG2007416
Phenol	U		0.148	3.69	10	02/17/2023 10:55	WG2007416
2,4,5-Trichlorophenol	U		0.125	3.69	10	02/17/2023 10:55	WG2007416
2,4,6-Trichlorophenol	U		0.118	3.69	10	02/17/2023 10:55	WG2007416
(S) 2-Fluorophenol	*70.2*			*12.0-120*		*02/17/2023 10:55*	WG2007416
(S) Phenol-d5	*66.3*			*10.0-120*		*02/17/2023 10:55*	WG2007416
(S) Nitrobenzene-d5	*59.3*			*10.0-122*		*02/17/2023 10:55*	WG2007416
(S) 2-Fluorobiphenyl	*72.9*			*15.0-120*		*02/17/2023 10:55*	WG2007416
(S) 2,4,6-Tribromophenol	*78.3*			*10.0-127*		*02/17/2023 10:55*	WG2007416
(S) p-Terphenyl-d14	*76.5*			*10.0-120*		*02/17/2023 10:55*	WG2007416

Sample Narrative:

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch

L1586281-01 WG2007416: Dilution due to matrix impact during extract concentration procedure

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.00625	J	0.00255	0.00664	1	02/16/2023 21:55	WG2007419
Acenaphthene	0.00288	J	0.00231	0.00664	1	02/16/2023 21:55	WG2007419
Acenaphthylene	U		0.00239	0.00664	1	02/16/2023 21:55	WG2007419
Benzo(a)anthracene	0.0353		0.00192	0.00664	1	02/16/2023 21:55	WG2007419
Benzo(a)pyrene	0.0467		0.00198	0.00664	1	02/16/2023 21:55	WG2007419
Benzo(b)fluoranthene	0.0468		0.00169	0.00664	1	02/16/2023 21:55	WG2007419
Benzo(g,h,i)perylene	0.0454		0.00196	0.00664	1	02/16/2023 21:55	WG2007419
Benzo(k)fluoranthene	0.0143		0.00238	0.00664	1	02/16/2023 21:55	WG2007419
Chrysene	0.0333		0.00257	0.00664	1	02/16/2023 21:55	WG2007419
Dibenz(a,h)anthracene	0.00993		0.00190	0.00664	1	02/16/2023 21:55	WG2007419
Fluoranthene	0.0574		0.00251	0.00664	1	02/16/2023 21:55	WG2007419
Fluorene	U		0.00227	0.00664	1	02/16/2023 21:55	WG2007419
Indeno(1,2,3-cd)pyrene	0.0342		0.00200	0.00664	1	02/16/2023 21:55	WG2007419
Naphthalene	U		0.00452	0.0221	1	02/16/2023 21:55	WG2007419
Phenanthrene	0.0261		0.00256	0.00664	1	02/16/2023 21:55	WG2007419
Pyrene	0.0546		0.00221	0.00664	1	02/16/2023 21:55	WG2007419
1-Methylnaphthalene	U		0.00497	0.0221	1	02/16/2023 21:55	WG2007419
2-Methylnaphthalene	U		0.00473	0.0221	1	02/16/2023 21:55	WG2007419
2-Chloronaphthalene	U		0.00516	0.0221	1	02/16/2023 21:55	WG2007419
(S) p-Terphenyl-d14	*60.8*			*23.0-120*		*02/16/2023 21:55*	WG2007419
(S) Nitrobenzene-d5	*53.0*			*14.0-149*		*02/16/2023 21:55*	WG2007419
(S) 2-Fluorobiphenyl	*54.3*			*34.0-125*		*02/16/2023 21:55*	WG2007419

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.1		1	02/16/2023 18:04	WG2007641

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0291	J	0.0193	0.0430	1	02/17/2023 09:40	WG2007133

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5560		7.41	53.7	5	02/16/2023 16:38	WG2007450
Arsenic	6.56		0.107	1.07	5	02/16/2023 16:38	WG2007450
Barium	90.1		0.163	2.69	5	02/16/2023 16:38	WG2007450
Chromium	7.34		0.318	5.37	5	02/16/2023 16:38	WG2007450
Copper	16.7		0.142	5.37	5	02/16/2023 16:38	WG2007450

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		0.983	2.90	25	02/16/2023 23:55	WG2007661
(S) a,a,a-Trifluorotoluene(FID)	*95.4*			*77.0-120*		*02/16/2023 23:55*	WG2007661

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	28.1	J	14.3	43.0	10	02/16/2023 22:11	WG2007413
Residual Range Organics (RRO)	342		35.8	107	10	02/16/2023 22:11	WG2007413
(S) o-Terphenyl	*113*			*18.0-148*		*02/16/2023 22:11*	WG2007413

Sample Narrative:

L1586281-02 WG2007413: Sample resembles laboratory standard for Hydraulic Oil.

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.0579	0.358	10	02/17/2023 11:15	WG2007416
Acenaphthylene	U		0.0504	0.358	10	02/17/2023 11:15	WG2007416
Anthracene	U		0.0637	0.358	10	02/17/2023 11:15	WG2007416
Benzo(a)anthracene	U		0.0631	0.358	10	02/17/2023 11:15	WG2007416
Benzo(b)fluoranthene	U		0.0667	0.358	10	02/17/2023 11:15	WG2007416
Benzo(k)fluoranthene	U		0.0636	0.358	10	02/17/2023 11:15	WG2007416
Benzo(g,h,i)perylene	U		0.0654	0.358	10	02/17/2023 11:15	WG2007416
Benzo(a)pyrene	U		0.0665	0.358	10	02/17/2023 11:15	WG2007416
Benzoic acid	U		1.27	17.9	10	02/17/2023 11:15	WG2007416
Benzyl alcohol	U		0.132	3.58	10	02/17/2023 11:15	WG2007416
Bis(2-chlorethoxy)methane	U		0.107	3.58	10	02/17/2023 11:15	WG2007416
Bis(2-chloroethyl)ether	U		0.118	3.58	10	02/17/2023 11:15	WG2007416
2,2-Oxybis(1-Chloropropane)	U		0.155	3.58	10	02/17/2023 11:15	WG2007416
4-Bromophenyl-phenylether	U		0.126	3.58	10	02/17/2023 11:15	WG2007416
Carbazole	U		0.111	3.58	10	02/17/2023 11:15	WG2007416
2-Chloronaphthalene	U		0.0629	0.358	10	02/17/2023 11:15	WG2007416
4-Chloroaniline	U		0.129	3.58	10	02/17/2023 11:15	WG2007416

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chlorophenyl-phenylether	U		0.125	3.58	10	02/17/2023 11:15	WG2007416
Chrysene	U		0.0711	0.358	10	02/17/2023 11:15	WG2007416
Dibenz(a,h)anthracene	U		0.0992	0.358	10	02/17/2023 11:15	WG2007416
Dibenzofuran	U		0.117	3.58	10	02/17/2023 11:15	WG2007416
3,3-Dichlorobenzidine	U		0.132	3.58	10	02/17/2023 11:15	WG2007416
2,4-Dinitrotoluene	U		0.103	3.58	10	02/17/2023 11:15	WG2007416
2,6-Dinitrotoluene	U		0.117	3.58	10	02/17/2023 11:15	WG2007416
Fluoranthene	0.0966	J	0.0646	0.358	10	02/17/2023 11:15	WG2007416
Fluorene	U		0.0582	0.358	10	02/17/2023 11:15	WG2007416
Hexachlorobenzene	U		0.127	3.58	10	02/17/2023 11:15	WG2007416
Hexachloro-1,3-butadiene	U		0.120	3.58	10	02/17/2023 11:15	WG2007416
Hexachlorocyclopentadiene	U		0.188	3.58	10	02/17/2023 11:15	WG2007416
Hexachloroethane	U		0.141	3.58	10	02/17/2023 11:15	WG2007416
Indeno(1,2,3-cd)pyrene	U		0.101	0.358	10	02/17/2023 11:15	WG2007416
Isophorone	U		0.110	3.58	10	02/17/2023 11:15	WG2007416
2-Methylnaphthalene	U		0.0464	0.358	10	02/17/2023 11:15	WG2007416
Naphthalene	U		0.0898	0.358	10	02/17/2023 11:15	WG2007416
2-Nitroaniline	U		0.115	3.58	10	02/17/2023 11:15	WG2007416
3-Nitroaniline	U		0.114	3.58	10	02/17/2023 11:15	WG2007416
4-Nitroaniline	U		0.104	3.58	10	02/17/2023 11:15	WG2007416
Nitrobenzene	U		0.125	3.58	10	02/17/2023 11:15	WG2007416
n-Nitrosodimethylamine	U		0.531	3.58	10	02/17/2023 11:15	WG2007416
n-Nitrosodiphenylamine	U		0.271	3.58	10	02/17/2023 11:15	WG2007416
n-Nitrosodi-n-propylamine	U		0.119	3.58	10	02/17/2023 11:15	WG2007416
Phenanthrene	0.0818	J	0.0710	0.358	10	02/17/2023 11:15	WG2007416
Benzylbutyl phthalate	U		0.112	3.58	10	02/17/2023 11:15	WG2007416
Bis(2-ethylhexyl)phthalate	U		0.453	3.58	10	02/17/2023 11:15	WG2007416
Di-n-butyl phthalate	U		0.122	3.58	10	02/17/2023 11:15	WG2007416
Diethyl phthalate	U		0.118	3.58	10	02/17/2023 11:15	WG2007416
Dimethyl phthalate	U		0.759	3.58	10	02/17/2023 11:15	WG2007416
Di-n-octyl phthalate	U		0.242	3.58	10	02/17/2023 11:15	WG2007416
Pyrene	0.101	J	0.0696	0.358	10	02/17/2023 11:15	WG2007416
Pyridine	U		0.236	3.58	10	02/17/2023 11:15	WG2007416
1,2,4-Trichlorobenzene	U		0.112	3.58	10	02/17/2023 11:15	WG2007416
4-Chloro-3-methylphenol	U		0.116	3.58	10	02/17/2023 11:15	WG2007416
2-Chlorophenol	U		0.118	3.58	10	02/17/2023 11:15	WG2007416
2,4-Dichlorophenol	U		0.104	3.58	10	02/17/2023 11:15	WG2007416
2,4-Dimethylphenol	U		0.0935	3.58	10	02/17/2023 11:15	WG2007416
4,6-Dinitro-2-methylphenol	U		0.811	3.58	10	02/17/2023 11:15	WG2007416
2,4-Dinitrophenol	U		0.837	3.58	10	02/17/2023 11:15	WG2007416
2-Methylphenol	U		0.107	3.58	10	02/17/2023 11:15	WG2007416
3&4-Methyl Phenol	U		0.112	3.58	10	02/17/2023 11:15	WG2007416
2-Nitrophenol	U		0.128	3.58	10	02/17/2023 11:15	WG2007416
4-Nitrophenol	U		0.112	3.58	10	02/17/2023 11:15	WG2007416
Pentachlorophenol	U		0.0963	3.58	10	02/17/2023 11:15	WG2007416
Phenol	U		0.144	3.58	10	02/17/2023 11:15	WG2007416
2,4,5-Trichlorophenol	U		0.121	3.58	10	02/17/2023 11:15	WG2007416
2,4,6-Trichlorophenol	U		0.115	3.58	10	02/17/2023 11:15	WG2007416
(S) 2-Fluorophenol	*73.0*			*12.0-120*		*02/17/2023 11:15*	WG2007416
(S) Phenol-d5	*68.5*			*10.0-120*		*02/17/2023 11:15*	WG2007416
(S) Nitrobenzene-d5	*66.1*			*10.0-122*		*02/17/2023 11:15*	WG2007416
(S) 2-Fluorobiphenyl	*76.1*			*15.0-120*		*02/17/2023 11:15*	WG2007416
(S) 2,4,6-Tribromophenol	*80.8*			*10.0-127*		*02/17/2023 11:15*	WG2007416
(S) p-Terphenyl-d14	*79.4*			*10.0-120*		*02/17/2023 11:15*	WG2007416

Sample Narrative:

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch

L1586281-02 WG2007416: Dilution due to matrix impact during extract concentration procedure

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.00681		0.00247	0.00645	1	02/16/2023 22:15	WG2007419
Acenaphthene	0.00237	J	0.00225	0.00645	1	02/16/2023 22:15	WG2007419
Acenaphthylene	0.00346	J	0.00232	0.00645	1	02/16/2023 22:15	WG2007419
Benzo(a)anthracene	0.0367		0.00186	0.00645	1	02/16/2023 22:15	WG2007419
Benzo(a)pyrene	0.0415		0.00192	0.00645	1	02/16/2023 22:15	WG2007419
Benzo(b)fluoranthene	0.0394		0.00164	0.00645	1	02/16/2023 22:15	WG2007419
Benzo(g,h,i)perylene	0.0347		0.00190	0.00645	1	02/16/2023 22:15	WG2007419
Benzo(k)fluoranthene	0.0125		0.00231	0.00645	1	02/16/2023 22:15	WG2007419
Chrysene	0.0315		0.00249	0.00645	1	02/16/2023 22:15	WG2007419
Dibenz(a,h)anthracene	0.00795		0.00185	0.00645	1	02/16/2023 22:15	WG2007419
Fluoranthene	0.0621		0.00244	0.00645	1	02/16/2023 22:15	WG2007419
Fluorene	U		0.00220	0.00645	1	02/16/2023 22:15	WG2007419
Indeno(1,2,3-cd)pyrene	0.0289		0.00194	0.00645	1	02/16/2023 22:15	WG2007419
Naphthalene	U		0.00438	0.0215	1	02/16/2023 22:15	WG2007419
Phenanthrene	0.0308		0.00248	0.00645	1	02/16/2023 22:15	WG2007419
Pyrene	0.0616		0.00215	0.00645	1	02/16/2023 22:15	WG2007419
1-Methylnaphthalene	U		0.00482	0.0215	1	02/16/2023 22:15	WG2007419
2-Methylnaphthalene	U		0.00459	0.0215	1	02/16/2023 22:15	WG2007419
2-Chloronaphthalene	U		0.00501	0.0215	1	02/16/2023 22:15	WG2007419
(S) p-Terphenyl-d14	*66.0*			*23.0-120*		*02/16/2023 22:15*	WG2007419
(S) Nitrobenzene-d5	*55.8*			*14.0-149*		*02/16/2023 22:15*	WG2007419
(S) 2-Fluorobiphenyl	*61.1*			*34.0-125*		*02/16/2023 22:15*	WG2007419

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.9		1	02/16/2023 18:04	WG2007641

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0435	J	0.0198	0.0440	1	02/17/2023 09:42	WG2007133

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5220	O1	7.59	55.0	5	02/16/2023 16:18	WG2007450
Arsenic	7.14		0.110	1.10	5	02/16/2023 16:18	WG2007450
Barium	81.5		0.167	2.75	5	02/16/2023 16:18	WG2007450
Chromium	7.40		0.326	5.50	5	02/16/2023 16:18	WG2007450
Copper	17.3		0.145	5.50	5	02/16/2023 16:18	WG2007450

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.47	J	1.04	3.07	25	02/17/2023 00:15	WG2007661
(S) a,a,a-Trifluorotoluene(FID)	*94.2*			*77.0-120*		*02/17/2023 00:15*	WG2007661

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	34.3	J	14.6	44.0	10	02/16/2023 22:37	WG2007413
Residual Range Organics (RRO)	441		36.7	110	10	02/16/2023 22:37	WG2007413
(S) o-Terphenyl	*114*			*18.0-148*		*02/16/2023 22:37*	WG2007413

Sample Narrative:

L1586281-03 WG2007413: Sample resembles laboratory standard for Hydraulic Oil.

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.0593	0.367	10	02/17/2023 11:35	WG2007416
Acenaphthylene	U		0.0516	0.367	10	02/17/2023 11:35	WG2007416
Anthracene	0.136	J	0.0653	0.367	10	02/17/2023 11:35	WG2007416
Benzo(a)anthracene	0.336	J	0.0646	0.367	10	02/17/2023 11:35	WG2007416
Benzo(b)fluoranthene	0.365	J	0.0683	0.367	10	02/17/2023 11:35	WG2007416
Benzo(k)fluoranthene	0.140	J	0.0652	0.367	10	02/17/2023 11:35	WG2007416
Benzo(g,h,i)perylene	0.227	J	0.0670	0.367	10	02/17/2023 11:35	WG2007416
Benzo(a)pyrene	0.357	J	0.0681	0.367	10	02/17/2023 11:35	WG2007416
Benzoic acid	U		1.30	18.4	10	02/17/2023 11:35	WG2007416
Benzyl alcohol	U		0.135	3.67	10	02/17/2023 11:35	WG2007416
Bis(2-chlorethoxy)methane	U		0.110	3.67	10	02/17/2023 11:35	WG2007416
Bis(2-chloroethyl)ether	U		0.121	3.67	10	02/17/2023 11:35	WG2007416
2,2-Oxybis(1-Chloropropane)	U		0.158	3.67	10	02/17/2023 11:35	WG2007416
4-Bromophenyl-phenylether	U		0.129	3.67	10	02/17/2023 11:35	WG2007416
Carbazole	U		0.113	3.67	10	02/17/2023 11:35	WG2007416
2-Chloronaphthalene	U		0.0644	0.367	10	02/17/2023 11:35	WG2007416
4-Chloroaniline	U		0.132	3.67	10	02/17/2023 11:35	WG2007416

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chlorophenyl-phenylether	U		0.128	3.67	10	02/17/2023 11:35	WG2007416
Chrysene	0.352	J	0.0729	0.367	10	02/17/2023 11:35	WG2007416
Dibenz(a,h)anthracene	U		0.102	0.367	10	02/17/2023 11:35	WG2007416
Dibenzofuran	U		0.120	3.67	10	02/17/2023 11:35	WG2007416
3,3-Dichlorobenzidine	U		0.135	3.67	10	02/17/2023 11:35	WG2007416
2,4-Dinitrotoluene	U		0.105	3.67	10	02/17/2023 11:35	WG2007416
2,6-Dinitrotoluene	U		0.120	3.67	10	02/17/2023 11:35	WG2007416
Fluoranthene	0.678		0.0661	0.367	10	02/17/2023 11:35	WG2007416
Fluorene	U		0.0597	0.367	10	02/17/2023 11:35	WG2007416
Hexachlorobenzene	U		0.130	3.67	10	02/17/2023 11:35	WG2007416
Hexachloro-1,3-butadiene	U		0.123	3.67	10	02/17/2023 11:35	WG2007416
Hexachlorocyclopentadiene	U		0.193	3.67	10	02/17/2023 11:35	WG2007416
Hexachloroethane	U		0.144	3.67	10	02/17/2023 11:35	WG2007416
Indeno(1,2,3-cd)pyrene	0.205	J	0.104	0.367	10	02/17/2023 11:35	WG2007416
Isophorone	U		0.112	3.67	10	02/17/2023 11:35	WG2007416
2-Methylnaphthalene	U		0.0475	0.367	10	02/17/2023 11:35	WG2007416
Naphthalene	U		0.0920	0.367	10	02/17/2023 11:35	WG2007416
2-Nitroaniline	U		0.118	3.67	10	02/17/2023 11:35	WG2007416
3-Nitroaniline	U		0.117	3.67	10	02/17/2023 11:35	WG2007416
4-Nitroaniline	U		0.107	3.67	10	02/17/2023 11:35	WG2007416
Nitrobenzene	U		0.128	3.67	10	02/17/2023 11:35	WG2007416
n-Nitrosodimethylamine	U		0.544	3.67	10	02/17/2023 11:35	WG2007416
n-Nitrosodiphenylamine	U		0.277	3.67	10	02/17/2023 11:35	WG2007416
n-Nitrosodi-n-propylamine	U		0.122	3.67	10	02/17/2023 11:35	WG2007416
Phenanthrene	0.385		0.0728	0.367	10	02/17/2023 11:35	WG2007416
Benzylbutyl phthalate	U		0.114	3.67	10	02/17/2023 11:35	WG2007416
Bis(2-ethylhexyl)phthalate	U		0.464	3.67	10	02/17/2023 11:35	WG2007416
Di-n-butyl phthalate	U		0.125	3.67	10	02/17/2023 11:35	WG2007416
Diethyl phthalate	U		0.121	3.67	10	02/17/2023 11:35	WG2007416
Dimethyl phthalate	U		0.777	3.67	10	02/17/2023 11:35	WG2007416
Di-n-octyl phthalate	U		0.248	3.67	10	02/17/2023 11:35	WG2007416
Pyrene	0.613		0.0713	0.367	10	02/17/2023 11:35	WG2007416
Pyridine	U		0.242	3.67	10	02/17/2023 11:35	WG2007416
1,2,4-Trichlorobenzene	U		0.114	3.67	10	02/17/2023 11:35	WG2007416
4-Chloro-3-methylphenol	U		0.119	3.67	10	02/17/2023 11:35	WG2007416
2-Chlorophenol	U		0.121	3.67	10	02/17/2023 11:35	WG2007416
2,4-Dichlorophenol	U		0.107	3.67	10	02/17/2023 11:35	WG2007416
2,4-Dimethylphenol	U		0.0958	3.67	10	02/17/2023 11:35	WG2007416
4,6-Dinitro-2-methylphenol	U		0.831	3.67	10	02/17/2023 11:35	WG2007416
2,4-Dinitrophenol	U		0.857	3.67	10	02/17/2023 11:35	WG2007416
2-Methylphenol	U		0.110	3.67	10	02/17/2023 11:35	WG2007416
3&4-Methyl Phenol	U		0.114	3.67	10	02/17/2023 11:35	WG2007416
2-Nitrophenol	U		0.131	3.67	10	02/17/2023 11:35	WG2007416
4-Nitrophenol	U		0.114	3.67	10	02/17/2023 11:35	WG2007416
Pentachlorophenol	U		0.0986	3.67	10	02/17/2023 11:35	WG2007416
Phenol	U		0.147	3.67	10	02/17/2023 11:35	WG2007416
2,4,5-Trichlorophenol	U		0.124	3.67	10	02/17/2023 11:35	WG2007416
2,4,6-Trichlorophenol	U		0.118	3.67	10	02/17/2023 11:35	WG2007416
(S) 2-Fluorophenol	*75.8*			*12.0-120*		*02/17/2023 11:35*	WG2007416
(S) Phenol-d5	*72.0*			*10.0-120*		*02/17/2023 11:35*	WG2007416
(S) Nitrobenzene-d5	*65.1*			*10.0-122*		*02/17/2023 11:35*	WG2007416
(S) 2-Fluorobiphenyl	*76.8*			*15.0-120*		*02/17/2023 11:35*	WG2007416
(S) 2,4,6-Tribromophenol	*77.4*			*10.0-127*		*02/17/2023 11:35*	WG2007416
(S) p-Terphenyl-d14	*80.7*			*10.0-120*		*02/17/2023 11:35*	WG2007416

Sample Narrative:

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch

L1586281-03 WG2007416: Dilution due to matrix impact during extract concentration procedure

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.00709		0.00253	0.00660	1	02/16/2023 22:35	WG2007419
Acenaphthene	U		0.00230	0.00660	1	02/16/2023 22:35	WG2007419
Acenaphthylene	0.00604	J	0.00238	0.00660	1	02/16/2023 22:35	WG2007419
Benzo(a)anthracene	0.0458		0.00190	0.00660	1	02/16/2023 22:35	WG2007419
Benzo(a)pyrene	0.0636		0.00197	0.00660	1	02/16/2023 22:35	WG2007419
Benzo(b)fluoranthene	0.0513		0.00168	0.00660	1	02/16/2023 22:35	WG2007419
Benzo(g,h,i)perylene	0.0446		0.00195	0.00660	1	02/16/2023 22:35	WG2007419
Benzo(k)fluoranthene	0.0187		0.00237	0.00660	1	02/16/2023 22:35	WG2007419
Chrysene	0.0344		0.00255	0.00660	1	02/16/2023 22:35	WG2007419
Dibenz(a,h)anthracene	0.0106		0.00189	0.00660	1	02/16/2023 22:35	WG2007419
Fluoranthene	0.0619		0.00250	0.00660	1	02/16/2023 22:35	WG2007419
Fluorene	U		0.00226	0.00660	1	02/16/2023 22:35	WG2007419
Indeno(1,2,3-cd)pyrene	0.0397		0.00199	0.00660	1	02/16/2023 22:35	WG2007419
Naphthalene	U		0.00449	0.0220	1	02/16/2023 22:35	WG2007419
Phenanthrene	0.0200		0.00254	0.00660	1	02/16/2023 22:35	WG2007419
Pyrene	0.0689		0.00220	0.00660	1	02/16/2023 22:35	WG2007419
1-Methylnaphthalene	U		0.00494	0.0220	1	02/16/2023 22:35	WG2007419
2-Methylnaphthalene	U		0.00470	0.0220	1	02/16/2023 22:35	WG2007419
2-Chloronaphthalene	U		0.00513	0.0220	1	02/16/2023 22:35	WG2007419
(S) p-Terphenyl-d14	*63.6*			*23.0-120*		*02/16/2023 22:35*	WG2007419
(S) Nitrobenzene-d5	*64.0*			*14.0-149*		*02/16/2023 22:35*	WG2007419
(S) 2-Fluorobiphenyl	*63.2*			*34.0-125*		*02/16/2023 22:35*	WG2007419

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.5		1	02/16/2023 18:04	WG2007641

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0283	J	0.0188	0.0419	1	02/17/2023 09:45	WG2007133

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5340		7.22	52.3	5	02/16/2023 16:41	WG2007450
Arsenic	6.82		0.105	1.05	5	02/16/2023 16:41	WG2007450
Barium	93.8		0.159	2.62	5	02/16/2023 16:41	WG2007450
Chromium	6.52		0.310	5.23	5	02/16/2023 16:41	WG2007450
Copper	23.3		0.138	5.23	5	02/16/2023 16:41	WG2007450

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.15	J	0.928	2.73	25	02/17/2023 00:36	WG2007661
(S) a,a,a-Trifluorotoluene(FID)	*96.1*			*77.0-120*		*02/17/2023 00:36*	WG2007661

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	36.4	J	13.9	41.9	10	02/16/2023 22:51	WG2007413
Residual Range Organics (RRO)	437		34.9	105	10	02/16/2023 22:51	WG2007413
(S) o-Terphenyl	*97.6*			*18.0-148*		*02/16/2023 22:51*	WG2007413

Sample Narrative:

L1586281-04 WG2007413: Sample resembles laboratory standard for Hydraulic Oil.

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.113	0.697	20	02/17/2023 00:45	WG2007416
Acenaphthylene	U		0.0982	0.697	20	02/17/2023 00:45	WG2007416
Anthracene	U		0.125	0.697	20	02/17/2023 00:45	WG2007416
Benzo(a)anthracene	U		0.122	0.697	20	02/17/2023 00:45	WG2007416
Benzo(b)fluoranthene	U		0.130	0.697	20	02/17/2023 00:45	WG2007416
Benzo(k)fluoranthene	U		0.124	0.697	20	02/17/2023 00:45	WG2007416
Benzo(g,h,i)perylene	U		0.128	0.697	20	02/17/2023 00:45	WG2007416
Benzo(a)pyrene	U		0.130	0.697	20	02/17/2023 00:45	WG2007416
Benzoic acid	U		2.47	35.0	20	02/17/2023 00:45	WG2007416
Benzyl alcohol	U		0.258	6.97	20	02/17/2023 00:45	WG2007416
Bis(2-chlorethoxy)methane	U		0.209	6.97	20	02/17/2023 00:45	WG2007416
Bis(2-chloroethyl)ether	U		0.230	6.97	20	02/17/2023 00:45	WG2007416
2,2-Oxybis(1-Chloropropane)	U		0.302	6.97	20	02/17/2023 00:45	WG2007416
4-Bromophenyl-phenylether	U		0.245	6.97	20	02/17/2023 00:45	WG2007416
Carbazole	U		0.216	6.97	20	02/17/2023 00:45	WG2007416
2-Chloronaphthalene	U		0.122	0.697	20	02/17/2023 00:45	WG2007416
4-Chloroaniline	U		0.251	6.97	20	02/17/2023 00:45	WG2007416

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chlorophenyl-phenylether	U		0.243	6.97	20	02/17/2023 00:45	WG2007416
Chrysene	U		0.138	0.697	20	02/17/2023 00:45	WG2007416
Dibenz(a,h)anthracene	U		0.194	0.697	20	02/17/2023 00:45	WG2007416
Dibenzofuran	U		0.228	6.97	20	02/17/2023 00:45	WG2007416
3,3-Dichlorobenzidine	U		0.258	6.97	20	02/17/2023 00:45	WG2007416
2,4-Dinitrotoluene	U		0.200	6.97	20	02/17/2023 00:45	WG2007416
2,6-Dinitrotoluene	U		0.228	6.97	20	02/17/2023 00:45	WG2007416
Fluoranthene	U		0.126	0.697	20	02/17/2023 00:45	WG2007416
Fluorene	U		0.113	0.697	20	02/17/2023 00:45	WG2007416
Hexachlorobenzene	U		0.247	6.97	20	02/17/2023 00:45	WG2007416
Hexachloro-1,3-butadiene	U		0.235	6.97	20	02/17/2023 00:45	WG2007416
Hexachlorocyclopentadiene	U		0.366	6.97	20	02/17/2023 00:45	WG2007416
Hexachloroethane	U		0.274	6.97	20	02/17/2023 00:45	WG2007416
Indeno(1,2,3-cd)pyrene	U		0.197	0.697	20	02/17/2023 00:45	WG2007416
Isophorone	U		0.214	6.97	20	02/17/2023 00:45	WG2007416
2-Methylnaphthalene	U		0.0905	0.697	20	02/17/2023 00:45	WG2007416
Naphthalene	U		0.175	0.697	20	02/17/2023 00:45	WG2007416
2-Nitroaniline	U		0.224	6.97	20	02/17/2023 00:45	WG2007416
3-Nitroaniline	U		0.222	6.97	20	02/17/2023 00:45	WG2007416
4-Nitroaniline	U		0.203	6.97	20	02/17/2023 00:45	WG2007416
Nitrobenzene	U		0.243	6.97	20	02/17/2023 00:45	WG2007416
n-Nitrosodimethylamine	U		1.03	6.97	20	02/17/2023 00:45	WG2007416
n-Nitrosodiphenylamine	U		0.528	6.97	20	02/17/2023 00:45	WG2007416
n-Nitrosodi-n-propylamine	U		0.232	6.97	20	02/17/2023 00:45	WG2007416
Phenanthrene	U		0.138	0.697	20	02/17/2023 00:45	WG2007416
Benzylbutyl phthalate	U		0.218	6.97	20	02/17/2023 00:45	WG2007416
Bis(2-ethylhexyl)phthalate	U		0.884	6.97	20	02/17/2023 00:45	WG2007416
Di-n-butyl phthalate	U		0.239	6.97	20	02/17/2023 00:45	WG2007416
Diethyl phthalate	U		0.230	6.97	20	02/17/2023 00:45	WG2007416
Dimethyl phthalate	U		1.48	6.97	20	02/17/2023 00:45	WG2007416
Di-n-octyl phthalate	U		0.471	6.97	20	02/17/2023 00:45	WG2007416
Pyrene	U		0.136	0.697	20	02/17/2023 00:45	WG2007416
Pyridine	U		0.461	6.97	20	02/17/2023 00:45	WG2007416
1,2,4-Trichlorobenzene	U		0.218	6.97	20	02/17/2023 00:45	WG2007416
4-Chloro-3-methylphenol	U		0.226	6.97	20	02/17/2023 00:45	WG2007416
2-Chlorophenol	U		0.230	6.97	20	02/17/2023 00:45	WG2007416
2,4-Dichlorophenol	U		0.203	6.97	20	02/17/2023 00:45	WG2007416
2,4-Dimethylphenol	U		0.182	6.97	20	02/17/2023 00:45	WG2007416
4,6-Dinitro-2-methylphenol	U		1.58	6.97	20	02/17/2023 00:45	WG2007416
2,4-Dinitrophenol	U		1.63	6.97	20	02/17/2023 00:45	WG2007416
2-Methylphenol	U		0.209	6.97	20	02/17/2023 00:45	WG2007416
3&4-Methyl Phenol	U		0.218	6.97	20	02/17/2023 00:45	WG2007416
2-Nitrophenol	U		0.249	6.97	20	02/17/2023 00:45	WG2007416
4-Nitrophenol	U		0.218	6.97	20	02/17/2023 00:45	WG2007416
Pentachlorophenol	U		0.187	6.97	20	02/17/2023 00:45	WG2007416
Phenol	U		0.281	6.97	20	02/17/2023 00:45	WG2007416
2,4,5-Trichlorophenol	U		0.237	6.97	20	02/17/2023 00:45	WG2007416
2,4,6-Trichlorophenol	U		0.224	6.97	20	02/17/2023 00:45	WG2007416
(S) 2-Fluorophenol	*79.5*	J7		*12.0-120*		*02/17/2023 00:45*	WG2007416
(S) Phenol-d5	*76.3*	J7		*10.0-120*		*02/17/2023 00:45*	WG2007416
(S) Nitrobenzene-d5	*77.8*	J7		*10.0-122*		*02/17/2023 00:45*	WG2007416
(S) 2-Fluorobiphenyl	*77.5*	J7		*15.0-120*		*02/17/2023 00:45*	WG2007416
(S) 2,4,6-Tribromophenol	*83.4*	J7		*10.0-127*		*02/17/2023 00:45*	WG2007416
(S) p-Terphenyl-d14	*80.5*	J7		*10.0-120*		*02/17/2023 00:45*	WG2007416

Sample Narrative:

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch

L1586281-04 WG2007416: Cannot run at lower dilution due to viscosity of extract

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.00571	J	0.00241	0.00628	1	02/16/2023 22:54	WG2007419
Acenaphthene	U		0.00219	0.00628	1	02/16/2023 22:54	WG2007419
Acenaphthylene	0.00564	J	0.00226	0.00628	1	02/16/2023 22:54	WG2007419
Benzo(a)anthracene	0.0446		0.00181	0.00628	1	02/16/2023 22:54	WG2007419
Benzo(a)pyrene	0.0588		0.00187	0.00628	1	02/16/2023 22:54	WG2007419
Benzo(b)fluoranthene	0.0499		0.00160	0.00628	1	02/16/2023 22:54	WG2007419
Benzo(g,h,i)perylene	0.0424		0.00185	0.00628	1	02/16/2023 22:54	WG2007419
Benzo(k)fluoranthene	0.0185		0.00225	0.00628	1	02/16/2023 22:54	WG2007419
Chrysene	0.0369		0.00243	0.00628	1	02/16/2023 22:54	WG2007419
Dibenz(a,h)anthracene	0.00953		0.00180	0.00628	1	02/16/2023 22:54	WG2007419
Fluoranthene	0.0594		0.00238	0.00628	1	02/16/2023 22:54	WG2007419
Fluorene	U		0.00215	0.00628	1	02/16/2023 22:54	WG2007419
Indeno(1,2,3-cd)pyrene	0.0381		0.00189	0.00628	1	02/16/2023 22:54	WG2007419
Naphthalene	0.00459	J	0.00427	0.0209	1	02/16/2023 22:54	WG2007419
Phenanthrene	0.0162		0.00242	0.00628	1	02/16/2023 22:54	WG2007419
Pyrene	0.0633		0.00209	0.00628	1	02/16/2023 22:54	WG2007419
1-Methylnaphthalene	U		0.00470	0.0209	1	02/16/2023 22:54	WG2007419
2-Methylnaphthalene	0.00550	J	0.00447	0.0209	1	02/16/2023 22:54	WG2007419
2-Chloronaphthalene	U		0.00488	0.0209	1	02/16/2023 22:54	WG2007419
(S) p-Terphenyl-d14	*66.9*			*23.0-120*		*02/16/2023 22:54*	WG2007419
(S) Nitrobenzene-d5	*58.8*			*14.0-149*		*02/16/2023 22:54*	WG2007419
(S) 2-Fluorobiphenyl	*60.1*			*34.0-125*		*02/16/2023 22:54*	WG2007419

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	0.0828	B J	0.0316	0.100	1	02/16/2023 14:30	WG2007465
(S) a,a,a-Trifluorotoluene(FID)	*104*			*78.0-120*		*02/16/2023 14:30*	WG2007465

Method Blank (MB)

(MB) R3891897-1 02/16/23 18:04

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00200			

L1586281-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1586281-04 02/16/23 18:04 • (DUP) R3891897-3 02/16/23 18:04

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	95.5	91.8	1	3.97		10

Laboratory Control Sample (LCS)

(LCS) R3891897-2 02/16/23 18:04

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	99.9	85.0-115	

Method Blank (MB)

(MB) R3891954-1 02/17/23 08:37

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3891954-2 02/17/23 08:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.435	86.9	80.0-120	

L1585998-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1585998-02 02/17/23 08:42 • (MS) R3891954-3 02/17/23 08:44 • (MSD) R3891954-4 02/17/23 08:47

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.664	0.0260	0.483	0.726	68.7	105	1	75.0-125	J6	J3	40.3	20

Method Blank (MB)

(MB) R3891746-1 02/16/23 16:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3891746-2 02/16/23 16:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	900	90.0	80.0-120	
Arsenic	100	87.2	87.2	80.0-120	
Barium	100	87.1	87.1	80.0-120	
Chromium	100	94.2	94.2	80.0-120	
Copper	100	89.8	89.8	80.0-120	

L1586281-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1586281-03 02/16/23 16:18 • (MS) R3891746-5 02/16/23 16:28 • (MSD) R3891746-6 02/16/23 16:31

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1100	5220	6380	6440	106	111	5	75.0-125			0.903	20
Arsenic	110	7.14	96.2	89.8	80.9	75.1	5	75.0-125			6.86	20
Barium	110	81.5	171	166	81.2	76.8	5	75.0-125			2.89	20
Chromium	110	7.40	104	96.4	87.8	80.9	5	75.0-125			7.54	20
Copper	110	17.3	106	106	80.5	80.1	5	75.0-125			0.354	20

Method Blank (MB)

(MB) R3891791-3 02/16/23 12:32

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Gasoline Range Organics-NWTPH	0.0706	J	0.0316	0.100
(S) a,a,a-Trifluorotoluene(FID)	*105*			*78.0-120*

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

(LCS) R3891791-1 02/16/23 10:33 • (LCSD) R3891791-2 02/16/23 11:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5.50	5.56	5.78	101	105	70.0-124			3.88	20
(S) a,a,a-Trifluorotoluene(FID)				*109*	*109*	*78.0-120*				

L1586222-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1586222-01 02/16/23 16:41 • (MS) R3891791-4 02/16/23 19:36 • (MSD) R3891791-5 02/16/23 19:58

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5.50	0.0530	3.71	4.59	66.5	82.5	1	10.0-155		J3	21.2	21
(S) a,a,a-Trifluorotoluene(FID)					*84.9*	*107*		*78.0-120*				

Method Blank (MB)

(MB) R3891871-2 02/16/23 22:53

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPHG C6 - C12	U		0.848	2.50
(S) a,a,a-Trifluorotoluene(FID)	*94.7*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3891871-1 02/16/23 21:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPHG C6 - C12	5.50	4.79	87.1	71.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*106*	*77.0-120*	

L1586164-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1586164-04 02/17/23 01:37 • (MS) R3891871-3 02/17/23 06:24 • (MSD) R3891871-4 02/17/23 06:45

Analyte	Spike Amount (dry) mg/kg	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	164	8.71	166	172	95.6	99.2	25	50.0-150			3.54	27
(S) a,a,a-Trifluorotoluene(FID)					*108*	*109*		*77.0-120*				

Method Blank (MB)

(MB) R3891796-2 02/16/23 21:33

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*72.8*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3891796-1 02/16/23 21:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Diesel Range Organics (DRO)	50.0	30.0	60.0	50.0-150	
(S) o-Terphenyl			*73.6*	*18.0-148*	

L1584969-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1584969-01 02/17/23 00:08 • (MS) R3891796-3 02/17/23 00:21 • (MSD) R3891796-4 02/17/23 00:34

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	61.7	U	36.7	34.2	59.4	55.4	1	50.0-150			6.97	20
(S) o-Terphenyl					*67.1*	*64.6*		*18.0-148*				

Method Blank (MB)

(MB) R3891926-3 02/16/23 23:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00539	0.0333
Acenaphthylene	U		0.00469	0.0333
Anthracene	U		0.00593	0.0333
Benzo(a)anthracene	U		0.00587	0.0333
Benzo(b)fluoranthene	U		0.00621	0.0333
Benzo(k)fluoranthene	U		0.00592	0.0333
Benzo(g,h,i)perylene	U		0.00609	0.0333
Benzo(a)pyrene	U		0.00619	0.0333
Benzoic acid	U		0.118	1.67
Benzyl alcohol	U		0.0123	0.333
Bis(2-chlorethoxy)methane	U		0.0100	0.333
Bis(2-chloroethyl)ether	U		0.0110	0.333
2,2-Oxybis(1-Chloropropane)	U		0.0144	0.333
4-Bromophenyl-phenylether	U		0.0117	0.333
Carbazole	U		0.0103	0.333
2-Chloronaphthalene	U		0.00585	0.0333
4-Chloroaniline	U		0.0120	0.333
4-Chlorophenyl-phenylether	U		0.0116	0.333
Chrysene	U		0.00662	0.0333
Dibenz(a,h)anthracene	U		0.00923	0.0333
Dibenzofuran	U		0.0109	0.333
3,3-Dichlorobenzidine	U		0.0123	0.333
2,4-Dinitrotoluene	U		0.00955	0.333
2,6-Dinitrotoluene	U		0.0109	0.333
Fluoranthene	U		0.00601	0.0333
Fluorene	U		0.00542	0.0333
Hexachlorobenzene	U		0.0118	0.333
Hexachloro-1,3-butadiene	U		0.0112	0.333
Hexachlorocyclopentadiene	U		0.0175	0.333
Hexachloroethane	U		0.0131	0.333
Indeno(1,2,3-cd)pyrene	U		0.00941	0.0333
Isophorone	U		0.0102	0.333
2-Methylnaphthalene	U		0.00432	0.0333
Naphthalene	U		0.00836	0.0333
2-Nitroaniline	U		0.0107	0.333
3-Nitroaniline	U		0.0106	0.333
4-Nitroaniline	U		0.00971	0.333
Nitrobenzene	U		0.0116	0.333
n-Nitrosodimethylamine	U		0.0494	0.333
n-Nitrosodiphenylamine	U		0.0252	0.333

Method Blank (MB)

(MB) R3891926-3 02/16/23 23:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
n-Nitrosodi-n-propylamine	U		0.0111	0.333
Phenanthrene	U		0.00661	0.0333
Benzylbutyl phthalate	U		0.0104	0.333
Bis(2-ethylhexyl)phthalate	U		0.0422	0.333
Di-n-butyl phthalate	U		0.0114	0.333
Diethyl phthalate	U		0.0110	0.333
Dimethyl phthalate	U		0.0706	0.333
Di-n-octyl phthalate	U		0.0225	0.333
Pyrene	U		0.00648	0.0333
Pyridine	U		0.0220	0.333
1,2,4-Trichlorobenzene	U		0.0104	0.333
4-Chloro-3-methylphenol	U		0.0108	0.333
2-Chlorophenol	U		0.0110	0.333
2,4-Dichlorophenol	U		0.00970	0.333
2,4-Dimethylphenol	U		0.00870	0.333
4,6-Dinitro-2-methylphenol	U		0.0755	0.333
2,4-Dinitrophenol	U		0.0779	0.333
2-Methylphenol	U		0.0100	0.333
3&4-Methyl Phenol	U		0.0104	0.333
2-Nitrophenol	U		0.0119	0.333
4-Nitrophenol	U		0.0104	0.333
Pentachlorophenol	U		0.00896	0.333
Phenol	U		0.0134	0.333
2,4,5-Trichlorophenol	U		0.0113	0.333
2,4,6-Trichlorophenol	U		0.0107	0.333
(S) 2-Fluorophenol	*67.7*			*12.0-120*
(S) Phenol-d5	*61.4*			*10.0-120*
(S) Nitrobenzene-d5	*55.0*			*10.0-122*
(S) 2-Fluorobiphenyl	*65.2*			*15.0-120*
(S) 2,4,6-Tribromophenol	*67.6*			*10.0-127*
(S) p-Terphenyl-d14	*77.8*			*10.0-120*

Laboratory Control Sample (LCS)

(LCS) R3891926-1 02/16/23 22:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.666	0.461	69.2	38.0-120	
Acenaphthylene	0.666	0.488	73.3	40.0-120	

Laboratory Control Sample (LCS)

(LCS) R3891926-1 02/16/23 22:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.666	0.486	73.0	42.0-120	
Benzo(a)anthracene	0.666	0.524	78.7	44.0-120	
Benzo(b)fluoranthene	0.666	0.510	76.6	43.0-120	
Benzo(k)fluoranthene	0.666	0.516	77.5	44.0-120	
Benzo(g,h,i)perylene	0.666	0.551	82.7	43.0-120	
Benzo(a)pyrene	0.666	0.561	84.2	45.0-120	
Benzoic acid	1.33	0.135	10.2	10.0-120	
Benzyl alcohol	0.666	0.395	59.3	10.0-120	
Bis(2-chlorethoxy)methane	0.666	0.355	53.3	20.0-120	
Bis(2-chloroethyl)ether	0.666	0.471	70.7	16.0-120	
2,2-Oxybis(1-Chloropropane)	0.666	0.441	66.2	23.0-120	
4-Bromophenyl-phenylether	0.666	0.521	78.2	40.0-120	
Carbazole	0.666	0.486	73.0	48.0-120	
2-Chloronaphthalene	0.666	0.466	70.0	35.0-120	
4-Chloroaniline	0.666	0.310	46.5	18.0-120	
4-Chlorophenyl-phenylether	0.666	0.504	75.7	40.0-120	
Chrysene	0.666	0.525	78.8	43.0-120	
Dibenz(a,h)anthracene	0.666	0.557	83.6	44.0-120	
Dibenzofuran	0.666	0.465	69.8	44.0-120	
3,3-Dichlorobenzidine	1.33	1.03	77.4	28.0-120	
2,4-Dinitrotoluene	0.666	0.547	82.1	45.0-120	
2,6-Dinitrotoluene	0.666	0.502	75.4	42.0-120	
Fluoranthene	0.666	0.522	78.4	44.0-120	
Fluorene	0.666	0.479	71.9	41.0-120	
Hexachlorobenzene	0.666	0.534	80.2	39.0-120	
Hexachloro-1,3-butadiene	0.666	0.407	61.1	15.0-120	
Hexachlorocyclopentadiene	0.666	0.460	69.1	15.0-120	
Hexachloroethane	0.666	0.403	60.5	17.0-120	
Indeno(1,2,3-cd)pyrene	0.666	0.499	74.9	45.0-120	
Isophorone	0.666	0.360	54.1	23.0-120	
2-Methylnaphthalene	0.666	0.385	57.8	34.0-120	
Naphthalene	0.666	0.374	56.2	18.0-120	
2-Nitroaniline	0.666	0.516	77.5	46.0-120	
3-Nitroaniline	0.666	0.496	74.5	36.0-120	
4-Nitroaniline	0.666	0.568	85.3	36.0-120	
Nitrobenzene	0.666	0.337	50.6	17.0-120	
n-Nitrosodimethylamine	0.666	0.429	64.4	10.0-125	
n-Nitrosodiphenylamine	0.666	0.470	70.6	40.0-120	
n-Nitrosodi-n-propylamine	0.666	0.412	61.9	26.0-120	
Phenanthrene	0.666	0.456	68.5	42.0-120	

Laboratory Control Sample (LCS)

(LCS) R3891926-1 02/16/23 22:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzylbutyl phthalate	0.666	0.467	70.1	40.0-120	
Bis(2-ethylhexyl)phthalate	0.666	0.474	71.2	41.0-120	
Di-n-butyl phthalate	0.666	0.481	72.2	43.0-120	
Diethyl phthalate	0.666	0.488	73.3	43.0-120	
Dimethyl phthalate	0.666	0.497	74.6	43.0-120	
Di-n-octyl phthalate	0.666	0.467	70.1	40.0-120	
Pyrene	0.666	0.493	74.0	41.0-120	
Pyridine	0.666	0.303	45.5	10.0-120	
1,2,4-Trichlorobenzene	0.666	0.405	60.8	17.0-120	
4-Chloro-3-methylphenol	0.666	0.383	57.5	28.0-120	
2-Chlorophenol	0.666	0.466	70.0	28.0-120	
2,4-Dichlorophenol	0.666	0.398	59.8	25.0-120	
2,4-Dimethylphenol	0.666	0.375	56.3	15.0-120	
4,6-Dinitro-2-methylphenol	0.666	0.410	61.6	16.0-120	
2,4-Dinitrophenol	0.666	0.269	40.4	10.0-120	
2-Methylphenol	0.666	0.453	68.0	35.0-120	
3&4-Methyl Phenol	0.666	0.502	75.4	42.0-120	
2-Nitrophenol	0.666	0.439	65.9	20.0-120	
4-Nitrophenol	0.666	0.482	72.4	27.0-120	
Pentachlorophenol	0.666	0.391	58.7	29.0-120	
Phenol	0.666	0.498	74.8	28.0-120	
2,4,5-Trichlorophenol	0.666	0.454	68.2	38.0-120	
2,4,6-Trichlorophenol	0.666	0.439	65.9	37.0-120	
(S) 2-Fluorophenol			*76.6*	*12.0-120*	
(S) Phenol-d5			*70.9*	*10.0-120*	
(S) Nitrobenzene-d5			*51.7*	*10.0-122*	
(S) 2-Fluorobiphenyl			*73.9*	*15.0-120*	
(S) 2,4,6-Tribromophenol			*90.5*	*10.0-127*	
(S) p-Terphenyl-d14			*80.8*	*10.0-120*	

L1585425-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1585425-05 02/17/23 02:46 • (MS) R3891926-4 02/17/23 03:06 • (MSD) R3891926-5 02/17/23 03:26

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.905	U	0.465	0.511	51.4	56.5	2	18.0-120			9.47	32
Acenaphthylene	0.905	U	0.487	0.537	53.8	59.3	2	25.0-120			9.83	32
Anthracene	0.905	U	0.574	0.582	63.4	64.3	2	22.0-120			1.41	29
Benzo(a)anthracene	0.905	U	0.620	0.632	68.5	69.8	2	25.0-120			1.95	29

L1585425-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1585425-05 02/17/23 02:46 • (MS) R3891926-4 02/17/23 03:06 • (MSD) R3891926-5 02/17/23 03:26

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzo(b)fluoranthene	0.905	U	0.568	0.586	62.8	64.7	2	19.0-122			3.06	31
Benzo(k)fluoranthene	0.905	U	0.600	0.614	66.2	67.9	2	23.0-120			2.46	30
Benzo(g,h,i)perylene	0.905	U	0.616	0.642	68.0	70.9	2	10.0-120			4.11	33
Benzo(a)pyrene	0.905	U	0.638	0.665	70.4	73.4	2	24.0-120			4.18	30
Benzoic acid	1.81	U	0.767	1.23	42.4	68.1	2	10.0-152		J3	46.5	40
Benzyl alcohol	0.905	U	0.351	0.416	38.7	45.9	2	10.0-136			17.0	40
Bis(2-chlorethoxy)methane	0.905	U	0.363	0.428	40.1	47.3	2	10.0-120			16.5	34
Bis(2-chloroethyl)ether	0.905	U	0.484	0.530	53.5	58.6	2	10.0-120			9.12	40
2,2-Oxybis(1-Chloropropane)	0.905	U	0.416	0.451	45.9	49.8	2	10.0-120			8.15	40
4-Bromophenyl-phenylether	0.905	U	0.575	0.597	63.5	65.9	2	27.0-120			3.71	30
Carbazole	0.905	U	0.575	0.594	63.5	65.6	2	31.0-120			3.26	24
2-Chloronaphthalene	0.905	U	0.455	0.502	50.3	55.4	2	20.0-120			9.66	32
4-Chloroaniline	0.905	U	0.347	0.402	38.3	44.4	2	10.0-120			14.9	36
4-Chlorophenyl-phenylether	0.905	U	0.534	0.574	59.0	63.4	2	24.0-120			7.12	29
Chrysene	0.905	U	0.629	0.640	69.5	70.7	2	21.0-120			1.71	29
Dibenz(a,h)anthracene	0.905	U	0.651	0.670	71.9	74.0	2	10.0-120			2.88	32
Dibenzofuran	0.905	U	0.477	0.517	52.7	57.1	2	24.0-120			7.93	30
3,3-Dichlorobenzidine	1.81	U	1.17	1.26	64.6	69.9	2	10.0-120			7.94	34
2,4-Dinitrotoluene	0.905	U	0.589	0.627	65.0	69.2	2	30.0-120			6.26	31
2,6-Dinitrotoluene	0.905	U	0.519	0.557	57.4	61.6	2	25.0-120			7.07	31
Fluoranthene	0.905	U	0.627	0.642	69.2	70.9	2	18.0-126			2.36	32
Fluorene	0.905	U	0.515	0.544	56.9	60.1	2	25.0-120			5.39	30
Hexachlorobenzene	0.905	U	0.632	0.639	69.8	70.6	2	27.0-120			1.07	28
Hexachloro-1,3-butadiene	0.905	U	0.427	0.465	47.1	51.4	2	10.0-120			8.54	38
Hexachlorocyclopentadiene	0.905	U	0.155	0.171	17.1	18.9	2	10.0-120			10.0	40
Hexachloroethane	0.905	U	0.348	0.362	38.4	39.9	2	10.0-120			3.83	40
Indeno(1,2,3-cd)pyrene	0.905	U	0.570	0.605	62.9	66.8	2	10.0-120			6.02	32
Isophorone	0.905	U	0.367	0.432	40.5	47.7	2	13.0-120			16.3	34
2-Methylnaphthalene	0.905	U	0.411	0.459	45.3	50.8	2	10.0-120			11.3	37
Naphthalene	0.905	U	0.396	0.436	43.7	48.2	2	10.0-120			9.80	35
2-Nitroaniline	0.905	U	0.537	0.594	59.3	65.6	2	24.0-120			10.1	30
3-Nitroaniline	0.905	U	0.553	0.609	61.1	67.3	2	11.0-120			9.59	32
4-Nitroaniline	0.905	U	0.643	0.715	71.0	79.0	2	15.0-120			10.6	31
Nitrobenzene	0.905	U	0.340	0.396	37.5	43.7	2	10.0-120			15.2	36
n-Nitrosodimethylamine	0.905	U	0.322	0.352	35.6	38.9	2	10.0-127			8.87	40
n-Nitrosodiphenylamine	0.905	U	0.503	0.533	55.6	58.9	2	17.0-120			5.77	29
n-Nitrosodi-n-propylamine	0.905	U	0.378	0.434	41.7	47.9	2	10.0-120			13.7	37
Phenanthrene	0.905	U	0.545	0.545	60.2	60.2	2	17.0-120			0.000	31
Benzylbutyl phthalate	0.905	U	0.572	0.572	63.2	63.2	2	23.0-120			0.000	30

L1585425-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1585425-05 02/17/23 02:46 • (MS) R3891926-4 02/17/23 03:06 • (MSD) R3891926-5 02/17/23 03:26

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bis(2-ethylhexyl)phthalate	0.905	U	0.582	0.571	64.3	63.1	2	17.0-126			1.89	30
Di-n-butyl phthalate	0.905	U	0.587	0.586	64.9	64.7	2	30.0-120			0.232	29
Diethyl phthalate	0.905	U	0.517	0.553	57.1	61.1	2	26.0-120			6.86	28
Dimethyl phthalate	0.905	U	0.498	0.548	55.0	60.5	2	25.0-120			9.62	29
Di-n-octyl phthalate	0.905	U	0.619	0.601	68.3	66.4	2	21.0-123			2.90	29
Pyrene	0.905	U	0.583	0.600	64.4	66.2	2	16.0-121			2.76	32
Pyridine	0.905	U	0.321	0.389	35.4	42.9	2	10.0-120			19.2	40
1,2,4-Trichlorobenzene	0.905	U	0.423	0.468	46.7	51.7	2	12.0-120			10.1	37
4-Chloro-3-methylphenol	0.905	U	0.447	0.493	49.4	54.5	2	15.0-120			9.83	30
2-Chlorophenol	0.905	U	0.431	0.493	47.6	54.5	2	15.0-120			13.5	37
2,4-Dichlorophenol	0.905	U	0.439	0.506	48.5	55.9	2	20.0-120			14.1	31
2,4-Dimethylphenol	0.905	U	0.349	0.434	38.6	47.9	2	10.0-120			21.5	33
4,6-Dinitro-2-methylphenol	0.905	U	0.349	0.398	38.6	44.0	2	10.0-120			13.1	39
2,4-Dinitrophenol	0.905	U	0.291	0.329	32.1	36.3	2	10.0-121			12.3	40
2-Methylphenol	0.905	U	0.401	0.484	44.3	53.5	2	11.0-120			18.7	40
3&4-Methyl Phenol	0.905	U	0.458	0.536	50.6	59.2	2	12.0-123			15.6	38
2-Nitrophenol	0.905	U	0.447	0.529	49.4	58.4	2	12.0-120			16.7	39
4-Nitrophenol	0.905	U	0.570	0.591	62.9	65.3	2	10.0-137			3.75	32
Pentachlorophenol	0.905	U	0.552	0.620	61.0	68.5	2	10.0-160			11.6	31
Phenol	0.905	U	0.468	0.541	51.7	59.8	2	12.0-120			14.6	38
2,4,5-Trichlorophenol	0.905	U	0.518	0.549	57.2	60.7	2	20.0-120			5.86	30
2,4,6-Trichlorophenol	0.905	U	0.446	0.502	49.2	55.4	2	19.0-120			11.8	32
(S) 2-Fluorophenol					*54.1*	*58.6*		*12.0-120*				
(S) Phenol-d5					*49.8*	*54.6*		*10.0-120*				
(S) Nitrobenzene-d5					*40.8*	*45.9*		*10.0-122*				
(S) 2-Fluorobiphenyl					*53.5*	*56.5*		*15.0-120*				
(S) 2,4,6-Tribromophenol					*80.5*	*78.9*		*10.0-127*				
(S) p-Terphenyl-d14					*71.5*	*70.0*		*10.0-120*				

Method Blank (MB)

(MB) R3891847-2 02/16/23 21:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) p-Terphenyl-d14	*66.4*			*23.0-120*
(S) Nitrobenzene-d5	*68.2*			*14.0-149*
(S) 2-Fluorobiphenyl	*70.1*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3891847-1 02/16/23 21:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0719	89.9	50.0-126	
Acenaphthene	0.0800	0.0671	83.9	50.0-120	
Acenaphthylene	0.0800	0.0740	92.5	50.0-120	
Benzo(a)anthracene	0.0800	0.0745	93.1	45.0-120	
Benzo(a)pyrene	0.0800	0.0636	79.5	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0581	72.6	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0598	74.8	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0587	73.4	49.0-125	
Chrysene	0.0800	0.0675	84.4	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0664	83.0	47.0-125	
Fluoranthene	0.0800	0.0724	90.5	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3891847-1 02/16/23 21:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0713	89.1	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0702	87.8	46.0-125	
Naphthalene	0.0800	0.0647	80.9	50.0-120	
Phenanthrene	0.0800	0.0662	82.8	47.0-120	
Pyrene	0.0800	0.0614	76.8	43.0-123	
1-Methylnaphthalene	0.0800	0.0656	82.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0699	87.4	50.0-120	
2-Chloronaphthalene	0.0800	0.0652	81.5	50.0-120	
(S) p-Terphenyl-d14			*72.5*	*23.0-120*	
(S) Nitrobenzene-d5			*82.9*	*14.0-149*	
(S) 2-Fluorobiphenyl			*80.6*	*34.0-125*	

L1584723-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1584723-02 02/17/23 00:32 • (MS) R3891847-3 02/16/23 23:34 • (MSD) R3891847-4 02/16/23 23:53

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0957	0.0563	0.118	0.134	64.8	81.3	1	10.0-145			12.5	30
Acenaphthene	0.0957	0.0541	0.102	0.115	50.0	63.2	1	14.0-127			11.7	27
Acenaphthylene	0.0957	U	0.0908	0.0985	94.9	103	1	21.0-124			8.09	25
Benzo(a)anthracene	0.0957	0.0166	0.0834	0.0929	69.8	79.6	1	10.0-139			10.7	30
Benzo(a)pyrene	0.0957	0.0102	0.0725	0.0794	65.1	72.2	1	10.0-141			8.98	31
Benzo(b)fluoranthene	0.0957	0.00324	0.0529	0.0567	51.9	55.9	1	10.0-140			6.99	36
Benzo(g,h,i)perylene	0.0957	0.00498	0.0527	0.0591	49.8	56.6	1	10.0-140			11.6	33
Benzo(k)fluoranthene	0.0957	U	0.0511	0.0567	53.4	59.3	1	10.0-137			10.4	31
Chrysene	0.0957	0.00800	0.0658	0.0717	60.4	66.5	1	10.0-145			8.53	30
Dibenz(a,h)anthracene	0.0957	U	0.0574	0.0637	60.0	66.5	1	10.0-132			10.3	31
Fluoranthene	0.0957	0.0199	0.0844	0.0908	67.4	74.1	1	10.0-153			7.38	33
Fluorene	0.0957	0.0845	0.135	0.152	53.0	70.5	1	11.0-130			11.7	29
Indeno(1,2,3-cd)pyrene	0.0957	0.00437	0.0628	0.0704	61.1	68.9	1	10.0-137			11.3	32
Naphthalene	0.0957	10.3	8.70	10.4	0.000	75.0	1	10.0-135	E V	E	17.3	27
Phenanthrene	0.0957	0.129	0.170	0.195	42.5	68.8	1	10.0-144			13.8	31
Pyrene	0.0957	0.0236	0.0755	0.0840	54.3	63.1	1	10.0-148			10.7	35
1-Methylnaphthalene	0.0957	4.76	4.06	4.90	0.000	138	1	10.0-142	V	E	18.7	28
2-Methylnaphthalene	0.0957	8.64	7.35	8.81	0.000	175	1	10.0-137	E V	E V	18.1	28
2-Chloronaphthalene	0.0957	U	0.0534	0.0545	55.8	56.9	1	29.0-120			2.00	24
(S) p-Terphenyl-d14					*52.3*	*56.0*		*23.0-120*				
(S) Nitrobenzene-d5					*0.000*	*0.000*		*14.0-149*	J2	J2		
(S) 2-Fluorobiphenyl					*55.4*	*56.4*		*34.0-125*				

L1584723-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1584723-02 02/17/23 00:32 • (MS) R3891847-3 02/16/23 23:34 • (MSD) R3891847-4 02/16/23 23:53

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%

Sample Narrative:

OS: Surrogate failure due to matrix interference

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

GLOSSARY OF TERMS

Qualifier	Description
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Report to: **Ted Norton**

Email To: tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com

Project Description: **Trentwood WA-Aluminum Dross II**

City/State Collected:

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project # **2494**

Lab Project # **UPRRGOLD-2494**

Collected by (print): Zachary Schuehle

Site/Facility ID # **IMPORTED BACKFILL SOIL AND**

P.O. #

Collected by (signature): Zach Schuehle

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1550601 B019

Table

Acctnu... PRRGOLD

Template: **T222982**

Prelogin: **P975097**

PM: **134 - Mark W. Beasley**

PB:

Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Metals 8ozClr-NoPres	NWTPHDXNOSGT 8ozClr-NoPres	NWTPHGX 40mlAmb/MeOH10ml/Syr	SV8270 8ozClr-NoPres	SV8270PAHSIM 8ozClr-NoPres	Remarks	Sample # (lab only)
BF4-2494-01-021523	G	SS	—	2-15-23	910	3	X	X	X	X	X		-01
BF4-2494-02-021523	G	SS	—	2-15-23	920	3	X	X	X	X	X		-02
BF4-2494-03-021523	G	SS	—	2-15-23	930	3	X	X	X	X	X		-03
BF4-2494-04-021523	G	SS	—	2-15-23	935	3	X	X	X	X	X		-04
TB-2494-1-021523	G	SS	—	2-15-23	1200	1			X				-05
		SS											
		SS											
		SS											
		SS											
		SS											

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: *metals = Al, As, Ba, Cu, Cr, Hg by 6010

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6044 5475 5114

Sample Receipt Checklist
COC Seal Present/Intact: __NP __N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCl / MeoH TBR
Zach Schuehle	2-15-23	1700		1
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.1+0=3.1 °C Bottles Received: 12
				If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 2-16-23 Time: 9:45
				Hold: Condition: NCF / OK

ANALYTICAL REPORT

February 20, 2023

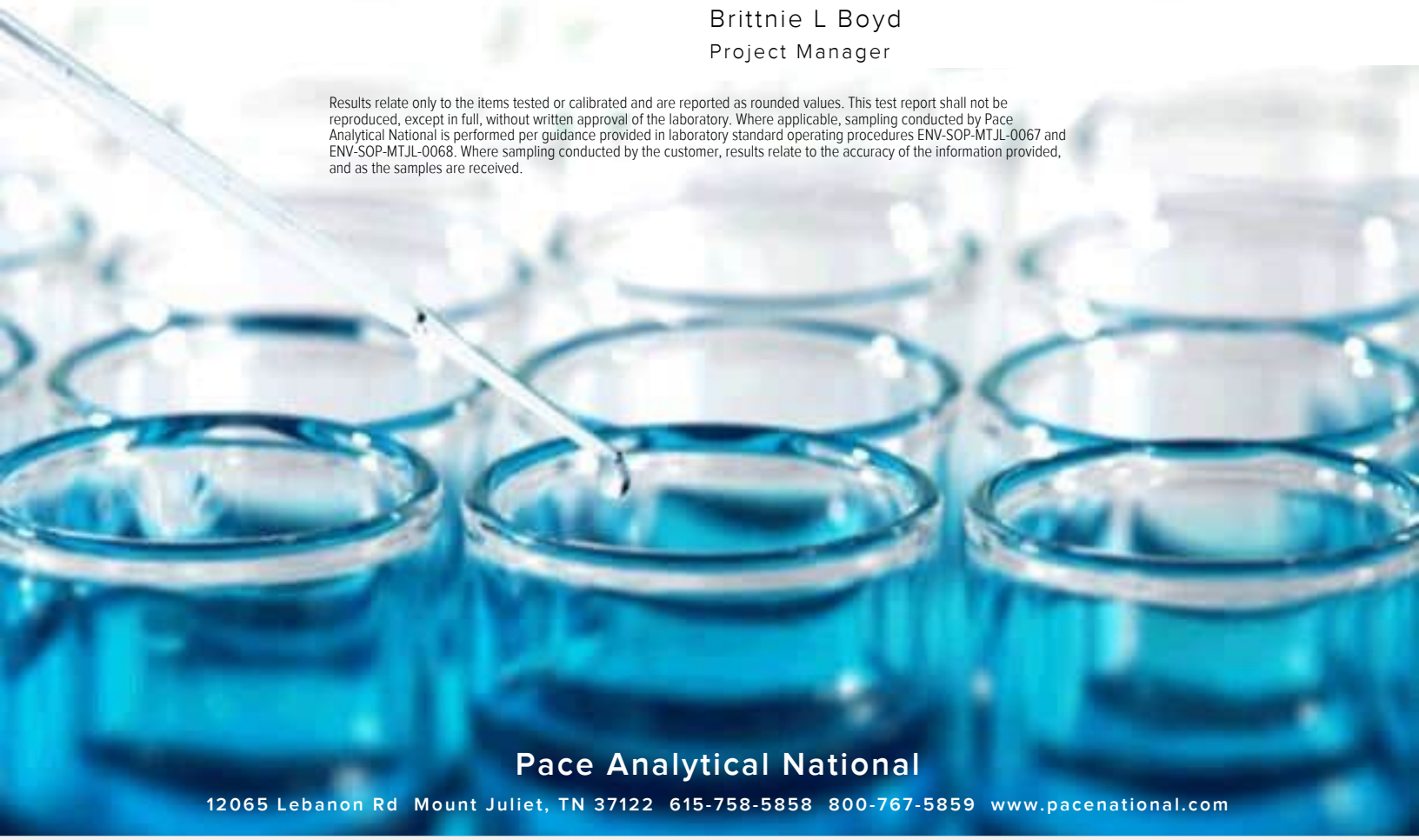
UPRR - Golder Associates

Sample Delivery Group:	L1587163
Samples Received:	02/18/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-P1-38-021623 L1587163-01 Solid

Collected by: Zachary Schuehle
Collected date/time: 02/16/23 11:40
Received date/time: 02/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2008623	1	02/18/23 10:58	02/18/23 11:12	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2008620	1	02/18/23 10:51	02/19/23 15:29	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2008617	5	02/18/23 10:37	02/19/23 10:28	SJM	Mt. Juliet, TN

SO-2494-P1-34-021723 L1587163-02 Solid

Collected by: Zachary Schuehle
Collected date/time: 02/17/23 11:40
Received date/time: 02/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2008623	1	02/18/23 10:58	02/18/23 11:12	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2008620	1	02/18/23 10:51	02/19/23 15:36	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2008617	5	02/18/23 10:37	02/19/23 10:44	SJM	Mt. Juliet, TN

SO-2494-W1-40-021723 L1587163-03 Solid

Collected by: Zachary Schuehle
Collected date/time: 02/17/23 08:40
Received date/time: 02/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2008623	1	02/18/23 10:58	02/18/23 11:12	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2008620	1	02/18/23 10:51	02/19/23 15:39	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2008617	5	02/18/23 10:37	02/19/23 10:47	SJM	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.2		1	02/18/2023 11:12	WG2008623

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.161	J5 O1	0.0195	0.0434	1	02/19/2023 15:29	WG2008620

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	23300		7.48	54.2	5	02/19/2023 10:28	WG2008617
Arsenic	7.89		0.108	1.08	5	02/19/2023 10:28	WG2008617
Barium	192		0.165	2.71	5	02/19/2023 10:28	WG2008617
Chromium	17.0		0.321	5.42	5	02/19/2023 10:28	WG2008617
Copper	33.5		0.143	5.42	5	02/19/2023 10:28	WG2008617

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.3		1	02/18/2023 11:12	WG2008623

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0777		0.0195	0.0433	1	02/19/2023 15:36	WG2008620

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	23200		7.47	54.2	5	02/19/2023 10:44	WG2008617
Arsenic	7.48		0.108	1.08	5	02/19/2023 10:44	WG2008617
Barium	184		0.165	2.71	5	02/19/2023 10:44	WG2008617
Chromium	13.3		0.321	5.42	5	02/19/2023 10:44	WG2008617
Copper	25.3		0.143	5.42	5	02/19/2023 10:44	WG2008617

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.5		1	02/18/2023 11:12	WG2008623

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0384	J	0.0181	0.0402	1	02/19/2023 15:39	WG2008620

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11300		6.93	50.2	5	02/19/2023 10:47	WG2008617
Arsenic	10.6		0.100	1.00	5	02/19/2023 10:47	WG2008617
Barium	75.2		0.153	2.51	5	02/19/2023 10:47	WG2008617
Chromium	11.2		0.297	5.02	5	02/19/2023 10:47	WG2008617
Copper	31.7		0.133	5.02	5	02/19/2023 10:47	WG2008617

Method Blank (MB)

(MB) R3892565-1 02/18/23 11:12

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1587145-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1587145-01 02/18/23 11:12 • (DUP) R3892565-3 02/18/23 11:12

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	81.0	80.2	1	1.04		10

Laboratory Control Sample (LCS)

(LCS) R3892565-2 02/18/23 11:12

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

Method Blank (MB)

(MB) R3892427-1 02/19/23 15:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3892427-2 02/19/23 15:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.494	98.8	80.0-120	

L1587163-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1587163-01 02/19/23 15:29 • (MS) R3892427-3 02/19/23 15:31 • (MSD) R3892427-4 02/19/23 15:34

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.542	0.161	0.748	0.842	108	126	1	75.0-125		J5	11.9	20

Method Blank (MB)

(MB) R3892368-1 02/19/23 10:21

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3892368-2 02/19/23 10:24

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	935	93.5	80.0-120	
Arsenic	100	92.8	92.8	80.0-120	
Barium	100	94.2	94.2	80.0-120	
Chromium	100	92.8	92.8	80.0-120	
Copper	100	91.0	91.0	80.0-120	

L1587163-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1587163-01 02/19/23 10:28 • (MS) R3892368-5 02/19/23 10:37 • (MSD) R3892368-6 02/19/23 10:41

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1080	23300	22500	22700	0.000	0.000	5	75.0-125	V	V	0.760	20
Arsenic	108	7.89	105	97.3	89.8	82.5	5	75.0-125			7.87	20
Barium	108	192	289	283	89.1	83.5	5	75.0-125			2.13	20
Chromium	108	17.0	115	107	90.4	83.3	5	75.0-125			6.93	20
Copper	108	33.5	127	122	86.4	81.2	5	75.0-125			4.61	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected:

Please Circle:
(PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Zachary Schuehle

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):
Zach Schuehle

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres	Remarks	Sample # (lab only)
SO-2494-P1-38-021623	G	SS	2 ft	2-16-23	1140	1	X		-01
SO-2494-P1-34-021723	G	SS	2 ft	2-17-23	1140	1	X		-02
SO-2494-W1-40-021723	G	SS	4 ft	2-17-23	840	1	X		-03
		SS							
		SS							
		SS							
		SS							
		SS							
		SS							
		SS							

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1507163

D080

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P972608**
PM: 134 - Mark W. Beasley
PB: 2/21/23 ed

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu by 6020
Hg by 7470

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6094 5475 5055

Sample Receipt Checklist
COC Seal Present/Intact: __NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Zach Schuehle	2-17-23	1630		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: NSAC °C Bottles Received: 0.4+0=0.4 3
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Kayla T	Date: 2/18/23 Time: 900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

February 23, 2023

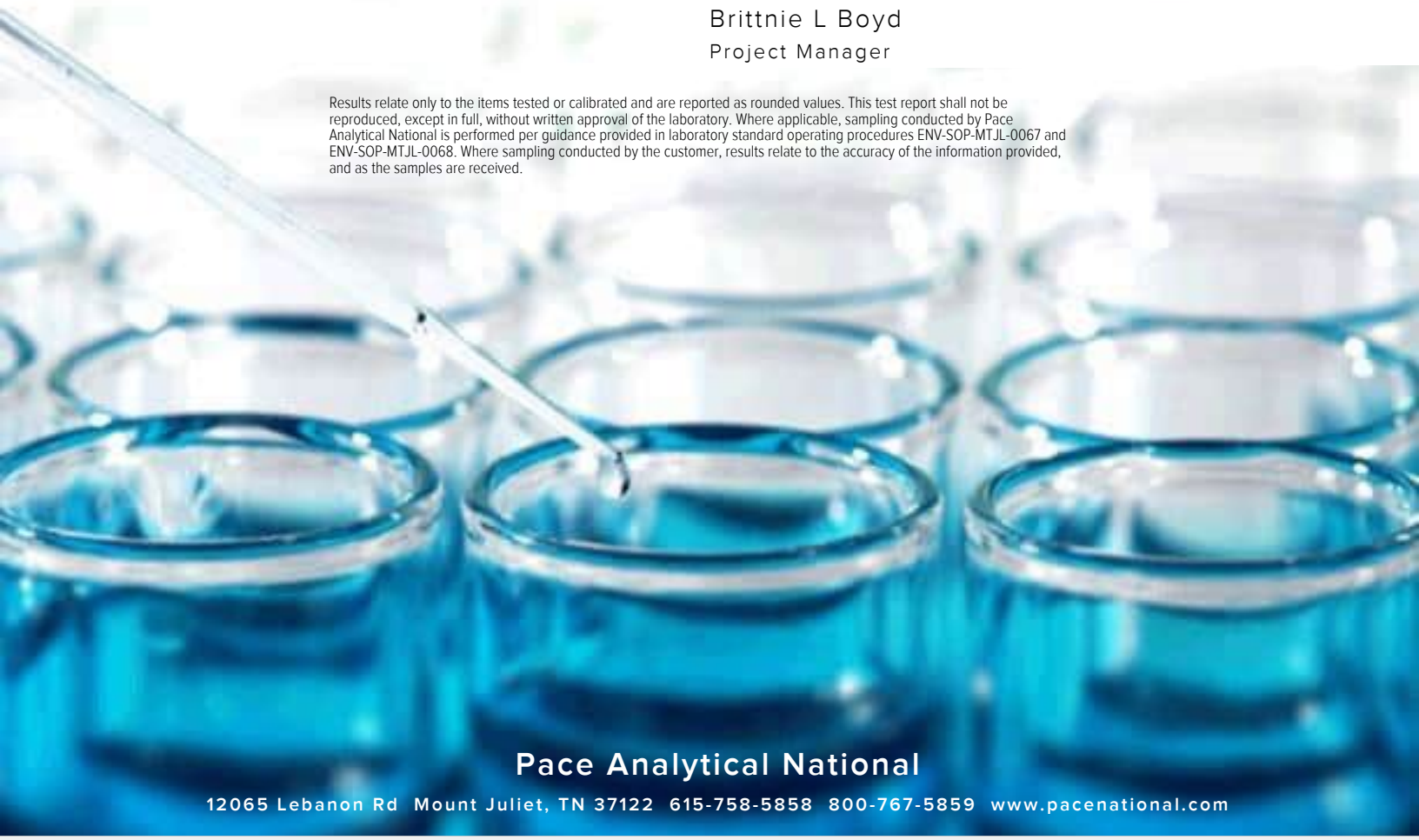
UPRR - Golder Associates

Sample Delivery Group:	L1587995
Samples Received:	02/22/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-W1-05-3.0-022023 L1587995-01 Solid

Collected by: James Roman
Collected date/time: 02/20/23 12:00
Received date/time: 02/22/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2010852	1	02/22/23 12:23	02/22/23 12:45	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2010894	1	02/22/23 12:53	02/22/23 17:44	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2010792	5	02/22/23 11:18	02/22/23 15:00	JPD	Mt. Juliet, TN

SO-2494-W1-06-4.0-022023 L1587995-02 Solid

Collected by: James Roman
Collected date/time: 02/20/23 12:20
Received date/time: 02/22/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2010852	1	02/22/23 12:23	02/22/23 12:45	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2010894	1	02/22/23 12:53	02/22/23 17:47	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2010792	5	02/22/23 11:18	02/22/23 15:04	JPD	Mt. Juliet, TN

SO-2494-W1-33-3.0-022023 L1587995-03 Solid

Collected by: James Roman
Collected date/time: 02/20/23 12:30
Received date/time: 02/22/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2010852	1	02/22/23 12:23	02/22/23 12:45	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2010894	1	02/22/23 12:53	02/22/23 17:49	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2010792	5	02/22/23 11:18	02/22/23 15:07	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.6		1	02/22/2023 12:45	WG2010852

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	02/22/2023 17:44	WG2010894

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	7690		6.93	50.2	5	02/22/2023 15:00	WG2010792
Arsenic	14.0		0.100	1.00	5	02/22/2023 15:00	WG2010792
Barium	65.9		0.153	2.51	5	02/22/2023 15:00	WG2010792
Chromium	9.53		0.297	5.02	5	02/22/2023 15:00	WG2010792
Copper	32.9		0.133	5.02	5	02/22/2023 15:00	WG2010792

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.4		1	02/22/2023 12:45	WG2010852

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	02/22/2023 17:47	WG2010894

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10500		6.94	50.3	5	02/22/2023 15:04	WG2010792
Arsenic	15.4		0.101	1.01	5	02/22/2023 15:04	WG2010792
Barium	68.6		0.153	2.51	5	02/22/2023 15:04	WG2010792
Chromium	11.3		0.298	5.03	5	02/22/2023 15:04	WG2010792
Copper	65.0		0.133	5.03	5	02/22/2023 15:04	WG2010792

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.7		1	02/22/2023 12:45	WG2010852

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0401	1	02/22/2023 17:49	WG2010894

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5180		6.92	50.2	5	02/22/2023 15:07	WG2010792
Arsenic	11.0		0.100	1.00	5	02/22/2023 15:07	WG2010792
Barium	56.4		0.153	2.51	5	02/22/2023 15:07	WG2010792
Chromium	5.96		0.297	5.02	5	02/22/2023 15:07	WG2010792
Copper	20.5		0.132	5.02	5	02/22/2023 15:07	WG2010792

Method Blank (MB)

(MB) R3893943-1 02/22/23 12:45

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00200			

L1587995-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1587995-03 02/22/23 12:45 • (DUP) R3893943-3 02/22/23 12:45

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	99.7	99.7	1	0.00963		10

Laboratory Control Sample (LCS)

(LCS) R3893943-2 02/22/23 12:45

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

Method Blank (MB)

(MB) R3893793-1 02/22/23 17:32

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3893793-2 02/22/23 17:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.510	102	80.0-120	

L1588018-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588018-02 02/22/23 17:37 • (MS) R3893793-3 02/22/23 17:39 • (MSD) R3893793-4 02/22/23 17:42

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	0.0221	0.530	0.500	102	95.6	1	75.0-125			5.83	20

Method Blank (MB)

(MB) R3893718-1 02/22/23 14:37

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3893718-2 02/22/23 14:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	1030	103	80.0-120	
Arsenic	100	99.2	99.2	80.0-120	
Barium	100	98.5	98.5	80.0-120	
Chromium	100	99.9	99.9	80.0-120	
Copper	100	99.3	99.3	80.0-120	

L1587810-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1587810-02 02/22/23 14:44 • (MS) R3893718-5 02/22/23 14:54 • (MSD) R3893718-6 02/22/23 14:57

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	7420	8570	7850	115	42.9	5	75.0-125		V	8.76	20
Arsenic	100	4.14	101	98.7	96.6	94.6	5	75.0-125			2.00	20
Barium	100	202	315	305	113	103	5	75.0-125	E	E	3.32	20
Chromium	100	6.00	103	101	96.6	95.3	5	75.0-125			1.35	20
Copper	100	6.53	103	100	96.1	93.9	5	75.0-125			2.25	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
James Roman

Site/Facility ID #
DROSS STOCKPILE

P.O. #

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

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed
2/23/2023

Analysis / Container / Preservative

Pres Chk

Al,As,Ba,Cr,Cu,Hg 4oz Clr-NoPres

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4oz Clr-NoPres	Remarks	Sample # (lab only)
SO-2494-W1-05-3.0-022023	G	SS	3.0 ft	2-20-2023	1200	1	X		-01
SO-2494-W1-06-4.0-022023	"	"	4.0	"	1220	1	X		-02
SO-2494-W1-33-3.0-022023	"	"	3.0	"	1230	1	X		-03
SO-2494-W1-05-4.0-022023	G	SS	4.0	2/20/23	1205	1	X	HOLD	-04
SO-2494-W1-33-4.0-022023	G	SS	4.0	2/20/23	1235	1	X	HOLD	-05

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1567095

F132

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P972608**
PM: 134 - Mark W. Beasley
PB:
Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cu, Cr by 6020
Hg by 7471
Place W1-05-4.0 W1-33-4.0 samples on hold

Seal # 14157

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6094 5475 5103

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by: (Signature)	Date: 2-21-2023	Time: 1530	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: NSA6 °C Bottles Received: 0.5 to=0.5 5	If preservation required by Login: Date/Time
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 2-22-23 Time: 0845	Hold: / Condition: NCF / OK

ANALYTICAL REPORT

February 27, 2023

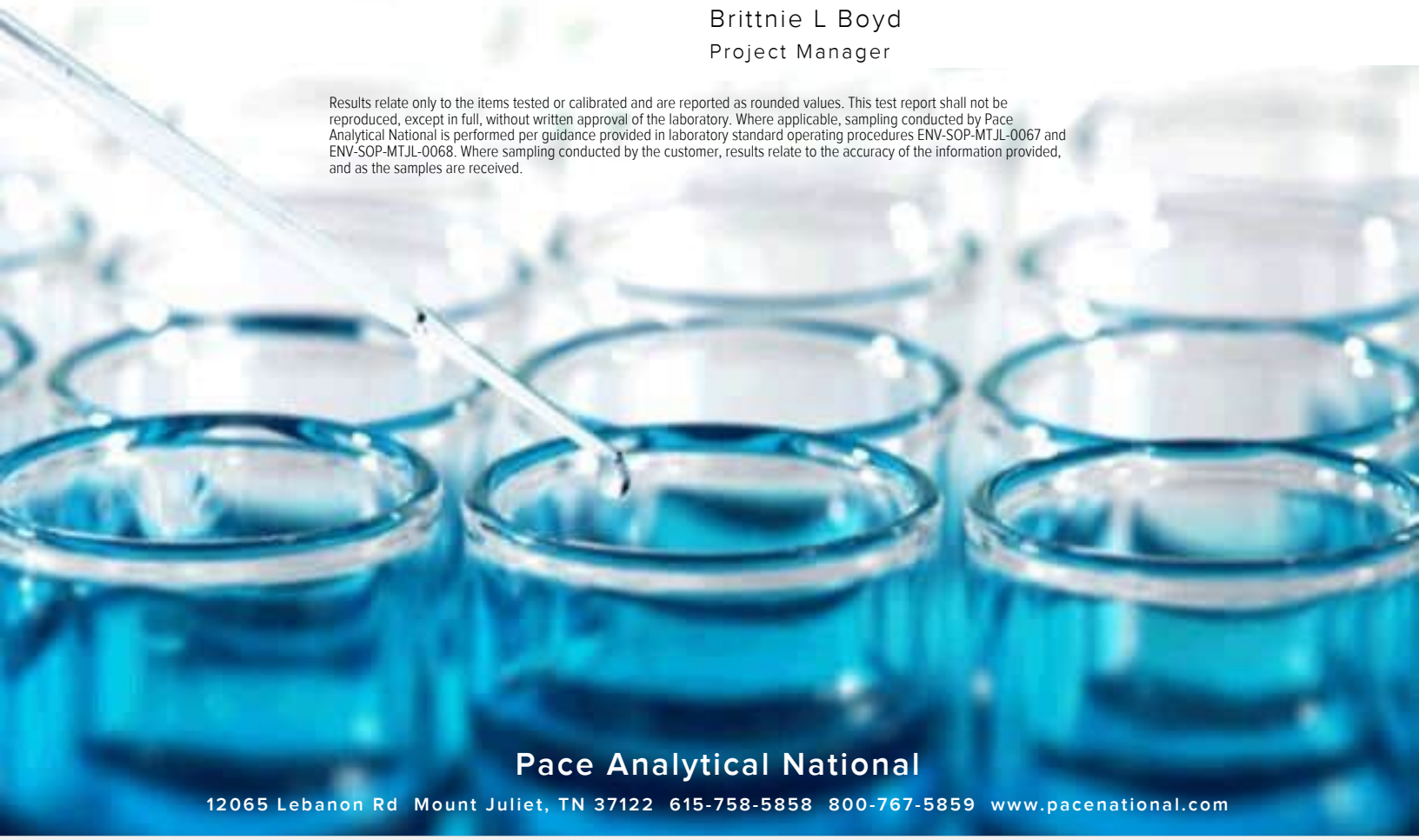
UPRR - Golder Associates

Sample Delivery Group:	L1589045
Samples Received:	02/24/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SO-2494-EX-2-01B-4.0-022123 L1589045-01 Solid

Collected by: James Roman | Collected date/time: 02/21/23 16:30 | Received date/time: 02/24/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2012593	1	02/24/23 16:40	02/24/23 16:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2012959	1	02/25/23 13:33	02/27/23 10:57	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2012815	5	02/25/23 10:44	02/26/23 12:45	SJM	Mt. Juliet, TN

SO-2494-EX-2-02B-4.0-022123 L1589045-02 Solid

Collected by: James Roman | Collected date/time: 02/21/23 16:40 | Received date/time: 02/24/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2012593	1	02/24/23 16:40	02/24/23 16:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2012959	1	02/25/23 13:36	02/27/23 11:00	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2012815	5	02/25/23 10:44	02/26/23 12:23	SJM	Mt. Juliet, TN

SO-2494-EX-2-03W-2.0-022123 L1589045-03 Solid

Collected by: James Roman | Collected date/time: 02/21/23 16:50 | Received date/time: 02/24/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2012593	1	02/24/23 16:40	02/24/23 16:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2012959	1	02/25/23 13:33	02/27/23 11:07	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2012815	5	02/25/23 10:44	02/26/23 13:12	SJM	Mt. Juliet, TN

RB-2494-8-022223 L1589045-04 GW

Collected by: James Roman | Collected date/time: 02/22/23 14:00 | Received date/time: 02/24/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG2013226	1	02/26/23 19:19	02/27/23 10:20	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2012805	1	02/25/23 12:41	02/26/23 13:00	SJM	Mt. Juliet, TN

SO-2494-EX-2-04B-6.0-022223 L1589045-05 Solid

Collected by: James Roman | Collected date/time: 02/22/23 15:40 | Received date/time: 02/24/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2012593	1	02/24/23 16:40	02/24/23 16:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2012959	1	02/25/23 13:33	02/27/23 11:09	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2012815	5	02/25/23 10:44	02/26/23 13:15	SJM	Mt. Juliet, TN

SO-2494-EX-1-01B-6.0-022223 L1589045-06 Solid

Collected by: James Roman | Collected date/time: 02/22/23 16:00 | Received date/time: 02/24/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2012593	1	02/24/23 16:40	02/24/23 16:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2012959	1	02/25/23 13:33	02/27/23 11:12	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2012815	5	02/25/23 10:44	02/26/23 13:18	SJM	Mt. Juliet, TN

SO-2494-EX-1-02B-6.0-022223 L1589045-07 Solid

Collected by: James Roman | Collected date/time: 02/22/23 16:10 | Received date/time: 02/24/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2012593	1	02/24/23 16:40	02/24/23 16:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2012959	1	02/25/23 13:33	02/27/23 11:27	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2012815	5	02/25/23 10:44	02/26/23 13:21	SJM	Mt. Juliet, TN

SO-2494-EX-1-03W-2.0-022223 L1589045-08 Solid

Collected by: James Roman
Collected date/time: 02/22/23 16:15
Received date/time: 02/24/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2012593	1	02/24/23 16:40	02/24/23 16:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2012959	1	02/25/23 13:33	02/27/23 11:30	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2012815	5	02/25/23 10:44	02/26/23 13:25	SJM	Mt. Juliet, TN

SO-2494-DUP-8-022223 L1589045-09 Solid

Collected by: James Roman
Collected date/time: 02/22/23 12:00
Received date/time: 02/24/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2012593	1	02/24/23 16:40	02/24/23 16:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2012959	1	02/25/23 13:33	02/27/23 11:32	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2012815	5	02/25/23 10:44	02/26/23 13:28	SJM	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.0		1	02/24/2023 16:50	WG2012593

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0404	1	02/27/2023 10:57	WG2012959

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	6480		6.97	50.5	5	02/26/2023 12:45	WG2012815
Arsenic	6.98		0.101	1.01	5	02/26/2023 12:45	WG2012815
Barium	35.4		0.153	2.52	5	02/26/2023 12:45	WG2012815
Chromium	8.09		0.299	5.05	5	02/26/2023 12:45	WG2012815
Copper	22.8		0.133	5.05	5	02/26/2023 12:45	WG2012815

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.8		1	02/24/2023 16:50	WG2012593

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0405	1	02/27/2023 11:00	WG2012959

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9670		6.99	50.6	5	02/26/2023 12:23	WG2012815
Arsenic	5.88		0.101	1.01	5	02/26/2023 12:23	WG2012815
Barium	40.0		0.154	2.53	5	02/26/2023 12:23	WG2012815
Chromium	10.6		0.300	5.06	5	02/26/2023 12:23	WG2012815
Copper	30.5		0.134	5.06	5	02/26/2023 12:23	WG2012815

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.1		1	02/24/2023 16:50	WG2012593

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0196	J	0.0184	0.0408	1	02/27/2023 11:07	WG2012959

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9830		7.04	51.0	5	02/26/2023 13:12	WG2012815
Arsenic	6.22		0.102	1.02	5	02/26/2023 13:12	WG2012815
Barium	67.4		0.155	2.55	5	02/26/2023 13:12	WG2012815
Chromium	11.5		0.302	5.10	5	02/26/2023 13:12	WG2012815
Copper	22.9		0.135	5.10	5	02/26/2023 13:12	WG2012815

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Mercury	U		0.000100	0.000200	1	02/27/2023 10:20	WG2013226

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Aluminum	U		0.0185	0.100	1	02/26/2023 13:00	WG2012805
Arsenic	U		0.000180	0.00200	1	02/26/2023 13:00	WG2012805
Barium	U		0.000381	0.00200	1	02/26/2023 13:00	WG2012805
Chromium	U		0.00124	0.00200	1	02/26/2023 13:00	WG2012805
Copper	U		0.00151	0.00500	1	02/26/2023 13:00	WG2012805

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.0		1	02/24/2023 16:50	WG2012593

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0184	0.0408	1	02/27/2023 11:09	WG2012959

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10200		7.04	51.0	5	02/26/2023 13:15	WG2012815
Arsenic	7.32		0.102	1.02	5	02/26/2023 13:15	WG2012815
Barium	46.7		0.155	2.55	5	02/26/2023 13:15	WG2012815
Chromium	11.3		0.302	5.10	5	02/26/2023 13:15	WG2012815
Copper	24.0		0.135	5.10	5	02/26/2023 13:15	WG2012815

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.0		1	02/24/2023 16:50	WG2012593

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0404	1	02/27/2023 11:12	WG2012959

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5190		6.97	50.5	5	02/26/2023 13:18	WG2012815
Arsenic	6.03		0.101	1.01	5	02/26/2023 13:18	WG2012815
Barium	47.2		0.153	2.52	5	02/26/2023 13:18	WG2012815
Chromium	6.24		0.299	5.05	5	02/26/2023 13:18	WG2012815
Copper	17.0		0.133	5.05	5	02/26/2023 13:18	WG2012815

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.7		1	02/24/2023 16:50	WG2012593

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0180	0.0401	1	02/27/2023 11:27	WG2012959

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8590		6.92	50.1	5	02/26/2023 13:21	WG2012815
Arsenic	6.91		0.100	1.00	5	02/26/2023 13:21	WG2012815
Barium	60.0		0.152	2.51	5	02/26/2023 13:21	WG2012815
Chromium	11.0		0.297	5.01	5	02/26/2023 13:21	WG2012815
Copper	19.7		0.132	5.01	5	02/26/2023 13:21	WG2012815

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.2		1	02/24/2023 16:50	WG2012593

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0403	1	02/27/2023 11:30	WG2012959

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5430		6.95	50.4	5	02/26/2023 13:25	WG2012815
Arsenic	8.35		0.101	1.01	5	02/26/2023 13:25	WG2012815
Barium	43.2		0.153	2.52	5	02/26/2023 13:25	WG2012815
Chromium	6.25		0.298	5.04	5	02/26/2023 13:25	WG2012815
Copper	18.5		0.133	5.04	5	02/26/2023 13:25	WG2012815

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.5		1	02/24/2023 16:50	WG2012593

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	02/27/2023 11:32	WG2012959

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	7800		6.94	50.3	5	02/26/2023 13:28	WG2012815
Arsenic	5.11		0.101	1.01	5	02/26/2023 13:28	WG2012815
Barium	41.8		0.153	2.51	5	02/26/2023 13:28	WG2012815
Chromium	8.56		0.298	5.03	5	02/26/2023 13:28	WG2012815
Copper	21.5		0.133	5.03	5	02/26/2023 13:28	WG2012815

Method Blank (MB)

(MB) R3894852-1 02/24/23 16:50

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00200			

L1587691-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1587691-01 02/24/23 16:50 • (DUP) R3894852-3 02/24/23 16:50

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	89.5	88.8	1	0.706		10

Laboratory Control Sample (LCS)

(LCS) R3894852-2 02/24/23 16:50

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

Method Blank (MB)

(MB) R3895118-1 02/27/23 09:42

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3895118-2 02/27/23 09:44

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00295	98.3	80.0-120	

L1588855-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588855-05 02/27/23 09:47 • (MS) R3895118-3 02/27/23 09:49 • (MSD) R3895118-4 02/27/23 09:58

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	U	0.00291	0.00288	97.0	96.0	1	75.0-125			1.04	20

QUALITY CONTROL SUMMARY

L1589045-01,02,03,05,06,07,08,09

Method Blank (MB)

(MB) R3895171-1 02/27/23 10:27

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3895171-2 02/27/23 10:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.546	109	80.0-120	

L1589054-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1589054-02 02/27/23 10:32 • (MS) R3895171-3 02/27/23 10:35 • (MSD) R3895171-4 02/27/23 10:37

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.651	0.0689	0.730	0.678	102	93.5	1	75.0-125			7.44	20

Method Blank (MB)

(MB) R3894953-1 02/26/23 12:04

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aluminum	U		0.0185	0.100
Arsenic	U		0.000180	0.00200
Barium	U		0.000381	0.00200
Chromium	U		0.00124	0.00200
Copper	U		0.00151	0.00500

Laboratory Control Sample (LCS)

(LCS) R3894953-2 02/26/23 12:08

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	5.00	5.08	102	80.0-120	
Arsenic	0.0500	0.0500	99.9	80.0-120	
Barium	0.0500	0.0488	97.5	80.0-120	
Chromium	0.0500	0.0508	102	80.0-120	
Copper	0.0500	0.0513	103	80.0-120	

L1588936-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588936-01 02/26/23 12:11 • (MS) R3894953-4 02/26/23 12:17 • (MSD) R3894953-5 02/26/23 12:21

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	5.00	4.16	5.22	5.18	21.3	20.4	1	75.0-125	J6	J6	0.906	20
Arsenic	0.0500	0.000781	0.0511	0.0505	101	99.5	1	75.0-125			1.06	20
Barium	0.0500	0.178	0.156	0.156	0.000	0.000	1	75.0-125	J6	J6	0.114	20
Chromium	0.0500	U	0.0524	0.0526	105	105	1	75.0-125			0.489	20
Copper	0.0500	U	0.0508	0.0513	102	103	1	75.0-125			0.906	20

QUALITY CONTROL SUMMARY

L1589045-01,02,03,05,06,07,08,09

Method Blank (MB)

(MB) R3894965-1 02/26/23 12:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3894965-2 02/26/23 12:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	967	96.7	80.0-120	
Arsenic	100	96.2	96.2	80.0-120	
Barium	100	92.7	92.7	80.0-120	
Chromium	100	99.4	99.4	80.0-120	
Copper	100	95.0	95.0	80.0-120	

L1589045-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1589045-02 02/26/23 12:23 • (MS) R3894965-5 02/26/23 12:33 • (MSD) R3894965-6 02/26/23 12:36

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1010	9670	10600	8470	86.9	0.000	5	75.0-125		J3 V	21.9	20
Arsenic	101	5.88	88.3	90.5	81.4	83.6	5	75.0-125			2.47	20
Barium	101	40.0	128	119	86.4	78.2	5	75.0-125			6.72	20
Chromium	101	10.6	98.7	98.5	87.0	86.8	5	75.0-125			0.223	20
Copper	101	30.5	114	112	82.9	80.0	5	75.0-125			2.60	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
James Roman

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):
James Roman

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
X Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed
2/28/2023

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1589045

Table # **G114**

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P972608**
PM: **134 - Mark W. Beasley**
PB: 2/29 edited
Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres	Al,As,Ba,Cr,Cu,Hg 250mL MDPE w/HNO3								Remarks	Sample # (lab only)
SO-2494-EX-2-B1B-4.0-022123	G	SS	4 ft	2-21-2023	1630	1	X										01
SO-2494-EX-2-B2B-4.0-022123	"	"	4	"	1640	1	X										02
SO-2494-EX-2-B3W-2.0-022123	"	"	2	"	1650	1	X										03
RB-2494-8-022223	G	AQ	-	2-22-23	1400	1		1									04
SO-2494-EX-2-B4B-6.0-022223	G	SS	6 ft	2-22-2023	1540	1	X										05
SO-2494-EX-1-B1B-6.0-022223	"	"	6	"	1600	1	X										06
SO-2494-EX-1-B2B-4.0-022223	"	"	4	"	1610	1	X										07
SO-2494-EX-1-B3W-2.0-022223	"	"	2	"	1615	1	X										08
SO-2494-DUP-8-022223	G	SS	6	2-22-23	1200	1	X										09

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al,As,Ba,Cr,Cu Hg by 6020 by 7471 Custody Seal #1 Custody Seal #2

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier _____

Tracking # 6694 5475 5125

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	2-23-2023	1145			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.1°C Bottles Received: 9	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 02-24-23 Time: 0845	Hold: Condition: NCF / OK

ANALYTICAL REPORT

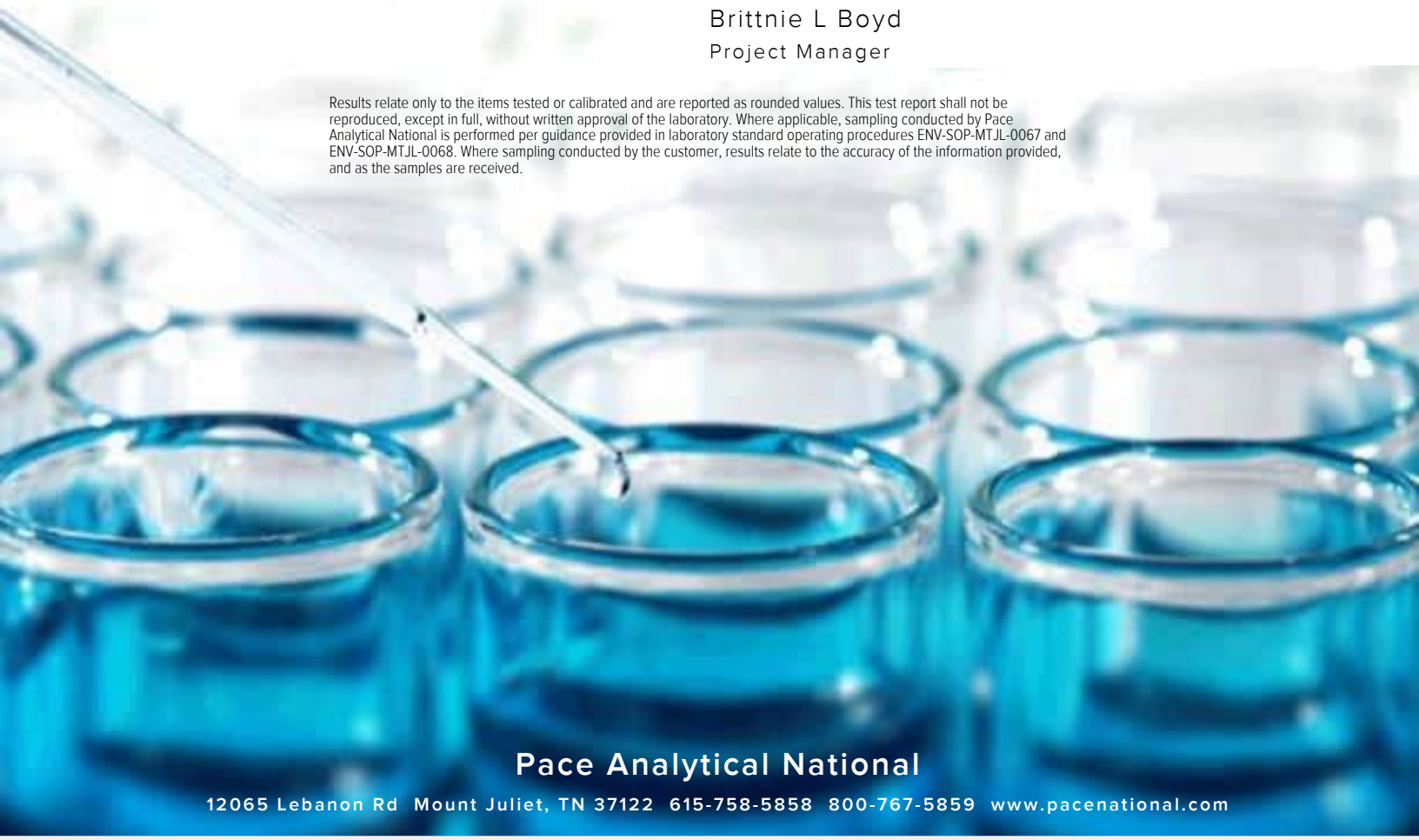
February 27, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1589381
Samples Received:	02/25/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	IMPORTED BACKFILL SOIL AND GRA
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-EX-1-04B-4.0-022423 L1589381-01 Solid

Collected by: James Roman
Collected date/time: 02/24/23 12:00
Received date/time: 02/25/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2012972	1	02/25/23 14:44	02/25/23 15:20	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2012985	1	02/25/23 15:18	02/27/23 10:17	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2013417	5	02/27/23 10:40	02/27/23 13:05	JPD	Mt. Juliet, TN

SO-2494-EX-1-05B-4.0-022423 L1589381-02 Solid

Collected by: James Roman
Collected date/time: 02/24/23 12:10
Received date/time: 02/25/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2012972	1	02/25/23 14:44	02/25/23 15:20	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2012985	1	02/25/23 15:18	02/27/23 10:20	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2013417	5	02/27/23 10:40	02/27/23 13:21	JPD	Mt. Juliet, TN

SO-2494-EX-1-06W-2.0-022423 L1589381-03 Solid

Collected by: James Roman
Collected date/time: 02/24/23 12:15
Received date/time: 02/25/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2012972	1	02/25/23 14:44	02/25/23 15:20	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2012985	1	02/25/23 15:18	02/27/23 10:22	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2013417	5	02/27/23 10:40	02/27/23 13:24	JPD	Mt. Juliet, TN

SO-2494-EX-1-07B-4.0-022423 L1589381-04 Solid

Collected by: James Roman
Collected date/time: 02/24/23 12:30
Received date/time: 02/25/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2012972	1	02/25/23 14:44	02/25/23 15:20	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2012985	1	02/25/23 15:18	02/27/23 10:25	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2013417	5	02/27/23 10:40	02/27/23 13:28	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.8		1	02/25/2023 15:20	WG2012972

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0184	0.0409	1	02/27/2023 10:17	WG2012985

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	16900		7.05	51.1	5	02/27/2023 13:05	WG2013417
Arsenic	7.01		0.102	1.02	5	02/27/2023 13:05	WG2013417
Barium	69.3		0.155	2.56	5	02/27/2023 13:05	WG2013417
Chromium	9.83		0.303	5.11	5	02/27/2023 13:05	WG2013417
Copper	35.3		0.135	5.11	5	02/27/2023 13:05	WG2013417

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.8		1	02/25/2023 15:20	WG2012972

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0180	0.0401	1	02/27/2023 10:20	WG2012985

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	2320		6.91	50.1	5	02/27/2023 13:21	WG2013417
Arsenic	3.33		0.100	1.00	5	02/27/2023 13:21	WG2013417
Barium	25.3		0.152	2.50	5	02/27/2023 13:21	WG2013417
Chromium	2.37	J	0.296	5.01	5	02/27/2023 13:21	WG2013417
Copper	12.0		0.132	5.01	5	02/27/2023 13:21	WG2013417

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.8		1	02/25/2023 15:20	WG2012972

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0186	0.0413	1	02/27/2023 10:22	WG2012985

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	6960		7.13	51.6	5	02/27/2023 13:24	WG2013417
Arsenic	2.98		0.103	1.03	5	02/27/2023 13:24	WG2013417
Barium	61.4		0.157	2.58	5	02/27/2023 13:24	WG2013417
Chromium	8.86		0.306	5.16	5	02/27/2023 13:24	WG2013417
Copper	17.8		0.136	5.16	5	02/27/2023 13:24	WG2013417

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.2		1	02/25/2023 15:20	WG2012972

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0187	0.0416	1	02/27/2023 10:25	WG2012985

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	7310		7.17	52.0	5	02/27/2023 13:28	WG2013417
Arsenic	4.25		0.104	1.04	5	02/27/2023 13:28	WG2013417
Barium	95.9		0.158	2.60	5	02/27/2023 13:28	WG2013417
Chromium	7.38		0.308	5.20	5	02/27/2023 13:28	WG2013417
Copper	26.9		0.137	5.20	5	02/27/2023 13:28	WG2013417

Method Blank (MB)

(MB) R3895055-1 02/25/23 15:20

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1589381-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1589381-01 02/25/23 15:20 • (DUP) R3895055-3 02/25/23 15:20

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	97.8	97.8	1	0.0260		10

Laboratory Control Sample (LCS)

(LCS) R3895055-2 02/25/23 15:20

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

QUALITY CONTROL SUMMARY

L1589381-01,02,03,04

Method Blank (MB)

(MB) R3895170-1 02/27/23 09:17

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3895170-2 02/27/23 09:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.501	100	80.0-120	

L1589126-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1589126-07 02/27/23 09:22 • (MS) R3895170-3 02/27/23 09:24 • (MSD) R3895170-4 02/27/23 09:27

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	U	0.394	0.473	78.8	94.6	1	75.0-125			18.2	20

Method Blank (MB)

(MB) R3895239-1 02/27/23 12:59

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3895239-2 02/27/23 13:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	952	95.2	80.0-120	
Arsenic	100	93.7	93.7	80.0-120	
Barium	100	93.3	93.3	80.0-120	
Chromium	100	95.0	95.0	80.0-120	
Copper	100	87.1	87.1	80.0-120	

L1589381-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1589381-01 02/27/23 13:05 • (MS) R3895239-5 02/27/23 13:15 • (MSD) R3895239-6 02/27/23 13:18

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1020	16900	16200	16300	0.000	0.000	5	75.0-125	V	V	0.892	20
Arsenic	102	7.01	94.7	96.3	85.8	87.3	5	75.0-125			1.67	20
Barium	102	69.3	157	151	85.6	80.2	5	75.0-125			3.60	20
Chromium	102	9.83	100	102	88.4	89.7	5	75.0-125			1.26	20
Copper	102	35.3	115	115	77.9	77.6	5	75.0-125			0.240	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

~~18300 NE Union Hill Rd #200~~
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To: **tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com**

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
James Roman

Site/Facility ID #
IMPORTED BACKFILL SOIL AND

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed
2/28/2023

No. of Cntrs

Analysis / Container / Preservative

Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1589381

Table # G149

Acctnum: **UPRRGOLD**
Template: **T223917**
Prelogin: **P978676**
PM: **829 - Brittnie L Boyd**
PB: dt 2/2/23

Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres	Remarks	Sample # (lab only)
SO-2494-EX-1-Q4B-4.0-022423	G	SS	4	2-24-2023	1200	1	X		-01
SO-2494-EX-1-Q5B-4.0-022423	G	SS	4	"	1210	1	X		-02
SO-2494-EX-1-Q6W-2.0-022423	G	SS	2	"	1215	1	X		-03
SO-2494-EX-1-Q7B-4.0-022423	G	SS	4	"	1230	1	X		-04
		SS				1	X		
		SS				1	X		
		SS				1	X		
		SS				1	X		
		SS				1	X		
		SS				1	X		
		SS				1	X		

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, Ba, As, Cu, Cr by 6020 / Hg by 7471 | Custody Seal

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier _____

Tracking # 6094 5475 5170

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
Tom	1-24-2023	1530			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C 3.2+0.3=3.2 Bottles Received: 4	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) HAWA MWECHIWA	Date: 02-25-23 Time: 0845	Hold: Condition: NCF / OK

ANALYTICAL REPORT

March 01, 2023

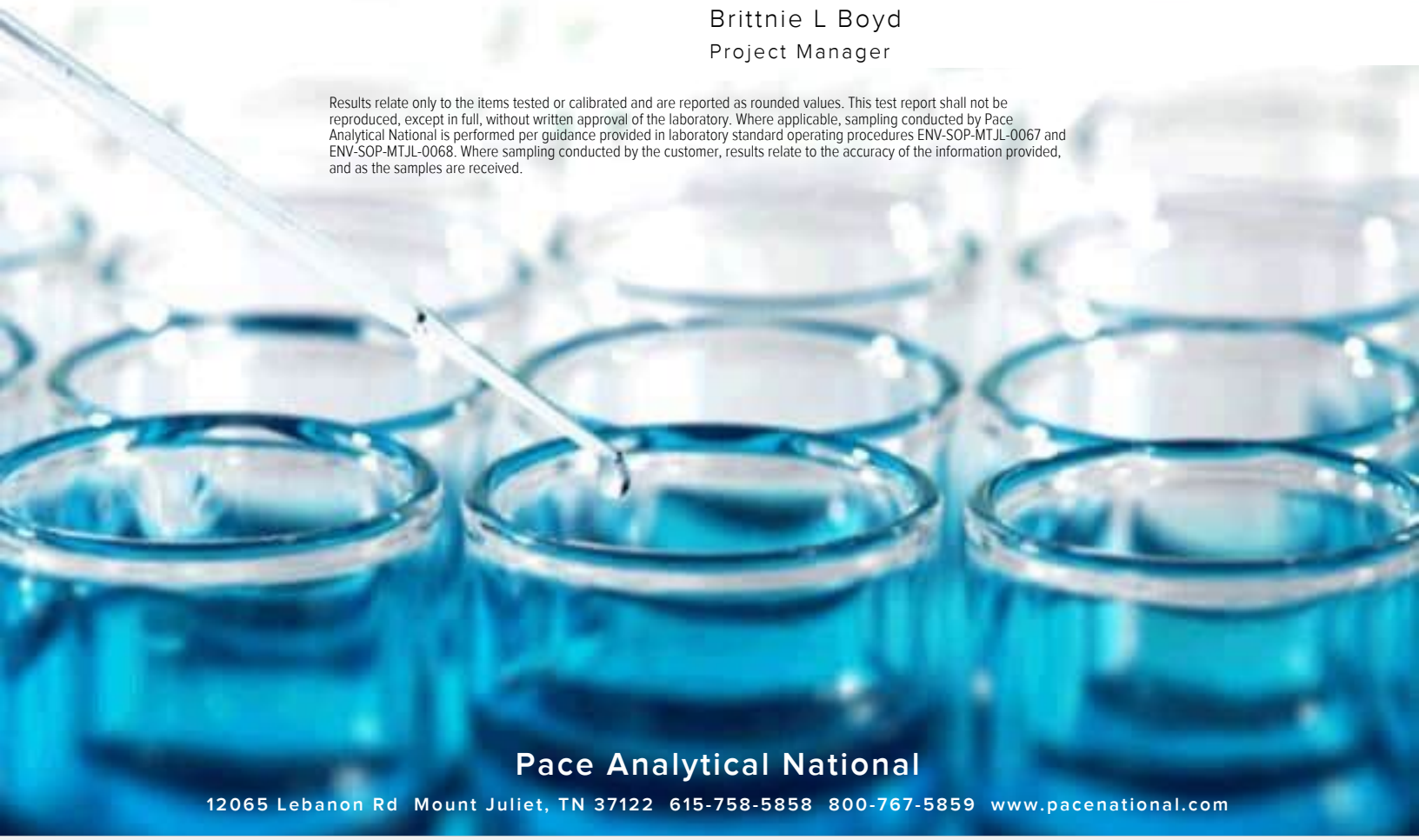
UPRR - Golder Associates

Sample Delivery Group:	L1589780
Samples Received:	02/22/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-W1-05-4.0-022023 L1589780-01 Solid

Collected by: James Roman
Collected date/time: 02/20/23 12:05
Received date/time: 02/22/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014160	1	02/28/23 12:44	02/28/23 12:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:31	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2014125	5	02/28/23 12:13	02/28/23 13:47	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2014125	50	02/28/23 12:13	02/28/23 14:03	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.9		1	02/28/2023 12:50	WG2014160

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0404	1	02/28/2023 17:31	WG2014197

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5610		69.7	505	50	02/28/2023 14:03	WG2014125
Arsenic	14.6	O1	0.101	1.01	5	02/28/2023 13:47	WG2014125
Barium	61.7	O1	0.154	2.53	5	02/28/2023 13:47	WG2014125
Chromium	7.05	B O1	0.299	5.05	5	02/28/2023 13:47	WG2014125
Copper	26.6	O1	0.133	5.05	5	02/28/2023 13:47	WG2014125

Method Blank (MB)

(MB) R3896005-1 02/28/23 12:50

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1588269-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1588269-20 02/28/23 12:50 • (DUP) R3896005-3 02/28/23 12:50

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	87.4	89.4	1	2.19		10

Laboratory Control Sample (LCS)

(LCS) R3896005-2 02/28/23 12:50

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

Method Blank (MB)

(MB) R3895901-1 02/28/23 17:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3895901-2 02/28/23 17:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.528	106	80.0-120	

L1588269-20 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588269-20 02/28/23 17:16 • (MS) R3895901-3 02/28/23 17:19 • (MSD) R3895901-4 02/28/23 17:21

Analyte	Spike Amount (dry) mg/kg	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.572	0.0251	0.704	0.693	119	117	1	75.0-125			1.59	20

Method Blank (MB)

(MB) R3895734-1 02/28/23 13:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	0.762	J	0.297	5.00
Copper	0.218	J	0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3895734-2 02/28/23 13:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	939	93.9	80.0-120	
Arsenic	100	96.1	96.1	80.0-120	
Barium	100	94.5	94.5	80.0-120	
Chromium	100	98.7	98.7	80.0-120	
Copper	100	88.9	88.9	80.0-120	

L1589780-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1589780-01 02/28/23 13:47 • (MS) R3895734-5 02/28/23 13:57 • (MSD) R3895734-6 02/28/23 14:00

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1010	5870	7070	6810	119	92.7	5	75.0-125			3.83	20
Arsenic	101	14.6	110	104	94.3	88.6	5	75.0-125			5.36	20
Barium	101	61.7	159	148	96.4	85.4	5	75.0-125	E	E	7.23	20
Chromium	101	7.05	104	98.6	96.4	90.5	5	75.0-125			5.84	20
Copper	101	26.6	119	108	91.8	80.5	5	75.0-125			10.1	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
James Roman

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: 2/23/2023

No. of Cntrs

Analysis / Container / Preservative

Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres	Remarks	Sample # (lab only)
SO-2494-W1-05-3.0-022423	G	SS	3.0 ft	2-20-2023	1200	1	X		-01
SO-2494-W1-06-4.0-022023	"	"	4.0	"	1220	1	X		-02
SO-2494-W1-33-3.0-022023	"	"	3.0	"	1230	1	X		-03
SO-2494-W1-05-4.0-022023	G	SS	4.0	2/20/23	1205	1	X	HOLD	-04 -01
SO-2494-W1-33-4.0-022023	G	SS	4.0	2/20/23	1235	1	X	HOLD	-05

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cu, Cr by 6020
Hg by 7471
Place W1-05-4.0, W1-33-4.0 samples on hold

Seal # 14157

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6094 5475 5103

Relinquished by : (Signature)

Date: 2-21-2023 Time: 1530

Received by: (Signature)

Trip Blank Received: Yes / (No) HCL / MeoH TBR

Relinquished by : (Signature)

Date: Time:

Received by: (Signature)

Temp: NSA6 °C Bottles Received: 0.5 to 0.5 5

If preservation required by Login: Date/Time

Relinquished by : (Signature)

Date: Time:

Received for lab by: (Signature)

Date: 2-22-23 Time: 0845

Hold:

Condition: NCF / (OK)

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1589452 L1589478

F132 L1589780

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P972608**
PM: 134 - Mark W. Beasley
PB:

Shipped Via: **FedEX Ground**

L1587995 *UPRRGOLD* Relog R1

R0/R1

Please relog L1587995-04 for ALG, ASG, BAG, CRG, CUG, HG, TS. Log as R1 due 03/01.

Thank you,
Brittnie

From: Roman, James <James.Roman@wsp.com>
Sent: Monday, February 27, 2023 11:01 PM
To: Brittnie Boyd <Brittnie.Boyd@pacelabs.com>
Cc: tnorton@golder.com
Subject: RE: Pace Analytical National Level II Report for 2494 Trentwood WA-Aluminum Dross II L1587995

Hi Brittnie,

Please analyze Lab Sample L1587995-04 (a.k.a. Sample ID "SO-2494-W1-05-4.0-022023") for the listed 6 metals. Results by 3/01 would be great.

Thank you and let me know if you have any questions or concerns,
Roman

James Roman III, EIT
Associate Consultant, Hydrogeologist
C: +1 209 712 8498

[cid:image001.png@01D94AEE.84A24840]

Time estimate: oh **Time spent:** oh

Members

BB Brittnie Boyd (responsible)

ANALYTICAL REPORT

March 02, 2023

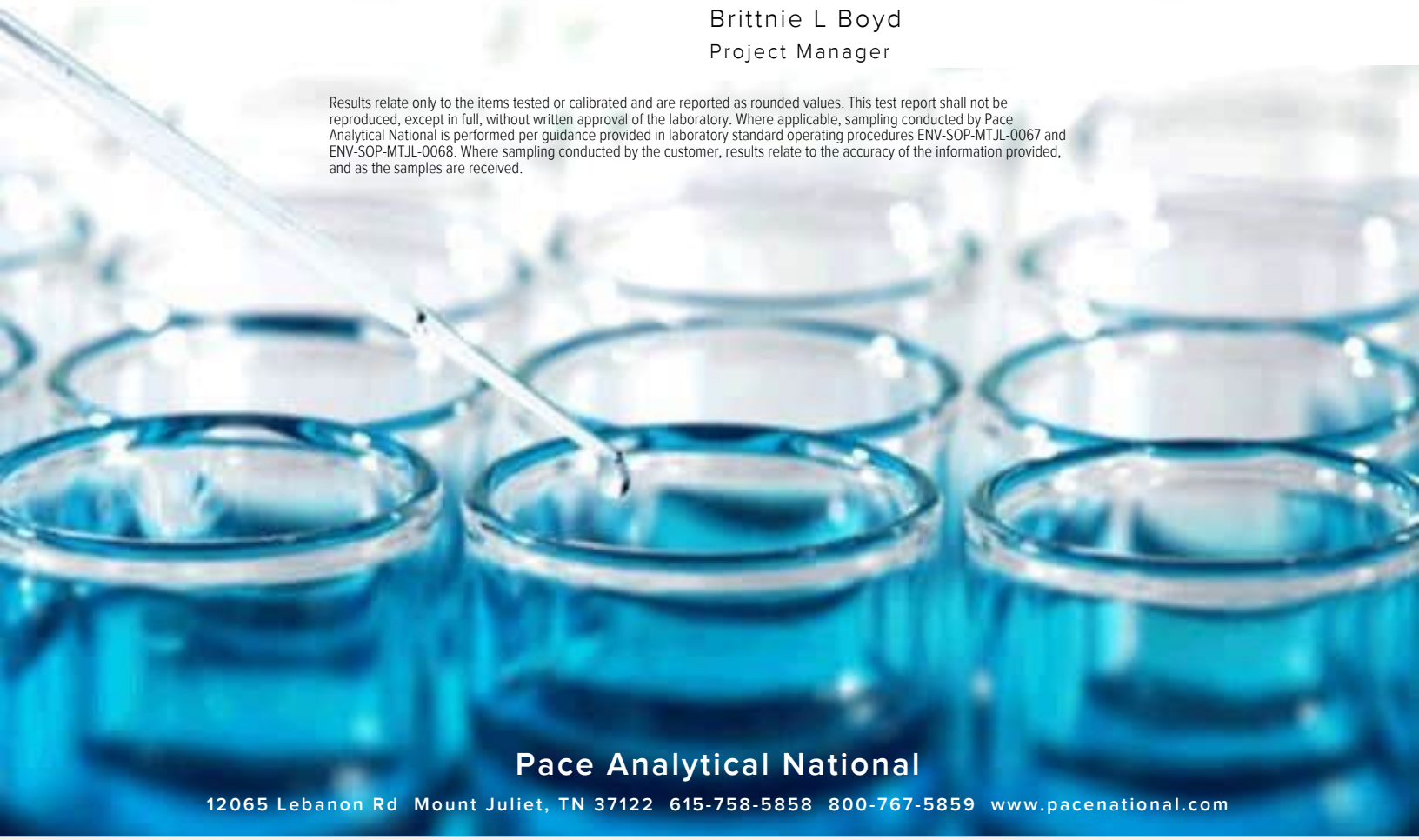
UPRR - Golder Associates

Sample Delivery Group:	L1589831
Samples Received:	02/28/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	IMPORTED BACKFILL SOIL AND GRA
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

BF5-2494-01-022723 L1589831-01 Solid

Collected by: James Roman | Collected date/time: 02/27/23 11:00 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014160	1	02/28/23 12:44	02/28/23 12:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:34	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:27	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	25.3	02/27/23 11:00	02/28/23 21:45	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 20:11	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 00:46	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	02/28/23 22:59	AMG	Mt. Juliet, TN

BF5-2494-02-022723 L1589831-02 Solid

Collected by: James Roman | Collected date/time: 02/27/23 11:10 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014160	1	02/28/23 12:44	02/28/23 12:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:41	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:30	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	27.5	02/27/23 11:10	02/28/23 22:10	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 20:24	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 01:07	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	02/28/23 23:17	AMG	Mt. Juliet, TN

BF5-2494-03-022723 L1589831-03 Solid

Collected by: James Roman | Collected date/time: 02/27/23 11:20 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014160	1	02/28/23 12:44	02/28/23 12:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:44	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:33	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	25.3	02/27/23 11:20	02/28/23 22:35	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 20:37	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 01:27	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	02/28/23 23:35	AMG	Mt. Juliet, TN

BF5-2494-04-022723 L1589831-04 Solid

Collected by: James Roman | Collected date/time: 02/27/23 11:30 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014160	1	02/28/23 12:44	02/28/23 12:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:46	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:40	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	35.5	02/27/23 11:30	02/28/23 22:59	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 21:16	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 01:48	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	02/28/23 23:52	AMG	Mt. Juliet, TN

BF5-2494-05-022723 L1589831-05 Solid

Collected by: James Roman | Collected date/time: 02/27/23 11:40 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014160	1	02/28/23 12:44	02/28/23 12:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:49	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:43	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	25	02/27/23 11:40	02/28/23 23:24	KSD	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

BF5-2494-05-022723 L1589831-05 Solid

Collected by: James Roman | Collected date/time: 02/27/23 11:40 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 21:29	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 02:08	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	03/01/23 00:10	AMG	Mt. Juliet, TN

TS2-2494-01-022723 L1589831-06 Solid

Collected by: James Roman | Collected date/time: 02/27/23 12:15 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014160	1	02/28/23 12:44	02/28/23 12:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:51	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:46	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	25.5	02/27/23 12:15	02/28/23 23:49	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 21:43	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 02:49	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	03/01/23 00:28	AMG	Mt. Juliet, TN

TS2-2494-02-022723 L1589831-07 Solid

Collected by: James Roman | Collected date/time: 02/27/23 12:20 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014160	1	02/28/23 12:44	02/28/23 12:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:54	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:48	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	25	02/27/23 12:20	03/01/23 00:14	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 21:55	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 03:09	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	03/01/23 00:46	AMG	Mt. Juliet, TN

TS2-2494-03-022723 L1589831-08 Solid

Collected by: James Roman | Collected date/time: 02/27/23 12:30 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014161	1	02/28/23 12:51	02/28/23 12:56	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:56	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:51	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	29.3	02/27/23 12:30	03/01/23 00:38	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 22:08	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 03:30	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	03/01/23 01:03	AMG	Mt. Juliet, TN

TS2-2494-04-022723 L1589831-09 Solid

Collected by: James Roman | Collected date/time: 02/27/23 12:45 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014161	1	02/28/23 12:51	02/28/23 12:56	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:59	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:54	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014774	25	02/27/23 12:45	03/01/23 14:57	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 22:21	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 05:12	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	03/01/23 01:21	AMG	Mt. Juliet, TN

SAMPLE SUMMARY

TS2-2494-05-022723 L1589831-10 Solid

Collected by: James Roman
Collected date/time: 02/27/23 12:55
Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014161	1	02/28/23 12:51	02/28/23 12:56	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 18:01	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:14	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	25.8	02/27/23 12:55	03/01/23 01:03	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 22:34	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 03:50	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	03/01/23 01:40	AMG	Mt. Juliet, TN

TB-2494-3-022723 L1589831-11 GW

Collected by: James Roman
Collected date/time: 02/27/23 12:00
Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014576	1	03/01/23 00:51	03/01/23 00:51	ACG	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.2		1	02/28/2023 12:50	WG2014160

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0197	0.0439	1	02/28/2023 17:34	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12000		6.67	11.0	1	02/28/2023 15:27	WG2014195
Arsenic	3.27		0.568	2.19	1	02/28/2023 15:27	WG2014195
Barium	109		0.0935	0.548	1	02/28/2023 15:27	WG2014195
Cadmium	0.0986	J	0.0517	0.548	1	02/28/2023 15:27	WG2014195
Chromium	11.9		0.146	1.10	1	02/28/2023 15:27	WG2014195
Copper	15.0		0.439	2.19	1	02/28/2023 15:27	WG2014195
Lead	16.2		0.228	0.548	1	02/28/2023 15:27	WG2014195
Selenium	U		0.838	2.19	1	02/28/2023 15:27	WG2014195
Silver	U		0.139	1.10	1	02/28/2023 15:27	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.02	3.02	25.3	02/28/2023 21:45	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*91.0*			*77.0-120*		*02/28/2023 21:45*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.46	4.39	1	02/28/2023 20:11	WG2014151
Residual Range Organics (RRO)	U		3.65	11.0	1	02/28/2023 20:11	WG2014151
(S) o-Terphenyl	*60.6*			*18.0-148*		*02/28/2023 20:11*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00591	0.0365	1	03/01/2023 00:46	WG2014199
Acenaphthylene	U		0.00514	0.0365	1	03/01/2023 00:46	WG2014199
Anthracene	U		0.00651	0.0365	1	03/01/2023 00:46	WG2014199
Benzo(a)anthracene	U		0.00644	0.0365	1	03/01/2023 00:46	WG2014199
Benzo(b)fluoranthene	U		0.00681	0.0365	1	03/01/2023 00:46	WG2014199
Benzo(k)fluoranthene	U		0.00649	0.0365	1	03/01/2023 00:46	WG2014199
Benzo(g,h,i)perylene	U		0.00668	0.0365	1	03/01/2023 00:46	WG2014199
Benzo(a)pyrene	U		0.00679	0.0365	1	03/01/2023 00:46	WG2014199
Benzoic acid	U		0.129	1.83	1	03/01/2023 00:46	WG2014199
Benzyl alcohol	U		0.0135	0.365	1	03/01/2023 00:46	WG2014199
Bis(2-chlorethoxy)methane	U		0.0110	0.365	1	03/01/2023 00:46	WG2014199
Bis(2-chloroethyl)ether	U		0.0121	0.365	1	03/01/2023 00:46	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0158	0.365	1	03/01/2023 00:46	WG2014199
4-Bromophenyl-phenylether	U		0.0128	0.365	1	03/01/2023 00:46	WG2014199
Carbazole	U		0.0113	0.365	1	03/01/2023 00:46	WG2014199
2-Chloronaphthalene	U		0.00642	0.0365	1	03/01/2023 00:46	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0132	0.365	1	03/01/2023 00:46	WG2014199
4-Chlorophenyl-phenylether	U		0.0127	0.365	1	03/01/2023 00:46	WG2014199
Chrysene	U		0.00726	0.0365	1	03/01/2023 00:46	WG2014199
Dibenz(a,h)anthracene	U		0.0101	0.0365	1	03/01/2023 00:46	WG2014199
Dibenzofuran	U		0.0120	0.365	1	03/01/2023 00:46	WG2014199
3,3-Dichlorobenzidine	U		0.0135	0.365	1	03/01/2023 00:46	WG2014199
2,4-Dinitrotoluene	U		0.0105	0.365	1	03/01/2023 00:46	WG2014199
2,6-Dinitrotoluene	U		0.0120	0.365	1	03/01/2023 00:46	WG2014199
Fluoranthene	U		0.00659	0.0365	1	03/01/2023 00:46	WG2014199
Fluorene	U		0.00595	0.0365	1	03/01/2023 00:46	WG2014199
Hexachlorobenzene	U		0.0129	0.365	1	03/01/2023 00:46	WG2014199
Hexachloro-1,3-butadiene	U		0.0123	0.365	1	03/01/2023 00:46	WG2014199
Hexachlorocyclopentadiene	U		0.0192	0.365	1	03/01/2023 00:46	WG2014199
Hexachloroethane	U		0.0144	0.365	1	03/01/2023 00:46	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0103	0.0365	1	03/01/2023 00:46	WG2014199
Isophorone	U		0.0112	0.365	1	03/01/2023 00:46	WG2014199
2-Methylnaphthalene	U		0.00474	0.0365	1	03/01/2023 00:46	WG2014199
Naphthalene	U		0.00917	0.0365	1	03/01/2023 00:46	WG2014199
2-Nitroaniline	U		0.0117	0.365	1	03/01/2023 00:46	WG2014199
3-Nitroaniline	U		0.0116	0.365	1	03/01/2023 00:46	WG2014199
4-Nitroaniline	U		0.0107	0.365	1	03/01/2023 00:46	WG2014199
Nitrobenzene	U		0.0127	0.365	1	03/01/2023 00:46	WG2014199
n-Nitrosodimethylamine	U		0.0542	0.365	1	03/01/2023 00:46	WG2014199
n-Nitrosodiphenylamine	U		0.0276	0.365	1	03/01/2023 00:46	WG2014199
n-Nitrosodi-n-propylamine	U		0.0122	0.365	1	03/01/2023 00:46	WG2014199
Phenanthrene	U		0.00725	0.0365	1	03/01/2023 00:46	WG2014199
Benzylbutyl phthalate	U		0.0114	0.365	1	03/01/2023 00:46	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0463	0.365	1	03/01/2023 00:46	WG2014199
Di-n-butyl phthalate	U		0.0125	0.365	1	03/01/2023 00:46	WG2014199
Diethyl phthalate	U		0.0121	0.365	1	03/01/2023 00:46	WG2014199
Dimethyl phthalate	U		0.0774	0.365	1	03/01/2023 00:46	WG2014199
Di-n-octyl phthalate	U		0.0247	0.365	1	03/01/2023 00:46	WG2014199
Pyrene	U		0.00711	0.0365	1	03/01/2023 00:46	WG2014199
Pyridine	U		0.0241	0.365	1	03/01/2023 00:46	WG2014199
1,2,4-Trichlorobenzene	U		0.0114	0.365	1	03/01/2023 00:46	WG2014199
4-Chloro-3-methylphenol	U		0.0118	0.365	1	03/01/2023 00:46	WG2014199
2-Chlorophenol	U		0.0121	0.365	1	03/01/2023 00:46	WG2014199
2,4-Dichlorophenol	U		0.0106	0.365	1	03/01/2023 00:46	WG2014199
2,4-Dimethylphenol	U		0.00954	0.365	1	03/01/2023 00:46	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0828	0.365	1	03/01/2023 00:46	WG2014199
2,4-Dinitrophenol	U		0.0855	0.365	1	03/01/2023 00:46	WG2014199
2-Methylphenol	U		0.0110	0.365	1	03/01/2023 00:46	WG2014199
3&4-Methyl Phenol	U		0.0114	0.365	1	03/01/2023 00:46	WG2014199
2-Nitrophenol	U		0.0131	0.365	1	03/01/2023 00:46	WG2014199
4-Nitrophenol	U		0.0114	0.365	1	03/01/2023 00:46	WG2014199
Pentachlorophenol	U		0.00983	0.365	1	03/01/2023 00:46	WG2014199
Phenol	U		0.0147	0.365	1	03/01/2023 00:46	WG2014199
2,4,5-Trichlorophenol	U		0.0124	0.365	1	03/01/2023 00:46	WG2014199
2,4,6-Trichlorophenol	U		0.0117	0.365	1	03/01/2023 00:46	WG2014199
(S) 2-Fluorophenol	*58.4*			*12.0-120*		*03/01/2023 00:46*	WG2014199
(S) Phenol-d5	*52.4*			*10.0-120*		*03/01/2023 00:46*	WG2014199
(S) Nitrobenzene-d5	*53.2*			*10.0-122*		*03/01/2023 00:46*	WG2014199
(S) 2-Fluorobiphenyl	*61.5*			*15.0-120*		*03/01/2023 00:46*	WG2014199
(S) 2,4,6-Tribromophenol	*78.6*			*10.0-127*		*03/01/2023 00:46*	WG2014199
(S) p-Terphenyl-d14	*66.4*			*10.0-120*		*03/01/2023 00:46*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00252	0.00658	1	02/28/2023 22:59	WG2014146
Acenaphthene	U		0.00229	0.00658	1	02/28/2023 22:59	WG2014146
Acenaphthylene	U		0.00237	0.00658	1	02/28/2023 22:59	WG2014146
Benzo(a)anthracene	U		0.00190	0.00658	1	02/28/2023 22:59	WG2014146
Benzo(a)pyrene	U		0.00196	0.00658	1	02/28/2023 22:59	WG2014146
Benzo(b)fluoranthene	U		0.00168	0.00658	1	02/28/2023 22:59	WG2014146
Benzo(g,h,i)perylene	U		0.00194	0.00658	1	02/28/2023 22:59	WG2014146
Benzo(k)fluoranthene	U		0.00236	0.00658	1	02/28/2023 22:59	WG2014146
Chrysene	U		0.00255	0.00658	1	02/28/2023 22:59	WG2014146
Dibenz(a,h)anthracene	U		0.00189	0.00658	1	02/28/2023 22:59	WG2014146
Fluoranthene	U		0.00249	0.00658	1	02/28/2023 22:59	WG2014146
Fluorene	U		0.00225	0.00658	1	02/28/2023 22:59	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00199	0.00658	1	02/28/2023 22:59	WG2014146
Naphthalene	U		0.00448	0.0219	1	02/28/2023 22:59	WG2014146
Phenanthrene	U		0.00253	0.00658	1	02/28/2023 22:59	WG2014146
Pyrene	U		0.00219	0.00658	1	02/28/2023 22:59	WG2014146
1-Methylnaphthalene	U		0.00493	0.0219	1	02/28/2023 22:59	WG2014146
2-Methylnaphthalene	U		0.00468	0.0219	1	02/28/2023 22:59	WG2014146
2-Chloronaphthalene	U		0.00511	0.0219	1	02/28/2023 22:59	WG2014146
(S) p-Terphenyl-d14	*76.5*			*23.0-120*		*02/28/2023 22:59*	WG2014146
(S) Nitrobenzene-d5	*81.9*			*14.0-149*		*02/28/2023 22:59*	WG2014146
(S) 2-Fluorobiphenyl	*69.9*			*34.0-125*		*02/28/2023 22:59*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	89.2		1	02/28/2023 12:50	WG2014160

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0202	0.0448	1	02/28/2023 17:41	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	13700		6.82	11.2	1	02/28/2023 15:30	WG2014195
Arsenic	2.91		0.581	2.24	1	02/28/2023 15:30	WG2014195
Barium	110		0.0955	0.561	1	02/28/2023 15:30	WG2014195
Cadmium	0.124	J	0.0528	0.561	1	02/28/2023 15:30	WG2014195
Chromium	11.7		0.149	1.12	1	02/28/2023 15:30	WG2014195
Copper	15.7		0.448	2.24	1	02/28/2023 15:30	WG2014195
Lead	13.1		0.233	0.561	1	02/28/2023 15:30	WG2014195
Selenium	U		0.857	2.24	1	02/28/2023 15:30	WG2014195
Silver	U		0.142	1.12	1	02/28/2023 15:30	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.22	B J	1.15	3.39	27.5	02/28/2023 22:10	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*92.6*			*77.0-120*		*02/28/2023 22:10*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.49	4.48	1	02/28/2023 20:24	WG2014151
Residual Range Organics (RRO)	U		3.73	11.2	1	02/28/2023 20:24	WG2014151
(S) o-Terphenyl	*47.0*			*18.0-148*		*02/28/2023 20:24*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00604	0.0373	1	03/01/2023 01:07	WG2014199
Acenaphthylene	U		0.00526	0.0373	1	03/01/2023 01:07	WG2014199
Anthracene	U		0.00665	0.0373	1	03/01/2023 01:07	WG2014199
Benzo(a)anthracene	U		0.00658	0.0373	1	03/01/2023 01:07	WG2014199
Benzo(b)fluoranthene	U		0.00696	0.0373	1	03/01/2023 01:07	WG2014199
Benzo(k)fluoranthene	U		0.00664	0.0373	1	03/01/2023 01:07	WG2014199
Benzo(g,h,i)perylene	U		0.00683	0.0373	1	03/01/2023 01:07	WG2014199
Benzo(a)pyrene	U		0.00694	0.0373	1	03/01/2023 01:07	WG2014199
Benzoic acid	U		0.132	1.87	1	03/01/2023 01:07	WG2014199
Benzyl alcohol	U		0.0138	0.373	1	03/01/2023 01:07	WG2014199
Bis(2-chlorethoxy)methane	U		0.0112	0.373	1	03/01/2023 01:07	WG2014199
Bis(2-chloroethyl)ether	U		0.0123	0.373	1	03/01/2023 01:07	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0161	0.373	1	03/01/2023 01:07	WG2014199
4-Bromophenyl-phenylether	U		0.0131	0.373	1	03/01/2023 01:07	WG2014199
Carbazole	U		0.0115	0.373	1	03/01/2023 01:07	WG2014199
2-Chloronaphthalene	U		0.00656	0.0373	1	03/01/2023 01:07	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0135	0.373	1	03/01/2023 01:07	WG2014199
4-Chlorophenyl-phenylether	U		0.0130	0.373	1	03/01/2023 01:07	WG2014199
Chrysene	U		0.00742	0.0373	1	03/01/2023 01:07	WG2014199
Dibenz(a,h)anthracene	U		0.0103	0.0373	1	03/01/2023 01:07	WG2014199
Dibenzofuran	U		0.0122	0.373	1	03/01/2023 01:07	WG2014199
3,3-Dichlorobenzidine	U		0.0138	0.373	1	03/01/2023 01:07	WG2014199
2,4-Dinitrotoluene	U		0.0107	0.373	1	03/01/2023 01:07	WG2014199
2,6-Dinitrotoluene	U		0.0122	0.373	1	03/01/2023 01:07	WG2014199
Fluoranthene	U		0.00674	0.0373	1	03/01/2023 01:07	WG2014199
Fluorene	U		0.00608	0.0373	1	03/01/2023 01:07	WG2014199
Hexachlorobenzene	U		0.0132	0.373	1	03/01/2023 01:07	WG2014199
Hexachloro-1,3-butadiene	U		0.0126	0.373	1	03/01/2023 01:07	WG2014199
Hexachlorocyclopentadiene	U		0.0196	0.373	1	03/01/2023 01:07	WG2014199
Hexachloroethane	U		0.0147	0.373	1	03/01/2023 01:07	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0105	0.0373	1	03/01/2023 01:07	WG2014199
Isophorone	U		0.0114	0.373	1	03/01/2023 01:07	WG2014199
2-Methylnaphthalene	U		0.00484	0.0373	1	03/01/2023 01:07	WG2014199
Naphthalene	U		0.00937	0.0373	1	03/01/2023 01:07	WG2014199
2-Nitroaniline	U		0.0120	0.373	1	03/01/2023 01:07	WG2014199
3-Nitroaniline	U		0.0119	0.373	1	03/01/2023 01:07	WG2014199
4-Nitroaniline	U		0.0109	0.373	1	03/01/2023 01:07	WG2014199
Nitrobenzene	U		0.0130	0.373	1	03/01/2023 01:07	WG2014199
n-Nitrosodimethylamine	U		0.0554	0.373	1	03/01/2023 01:07	WG2014199
n-Nitrosodiphenylamine	U		0.0283	0.373	1	03/01/2023 01:07	WG2014199
n-Nitrosodi-n-propylamine	U		0.0124	0.373	1	03/01/2023 01:07	WG2014199
Phenanthrene	U		0.00741	0.0373	1	03/01/2023 01:07	WG2014199
Benzylbutyl phthalate	U		0.0117	0.373	1	03/01/2023 01:07	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0473	0.373	1	03/01/2023 01:07	WG2014199
Di-n-butyl phthalate	U		0.0128	0.373	1	03/01/2023 01:07	WG2014199
Diethyl phthalate	U		0.0123	0.373	1	03/01/2023 01:07	WG2014199
Dimethyl phthalate	U		0.0791	0.373	1	03/01/2023 01:07	WG2014199
Di-n-octyl phthalate	U		0.0252	0.373	1	03/01/2023 01:07	WG2014199
Pyrene	U		0.00726	0.0373	1	03/01/2023 01:07	WG2014199
Pyridine	U		0.0247	0.373	1	03/01/2023 01:07	WG2014199
1,2,4-Trichlorobenzene	U		0.0117	0.373	1	03/01/2023 01:07	WG2014199
4-Chloro-3-methylphenol	U		0.0121	0.373	1	03/01/2023 01:07	WG2014199
2-Chlorophenol	U		0.0123	0.373	1	03/01/2023 01:07	WG2014199
2,4-Dichlorophenol	U		0.0109	0.373	1	03/01/2023 01:07	WG2014199
2,4-Dimethylphenol	U		0.00975	0.373	1	03/01/2023 01:07	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0846	0.373	1	03/01/2023 01:07	WG2014199
2,4-Dinitrophenol	U		0.0873	0.373	1	03/01/2023 01:07	WG2014199
2-Methylphenol	U		0.0112	0.373	1	03/01/2023 01:07	WG2014199
3&4-Methyl Phenol	U		0.0117	0.373	1	03/01/2023 01:07	WG2014199
2-Nitrophenol	U		0.0133	0.373	1	03/01/2023 01:07	WG2014199
4-Nitrophenol	U		0.0117	0.373	1	03/01/2023 01:07	WG2014199
Pentachlorophenol	U		0.0100	0.373	1	03/01/2023 01:07	WG2014199
Phenol	U		0.0150	0.373	1	03/01/2023 01:07	WG2014199
2,4,5-Trichlorophenol	U		0.0127	0.373	1	03/01/2023 01:07	WG2014199
2,4,6-Trichlorophenol	U		0.0120	0.373	1	03/01/2023 01:07	WG2014199
(S) 2-Fluorophenol	*59.9*			*12.0-120*		*03/01/2023 01:07*	WG2014199
(S) Phenol-d5	*54.6*			*10.0-120*		*03/01/2023 01:07*	WG2014199
(S) Nitrobenzene-d5	*54.6*			*10.0-122*		*03/01/2023 01:07*	WG2014199
(S) 2-Fluorobiphenyl	*63.3*			*15.0-120*		*03/01/2023 01:07*	WG2014199
(S) 2,4,6-Tribromophenol	*79.0*			*10.0-127*		*03/01/2023 01:07*	WG2014199
(S) p-Terphenyl-d14	*66.0*			*10.0-120*		*03/01/2023 01:07*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00258	0.00673	1	02/28/2023 23:17	WG2014146
Acenaphthene	U		0.00234	0.00673	1	02/28/2023 23:17	WG2014146
Acenaphthylene	U		0.00242	0.00673	1	02/28/2023 23:17	WG2014146
Benzo(a)anthracene	U		0.00194	0.00673	1	02/28/2023 23:17	WG2014146
Benzo(a)pyrene	U		0.00201	0.00673	1	02/28/2023 23:17	WG2014146
Benzo(b)fluoranthene	U		0.00172	0.00673	1	02/28/2023 23:17	WG2014146
Benzo(g,h,i)perylene	U		0.00198	0.00673	1	02/28/2023 23:17	WG2014146
Benzo(k)fluoranthene	U		0.00241	0.00673	1	02/28/2023 23:17	WG2014146
Chrysene	U		0.00260	0.00673	1	02/28/2023 23:17	WG2014146
Dibenz(a,h)anthracene	U		0.00193	0.00673	1	02/28/2023 23:17	WG2014146
Fluoranthene	U		0.00254	0.00673	1	02/28/2023 23:17	WG2014146
Fluorene	U		0.00230	0.00673	1	02/28/2023 23:17	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00203	0.00673	1	02/28/2023 23:17	WG2014146
Naphthalene	U		0.00457	0.0224	1	02/28/2023 23:17	WG2014146
Phenanthrene	U		0.00259	0.00673	1	02/28/2023 23:17	WG2014146
Pyrene	U		0.00224	0.00673	1	02/28/2023 23:17	WG2014146
1-Methylnaphthalene	U		0.00503	0.0224	1	02/28/2023 23:17	WG2014146
2-Methylnaphthalene	U		0.00479	0.0224	1	02/28/2023 23:17	WG2014146
2-Chloronaphthalene	U		0.00522	0.0224	1	02/28/2023 23:17	WG2014146
(S) p-Terphenyl-d14	*55.4*			*23.0-120*		*02/28/2023 23:17*	WG2014146
(S) Nitrobenzene-d5	*83.6*			*14.0-149*		*02/28/2023 23:17*	WG2014146
(S) 2-Fluorobiphenyl	*46.5*			*34.0-125*		*02/28/2023 23:17*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	89.2		1	02/28/2023 12:50	WG2014160

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0202	0.0449	1	02/28/2023 17:44	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9270		6.82	11.2	1	02/28/2023 15:33	WG2014195
Arsenic	1.13	J	0.581	2.24	1	02/28/2023 15:33	WG2014195
Barium	97.3		0.0955	0.561	1	02/28/2023 15:33	WG2014195
Cadmium	0.127	J	0.0528	0.561	1	02/28/2023 15:33	WG2014195
Chromium	8.26		0.149	1.12	1	02/28/2023 15:33	WG2014195
Copper	11.0		0.449	2.24	1	02/28/2023 15:33	WG2014195
Lead	10.9		0.233	0.561	1	02/28/2023 15:33	WG2014195
Selenium	U		0.857	2.24	1	02/28/2023 15:33	WG2014195
Silver	U		0.142	1.12	1	02/28/2023 15:33	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.40	B J	1.07	3.14	25.3	02/28/2023 22:35	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*95.0*			*77.0-120*		*02/28/2023 22:35*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U	J3 J6	1.49	4.49	1	02/28/2023 20:37	WG2014151
Residual Range Organics (RRO)	U		3.73	11.2	1	02/28/2023 20:37	WG2014151
(S) o-Terphenyl	*47.1*			*18.0-148*		*02/28/2023 20:37*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00604	0.0373	1	03/01/2023 01:27	WG2014199
Acenaphthylene	U		0.00526	0.0373	1	03/01/2023 01:27	WG2014199
Anthracene	U		0.00665	0.0373	1	03/01/2023 01:27	WG2014199
Benzo(a)anthracene	U		0.00658	0.0373	1	03/01/2023 01:27	WG2014199
Benzo(b)fluoranthene	U		0.00696	0.0373	1	03/01/2023 01:27	WG2014199
Benzo(k)fluoranthene	U		0.00664	0.0373	1	03/01/2023 01:27	WG2014199
Benzo(g,h,i)perylene	U		0.00683	0.0373	1	03/01/2023 01:27	WG2014199
Benzo(a)pyrene	U		0.00694	0.0373	1	03/01/2023 01:27	WG2014199
Benzoic acid	U		0.132	1.87	1	03/01/2023 01:27	WG2014199
Benzyl alcohol	U		0.0138	0.373	1	03/01/2023 01:27	WG2014199
Bis(2-chlorethoxy)methane	U		0.0112	0.373	1	03/01/2023 01:27	WG2014199
Bis(2-chloroethyl)ether	U		0.0123	0.373	1	03/01/2023 01:27	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0161	0.373	1	03/01/2023 01:27	WG2014199
4-Bromophenyl-phenylether	U		0.0131	0.373	1	03/01/2023 01:27	WG2014199
Carbazole	U		0.0116	0.373	1	03/01/2023 01:27	WG2014199
2-Chloronaphthalene	U		0.00656	0.0373	1	03/01/2023 01:27	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0135	0.373	1	03/01/2023 01:27	WG2014199
4-Chlorophenyl-phenylether	U		0.0130	0.373	1	03/01/2023 01:27	WG2014199
Chrysene	U		0.00742	0.0373	1	03/01/2023 01:27	WG2014199
Dibenz(a,h)anthracene	U		0.0104	0.0373	1	03/01/2023 01:27	WG2014199
Dibenzofuran	U		0.0122	0.373	1	03/01/2023 01:27	WG2014199
3,3-Dichlorobenzidine	U		0.0138	0.373	1	03/01/2023 01:27	WG2014199
2,4-Dinitrotoluene	U		0.0107	0.373	1	03/01/2023 01:27	WG2014199
2,6-Dinitrotoluene	U		0.0122	0.373	1	03/01/2023 01:27	WG2014199
Fluoranthene	U		0.00674	0.0373	1	03/01/2023 01:27	WG2014199
Fluorene	U		0.00608	0.0373	1	03/01/2023 01:27	WG2014199
Hexachlorobenzene	U		0.0132	0.373	1	03/01/2023 01:27	WG2014199
Hexachloro-1,3-butadiene	U		0.0126	0.373	1	03/01/2023 01:27	WG2014199
Hexachlorocyclopentadiene	U		0.0196	0.373	1	03/01/2023 01:27	WG2014199
Hexachloroethane	U		0.0147	0.373	1	03/01/2023 01:27	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0106	0.0373	1	03/01/2023 01:27	WG2014199
Isophorone	U		0.0114	0.373	1	03/01/2023 01:27	WG2014199
2-Methylnaphthalene	U		0.00484	0.0373	1	03/01/2023 01:27	WG2014199
Naphthalene	U		0.00938	0.0373	1	03/01/2023 01:27	WG2014199
2-Nitroaniline	U		0.0120	0.373	1	03/01/2023 01:27	WG2014199
3-Nitroaniline	U		0.0119	0.373	1	03/01/2023 01:27	WG2014199
4-Nitroaniline	U		0.0109	0.373	1	03/01/2023 01:27	WG2014199
Nitrobenzene	U		0.0130	0.373	1	03/01/2023 01:27	WG2014199
n-Nitrosodimethylamine	U		0.0554	0.373	1	03/01/2023 01:27	WG2014199
n-Nitrosodiphenylamine	U		0.0283	0.373	1	03/01/2023 01:27	WG2014199
n-Nitrosodi-n-propylamine	U		0.0124	0.373	1	03/01/2023 01:27	WG2014199
Phenanthrene	U		0.00741	0.0373	1	03/01/2023 01:27	WG2014199
Benzylbutyl phthalate	U		0.0117	0.373	1	03/01/2023 01:27	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0473	0.373	1	03/01/2023 01:27	WG2014199
Di-n-butyl phthalate	U		0.0128	0.373	1	03/01/2023 01:27	WG2014199
Diethyl phthalate	U		0.0123	0.373	1	03/01/2023 01:27	WG2014199
Dimethyl phthalate	U		0.0792	0.373	1	03/01/2023 01:27	WG2014199
Di-n-octyl phthalate	U		0.0252	0.373	1	03/01/2023 01:27	WG2014199
Pyrene	U		0.00727	0.0373	1	03/01/2023 01:27	WG2014199
Pyridine	U		0.0247	0.373	1	03/01/2023 01:27	WG2014199
1,2,4-Trichlorobenzene	U		0.0117	0.373	1	03/01/2023 01:27	WG2014199
4-Chloro-3-methylphenol	U		0.0121	0.373	1	03/01/2023 01:27	WG2014199
2-Chlorophenol	U		0.0123	0.373	1	03/01/2023 01:27	WG2014199
2,4-Dichlorophenol	U		0.0109	0.373	1	03/01/2023 01:27	WG2014199
2,4-Dimethylphenol	U		0.00976	0.373	1	03/01/2023 01:27	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0847	0.373	1	03/01/2023 01:27	WG2014199
2,4-Dinitrophenol	U		0.0874	0.373	1	03/01/2023 01:27	WG2014199
2-Methylphenol	U		0.0112	0.373	1	03/01/2023 01:27	WG2014199
3&4-Methyl Phenol	U		0.0117	0.373	1	03/01/2023 01:27	WG2014199
2-Nitrophenol	U		0.0133	0.373	1	03/01/2023 01:27	WG2014199
4-Nitrophenol	U		0.0117	0.373	1	03/01/2023 01:27	WG2014199
Pentachlorophenol	U		0.0100	0.373	1	03/01/2023 01:27	WG2014199
Phenol	U		0.0150	0.373	1	03/01/2023 01:27	WG2014199
2,4,5-Trichlorophenol	U		0.0127	0.373	1	03/01/2023 01:27	WG2014199
2,4,6-Trichlorophenol	U		0.0120	0.373	1	03/01/2023 01:27	WG2014199
(S) 2-Fluorophenol	*59.6*			*12.0-120*		*03/01/2023 01:27*	WG2014199
(S) Phenol-d5	*54.1*			*10.0-120*		*03/01/2023 01:27*	WG2014199
(S) Nitrobenzene-d5	*54.4*			*10.0-122*		*03/01/2023 01:27*	WG2014199
(S) 2-Fluorobiphenyl	*62.3*			*15.0-120*		*03/01/2023 01:27*	WG2014199
(S) 2,4,6-Tribromophenol	*82.5*			*10.0-127*		*03/01/2023 01:27*	WG2014199
(S) p-Terphenyl-d14	*69.6*			*10.0-120*		*03/01/2023 01:27*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00258	0.00673	1	02/28/2023 23:35	WG2014146
Acenaphthene	U		0.00234	0.00673	1	02/28/2023 23:35	WG2014146
Acenaphthylene	U		0.00242	0.00673	1	02/28/2023 23:35	WG2014146
Benzo(a)anthracene	U		0.00194	0.00673	1	02/28/2023 23:35	WG2014146
Benzo(a)pyrene	U		0.00201	0.00673	1	02/28/2023 23:35	WG2014146
Benzo(b)fluoranthene	U		0.00172	0.00673	1	02/28/2023 23:35	WG2014146
Benzo(g,h,i)perylene	U		0.00198	0.00673	1	02/28/2023 23:35	WG2014146
Benzo(k)fluoranthene	U		0.00241	0.00673	1	02/28/2023 23:35	WG2014146
Chrysene	U		0.00260	0.00673	1	02/28/2023 23:35	WG2014146
Dibenz(a,h)anthracene	U		0.00193	0.00673	1	02/28/2023 23:35	WG2014146
Fluoranthene	U		0.00255	0.00673	1	02/28/2023 23:35	WG2014146
Fluorene	U		0.00230	0.00673	1	02/28/2023 23:35	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00203	0.00673	1	02/28/2023 23:35	WG2014146
Naphthalene	U		0.00458	0.0224	1	02/28/2023 23:35	WG2014146
Phenanthrene	U		0.00259	0.00673	1	02/28/2023 23:35	WG2014146
Pyrene	U		0.00224	0.00673	1	02/28/2023 23:35	WG2014146
1-Methylnaphthalene	U		0.00504	0.0224	1	02/28/2023 23:35	WG2014146
2-Methylnaphthalene	0.00500	J	0.00479	0.0224	1	02/28/2023 23:35	WG2014146
2-Chloronaphthalene	U		0.00523	0.0224	1	02/28/2023 23:35	WG2014146
(S) p-Terphenyl-d14	*51.6*			*23.0-120*		*02/28/2023 23:35*	WG2014146
(S) Nitrobenzene-d5	*77.0*			*14.0-149*		*02/28/2023 23:35*	WG2014146
(S) 2-Fluorobiphenyl	*43.1*			*34.0-125*		*02/28/2023 23:35*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	89.6		1	02/28/2023 12:50	WG2014160

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0201	0.0447	1	02/28/2023 17:46	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10700		6.79	11.2	1	02/28/2023 15:40	WG2014195
Arsenic	1.76	J	0.578	2.23	1	02/28/2023 15:40	WG2014195
Barium	103		0.0951	0.558	1	02/28/2023 15:40	WG2014195
Cadmium	0.0921	J	0.0526	0.558	1	02/28/2023 15:40	WG2014195
Chromium	14.5		0.148	1.12	1	02/28/2023 15:40	WG2014195
Copper	11.1		0.447	2.23	1	02/28/2023 15:40	WG2014195
Lead	9.69		0.232	0.558	1	02/28/2023 15:40	WG2014195
Selenium	1.08	J	0.853	2.23	1	02/28/2023 15:40	WG2014195
Silver	U		0.142	1.12	1	02/28/2023 15:40	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.44	4.26	35.5	02/28/2023 22:59	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*90.8*			*77.0-120*		*02/28/2023 22:59*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.48	4.47	1	02/28/2023 21:16	WG2014151
Residual Range Organics (RRO)	U		3.72	11.2	1	02/28/2023 21:16	WG2014151
(S) o-Terphenyl	*41.4*			*18.0-148*		*02/28/2023 21:16*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00602	0.0372	1	03/01/2023 01:48	WG2014199
Acenaphthylene	U		0.00524	0.0372	1	03/01/2023 01:48	WG2014199
Anthracene	U		0.00662	0.0372	1	03/01/2023 01:48	WG2014199
Benzo(a)anthracene	U		0.00655	0.0372	1	03/01/2023 01:48	WG2014199
Benzo(b)fluoranthene	U		0.00693	0.0372	1	03/01/2023 01:48	WG2014199
Benzo(k)fluoranthene	U		0.00661	0.0372	1	03/01/2023 01:48	WG2014199
Benzo(g,h,i)perylene	U		0.00680	0.0372	1	03/01/2023 01:48	WG2014199
Benzo(a)pyrene	U		0.00691	0.0372	1	03/01/2023 01:48	WG2014199
Benzoic acid	U		0.132	1.86	1	03/01/2023 01:48	WG2014199
Benzyl alcohol	U		0.0137	0.372	1	03/01/2023 01:48	WG2014199
Bis(2-chlorethoxy)methane	U		0.0112	0.372	1	03/01/2023 01:48	WG2014199
Bis(2-chloroethyl)ether	U		0.0123	0.372	1	03/01/2023 01:48	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0161	0.372	1	03/01/2023 01:48	WG2014199
4-Bromophenyl-phenylether	U		0.0131	0.372	1	03/01/2023 01:48	WG2014199
Carbazole	U		0.0115	0.372	1	03/01/2023 01:48	WG2014199
2-Chloronaphthalene	U		0.00653	0.0372	1	03/01/2023 01:48	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0134	0.372	1	03/01/2023 01:48	WG2014199
4-Chlorophenyl-phenylether	U		0.0130	0.372	1	03/01/2023 01:48	WG2014199
Chrysene	U		0.00739	0.0372	1	03/01/2023 01:48	WG2014199
Dibenz(a,h)anthracene	U		0.0103	0.0372	1	03/01/2023 01:48	WG2014199
Dibenzofuran	U		0.0122	0.372	1	03/01/2023 01:48	WG2014199
3,3-Dichlorobenzidine	U		0.0137	0.372	1	03/01/2023 01:48	WG2014199
2,4-Dinitrotoluene	U		0.0107	0.372	1	03/01/2023 01:48	WG2014199
2,6-Dinitrotoluene	U		0.0122	0.372	1	03/01/2023 01:48	WG2014199
Fluoranthene	U		0.00671	0.0372	1	03/01/2023 01:48	WG2014199
Fluorene	U		0.00605	0.0372	1	03/01/2023 01:48	WG2014199
Hexachlorobenzene	U		0.0132	0.372	1	03/01/2023 01:48	WG2014199
Hexachloro-1,3-butadiene	U		0.0125	0.372	1	03/01/2023 01:48	WG2014199
Hexachlorocyclopentadiene	U		0.0195	0.372	1	03/01/2023 01:48	WG2014199
Hexachloroethane	U		0.0146	0.372	1	03/01/2023 01:48	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0105	0.0372	1	03/01/2023 01:48	WG2014199
Isophorone	U		0.0114	0.372	1	03/01/2023 01:48	WG2014199
2-Methylnaphthalene	U		0.00482	0.0372	1	03/01/2023 01:48	WG2014199
Naphthalene	U		0.00933	0.0372	1	03/01/2023 01:48	WG2014199
2-Nitroaniline	U		0.0119	0.372	1	03/01/2023 01:48	WG2014199
3-Nitroaniline	U		0.0118	0.372	1	03/01/2023 01:48	WG2014199
4-Nitroaniline	U		0.0108	0.372	1	03/01/2023 01:48	WG2014199
Nitrobenzene	U		0.0130	0.372	1	03/01/2023 01:48	WG2014199
n-Nitrosodimethylamine	U		0.0552	0.372	1	03/01/2023 01:48	WG2014199
n-Nitrosodiphenylamine	U		0.0281	0.372	1	03/01/2023 01:48	WG2014199
n-Nitrosodi-n-propylamine	U		0.0124	0.372	1	03/01/2023 01:48	WG2014199
Phenanthrene	U		0.00738	0.0372	1	03/01/2023 01:48	WG2014199
Benzylbutyl phthalate	U		0.0116	0.372	1	03/01/2023 01:48	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0471	0.372	1	03/01/2023 01:48	WG2014199
Di-n-butyl phthalate	U		0.0127	0.372	1	03/01/2023 01:48	WG2014199
Diethyl phthalate	U		0.0123	0.372	1	03/01/2023 01:48	WG2014199
Dimethyl phthalate	U		0.0788	0.372	1	03/01/2023 01:48	WG2014199
Di-n-octyl phthalate	U		0.0251	0.372	1	03/01/2023 01:48	WG2014199
Pyrene	U		0.00724	0.0372	1	03/01/2023 01:48	WG2014199
Pyridine	U		0.0246	0.372	1	03/01/2023 01:48	WG2014199
1,2,4-Trichlorobenzene	U		0.0116	0.372	1	03/01/2023 01:48	WG2014199
4-Chloro-3-methylphenol	U		0.0121	0.372	1	03/01/2023 01:48	WG2014199
2-Chlorophenol	U		0.0123	0.372	1	03/01/2023 01:48	WG2014199
2,4-Dichlorophenol	U		0.0108	0.372	1	03/01/2023 01:48	WG2014199
2,4-Dimethylphenol	U		0.00971	0.372	1	03/01/2023 01:48	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0843	0.372	1	03/01/2023 01:48	WG2014199
2,4-Dinitrophenol	U		0.0870	0.372	1	03/01/2023 01:48	WG2014199
2-Methylphenol	U		0.0112	0.372	1	03/01/2023 01:48	WG2014199
3&4-Methyl Phenol	U		0.0116	0.372	1	03/01/2023 01:48	WG2014199
2-Nitrophenol	U		0.0133	0.372	1	03/01/2023 01:48	WG2014199
4-Nitrophenol	U		0.0116	0.372	1	03/01/2023 01:48	WG2014199
Pentachlorophenol	U		0.0100	0.372	1	03/01/2023 01:48	WG2014199
Phenol	U		0.0150	0.372	1	03/01/2023 01:48	WG2014199
2,4,5-Trichlorophenol	U		0.0126	0.372	1	03/01/2023 01:48	WG2014199
2,4,6-Trichlorophenol	U		0.0119	0.372	1	03/01/2023 01:48	WG2014199
(S) 2-Fluorophenol	*63.6*			*12.0-120*		*03/01/2023 01:48*	WG2014199
(S) Phenol-d5	*57.8*			*10.0-120*		*03/01/2023 01:48*	WG2014199
(S) Nitrobenzene-d5	*56.9*			*10.0-122*		*03/01/2023 01:48*	WG2014199
(S) 2-Fluorobiphenyl	*69.0*			*15.0-120*		*03/01/2023 01:48*	WG2014199
(S) 2,4,6-Tribromophenol	*85.4*			*10.0-127*		*03/01/2023 01:48*	WG2014199
(S) p-Terphenyl-d14	*69.0*			*10.0-120*		*03/01/2023 01:48*	WG2014199

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00257	0.00670	1	02/28/2023 23:52	WG2014146
Acenaphthene	U		0.00233	0.00670	1	02/28/2023 23:52	WG2014146
Acenaphthylene	U		0.00241	0.00670	1	02/28/2023 23:52	WG2014146
Benzo(a)anthracene	U		0.00193	0.00670	1	02/28/2023 23:52	WG2014146
Benzo(a)pyrene	U		0.00200	0.00670	1	02/28/2023 23:52	WG2014146
Benzo(b)fluoranthene	U		0.00171	0.00670	1	02/28/2023 23:52	WG2014146
Benzo(g,h,i)perylene	U		0.00198	0.00670	1	02/28/2023 23:52	WG2014146
Benzo(k)fluoranthene	U		0.00240	0.00670	1	02/28/2023 23:52	WG2014146
Chrysene	U		0.00259	0.00670	1	02/28/2023 23:52	WG2014146
Dibenz(a,h)anthracene	U		0.00192	0.00670	1	02/28/2023 23:52	WG2014146
Fluoranthene	U		0.00253	0.00670	1	02/28/2023 23:52	WG2014146
Fluorene	U		0.00229	0.00670	1	02/28/2023 23:52	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00202	0.00670	1	02/28/2023 23:52	WG2014146
Naphthalene	U		0.00456	0.0223	1	02/28/2023 23:52	WG2014146
Phenanthrene	U		0.00258	0.00670	1	02/28/2023 23:52	WG2014146
Pyrene	U		0.00223	0.00670	1	02/28/2023 23:52	WG2014146
1-Methylnaphthalene	U		0.00501	0.0223	1	02/28/2023 23:52	WG2014146
2-Methylnaphthalene	U		0.00477	0.0223	1	02/28/2023 23:52	WG2014146
2-Chloronaphthalene	U		0.00520	0.0223	1	02/28/2023 23:52	WG2014146
(S) p-Terphenyl-d14	*75.7*			*23.0-120*		*02/28/2023 23:52*	WG2014146
(S) Nitrobenzene-d5	*74.9*			*14.0-149*		*02/28/2023 23:52*	WG2014146
(S) 2-Fluorobiphenyl	*66.2*			*34.0-125*		*02/28/2023 23:52*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.6		1	02/28/2023 12:50	WG2014160

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0203	0.0452	1	02/28/2023 17:49	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11600		6.87	11.3	1	02/28/2023 15:43	WG2014195
Arsenic	1.51	J	0.585	2.26	1	02/28/2023 15:43	WG2014195
Barium	75.6		0.0962	0.565	1	02/28/2023 15:43	WG2014195
Cadmium	0.0998	J	0.0532	0.565	1	02/28/2023 15:43	WG2014195
Chromium	10.7		0.150	1.13	1	02/28/2023 15:43	WG2014195
Copper	14.4		0.452	2.26	1	02/28/2023 15:43	WG2014195
Lead	10.6		0.235	0.565	1	02/28/2023 15:43	WG2014195
Selenium	U		0.863	2.26	1	02/28/2023 15:43	WG2014195
Silver	U		0.143	1.13	1	02/28/2023 15:43	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.08	3.17	25	02/28/2023 23:24	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*90.6*			*77.0-120*		*02/28/2023 23:24*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.50	4.52	1	02/28/2023 21:29	WG2014151
Residual Range Organics (RRO)	U		3.76	11.3	1	02/28/2023 21:29	WG2014151
(S) o-Terphenyl	*53.4*			*18.0-148*		*02/28/2023 21:29*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00609	0.0376	1	03/01/2023 02:08	WG2014199
Acenaphthylene	U		0.00530	0.0376	1	03/01/2023 02:08	WG2014199
Anthracene	U		0.00670	0.0376	1	03/01/2023 02:08	WG2014199
Benzo(a)anthracene	U		0.00663	0.0376	1	03/01/2023 02:08	WG2014199
Benzo(b)fluoranthene	U		0.00701	0.0376	1	03/01/2023 02:08	WG2014199
Benzo(k)fluoranthene	U		0.00668	0.0376	1	03/01/2023 02:08	WG2014199
Benzo(g,h,i)perylene	U		0.00688	0.0376	1	03/01/2023 02:08	WG2014199
Benzo(a)pyrene	U		0.00699	0.0376	1	03/01/2023 02:08	WG2014199
Benzoic acid	U		0.133	1.89	1	03/01/2023 02:08	WG2014199
Benzyl alcohol	U		0.0139	0.376	1	03/01/2023 02:08	WG2014199
Bis(2-chlorethoxy)methane	U		0.0113	0.376	1	03/01/2023 02:08	WG2014199
Bis(2-chloroethyl)ether	U		0.0124	0.376	1	03/01/2023 02:08	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0163	0.376	1	03/01/2023 02:08	WG2014199
4-Bromophenyl-phenylether	U		0.0132	0.376	1	03/01/2023 02:08	WG2014199
Carbazole	U		0.0116	0.376	1	03/01/2023 02:08	WG2014199
2-Chloronaphthalene	U		0.00661	0.0376	1	03/01/2023 02:08	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0135	0.376	1	03/01/2023 02:08	WG2014199
4-Chlorophenyl-phenylether	U		0.0131	0.376	1	03/01/2023 02:08	WG2014199
Chrysene	U		0.00747	0.0376	1	03/01/2023 02:08	WG2014199
Dibenz(a,h)anthracene	U		0.0104	0.0376	1	03/01/2023 02:08	WG2014199
Dibenzofuran	U		0.0123	0.376	1	03/01/2023 02:08	WG2014199
3,3-Dichlorobenzidine	U		0.0139	0.376	1	03/01/2023 02:08	WG2014199
2,4-Dinitrotoluene	U		0.0108	0.376	1	03/01/2023 02:08	WG2014199
2,6-Dinitrotoluene	U		0.0123	0.376	1	03/01/2023 02:08	WG2014199
Fluoranthene	U		0.00679	0.0376	1	03/01/2023 02:08	WG2014199
Fluorene	U		0.00612	0.0376	1	03/01/2023 02:08	WG2014199
Hexachlorobenzene	U		0.0133	0.376	1	03/01/2023 02:08	WG2014199
Hexachloro-1,3-butadiene	U		0.0126	0.376	1	03/01/2023 02:08	WG2014199
Hexachlorocyclopentadiene	U		0.0198	0.376	1	03/01/2023 02:08	WG2014199
Hexachloroethane	U		0.0148	0.376	1	03/01/2023 02:08	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0106	0.0376	1	03/01/2023 02:08	WG2014199
Isophorone	U		0.0115	0.376	1	03/01/2023 02:08	WG2014199
2-Methylnaphthalene	U		0.00488	0.0376	1	03/01/2023 02:08	WG2014199
Naphthalene	U		0.00944	0.0376	1	03/01/2023 02:08	WG2014199
2-Nitroaniline	U		0.0121	0.376	1	03/01/2023 02:08	WG2014199
3-Nitroaniline	U		0.0120	0.376	1	03/01/2023 02:08	WG2014199
4-Nitroaniline	U		0.0110	0.376	1	03/01/2023 02:08	WG2014199
Nitrobenzene	U		0.0131	0.376	1	03/01/2023 02:08	WG2014199
n-Nitrosodimethylamine	U		0.0558	0.376	1	03/01/2023 02:08	WG2014199
n-Nitrosodiphenylamine	U		0.0285	0.376	1	03/01/2023 02:08	WG2014199
n-Nitrosodi-n-propylamine	U		0.0125	0.376	1	03/01/2023 02:08	WG2014199
Phenanthrene	U		0.00746	0.0376	1	03/01/2023 02:08	WG2014199
Benzylbutyl phthalate	U		0.0117	0.376	1	03/01/2023 02:08	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0476	0.376	1	03/01/2023 02:08	WG2014199
Di-n-butyl phthalate	U		0.0129	0.376	1	03/01/2023 02:08	WG2014199
Diethyl phthalate	U		0.0124	0.376	1	03/01/2023 02:08	WG2014199
Dimethyl phthalate	U		0.0797	0.376	1	03/01/2023 02:08	WG2014199
Di-n-octyl phthalate	U		0.0254	0.376	1	03/01/2023 02:08	WG2014199
Pyrene	U		0.00732	0.0376	1	03/01/2023 02:08	WG2014199
Pyridine	U		0.0248	0.376	1	03/01/2023 02:08	WG2014199
1,2,4-Trichlorobenzene	U		0.0117	0.376	1	03/01/2023 02:08	WG2014199
4-Chloro-3-methylphenol	U		0.0122	0.376	1	03/01/2023 02:08	WG2014199
2-Chlorophenol	U		0.0124	0.376	1	03/01/2023 02:08	WG2014199
2,4-Dichlorophenol	U		0.0110	0.376	1	03/01/2023 02:08	WG2014199
2,4-Dimethylphenol	U		0.00982	0.376	1	03/01/2023 02:08	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0852	0.376	1	03/01/2023 02:08	WG2014199
2,4-Dinitrophenol	U		0.0880	0.376	1	03/01/2023 02:08	WG2014199
2-Methylphenol	U		0.0113	0.376	1	03/01/2023 02:08	WG2014199
3&4-Methyl Phenol	U		0.0117	0.376	1	03/01/2023 02:08	WG2014199
2-Nitrophenol	U		0.0134	0.376	1	03/01/2023 02:08	WG2014199
4-Nitrophenol	U		0.0117	0.376	1	03/01/2023 02:08	WG2014199
Pentachlorophenol	U		0.0101	0.376	1	03/01/2023 02:08	WG2014199
Phenol	U		0.0151	0.376	1	03/01/2023 02:08	WG2014199
2,4,5-Trichlorophenol	U		0.0128	0.376	1	03/01/2023 02:08	WG2014199
2,4,6-Trichlorophenol	U		0.0121	0.376	1	03/01/2023 02:08	WG2014199
(S) 2-Fluorophenol	*60.1*			*12.0-120*		*03/01/2023 02:08*	WG2014199
(S) Phenol-d5	*54.2*			*10.0-120*		*03/01/2023 02:08*	WG2014199
(S) Nitrobenzene-d5	*55.1*			*10.0-122*		*03/01/2023 02:08*	WG2014199
(S) 2-Fluorobiphenyl	*63.8*			*15.0-120*		*03/01/2023 02:08*	WG2014199
(S) 2,4,6-Tribromophenol	*81.3*			*10.0-127*		*03/01/2023 02:08*	WG2014199
(S) p-Terphenyl-d14	*65.9*			*10.0-120*		*03/01/2023 02:08*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00260	0.00677	1	03/01/2023 00:10	WG2014146
Acenaphthene	U		0.00236	0.00677	1	03/01/2023 00:10	WG2014146
Acenaphthylene	U		0.00244	0.00677	1	03/01/2023 00:10	WG2014146
Benzo(a)anthracene	U		0.00195	0.00677	1	03/01/2023 00:10	WG2014146
Benzo(a)pyrene	U		0.00202	0.00677	1	03/01/2023 00:10	WG2014146
Benzo(b)fluoranthene	U		0.00173	0.00677	1	03/01/2023 00:10	WG2014146
Benzo(g,h,i)perylene	U		0.00200	0.00677	1	03/01/2023 00:10	WG2014146
Benzo(k)fluoranthene	U		0.00243	0.00677	1	03/01/2023 00:10	WG2014146
Chrysene	U		0.00262	0.00677	1	03/01/2023 00:10	WG2014146
Dibenz(a,h)anthracene	U		0.00194	0.00677	1	03/01/2023 00:10	WG2014146
Fluoranthene	U		0.00256	0.00677	1	03/01/2023 00:10	WG2014146
Fluorene	U		0.00231	0.00677	1	03/01/2023 00:10	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00204	0.00677	1	03/01/2023 00:10	WG2014146
Naphthalene	U		0.00461	0.0226	1	03/01/2023 00:10	WG2014146
Phenanthrene	U		0.00261	0.00677	1	03/01/2023 00:10	WG2014146
Pyrene	U		0.00226	0.00677	1	03/01/2023 00:10	WG2014146
1-Methylnaphthalene	U		0.00507	0.0226	1	03/01/2023 00:10	WG2014146
2-Methylnaphthalene	U		0.00482	0.0226	1	03/01/2023 00:10	WG2014146
2-Chloronaphthalene	U		0.00526	0.0226	1	03/01/2023 00:10	WG2014146
(S) p-Terphenyl-d14	*65.6*			*23.0-120*		*03/01/2023 00:10*	WG2014146
(S) Nitrobenzene-d5	*61.6*			*14.0-149*		*03/01/2023 00:10*	WG2014146
(S) 2-Fluorobiphenyl	*55.1*			*34.0-125*		*03/01/2023 00:10*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.6		1	02/28/2023 12:50	WG2014160

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0208	0.0462	1	02/28/2023 17:51	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11300		7.02	11.5	1	02/28/2023 15:46	WG2014195
Arsenic	2.47		0.598	2.31	1	02/28/2023 15:46	WG2014195
Barium	132		0.0983	0.577	1	02/28/2023 15:46	WG2014195
Cadmium	0.176	J	0.0544	0.577	1	02/28/2023 15:46	WG2014195
Chromium	9.58		0.153	1.15	1	02/28/2023 15:46	WG2014195
Copper	11.4		0.462	2.31	1	02/28/2023 15:46	WG2014195
Lead	12.4		0.240	0.577	1	02/28/2023 15:46	WG2014195
Selenium	1.22	J	0.882	2.31	1	02/28/2023 15:46	WG2014195
Silver	U		0.147	1.15	1	02/28/2023 15:46	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.17	B J	1.13	3.33	25.5	02/28/2023 23:49	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*91.5*			*77.0-120*		*02/28/2023 23:49*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.53	4.62	1	02/28/2023 21:43	WG2014151
Residual Range Organics (RRO)	U		3.84	11.5	1	02/28/2023 21:43	WG2014151
(S) o-Terphenyl	*42.1*			*18.0-148*		*02/28/2023 21:43*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00622	0.0384	1	03/01/2023 02:49	WG2014199
Acenaphthylene	U		0.00541	0.0384	1	03/01/2023 02:49	WG2014199
Anthracene	U		0.00684	0.0384	1	03/01/2023 02:49	WG2014199
Benzo(a)anthracene	U		0.00677	0.0384	1	03/01/2023 02:49	WG2014199
Benzo(b)fluoranthene	U		0.00717	0.0384	1	03/01/2023 02:49	WG2014199
Benzo(k)fluoranthene	U		0.00683	0.0384	1	03/01/2023 02:49	WG2014199
Benzo(g,h,i)perylene	U		0.00703	0.0384	1	03/01/2023 02:49	WG2014199
Benzo(a)pyrene	U		0.00714	0.0384	1	03/01/2023 02:49	WG2014199
Benzoic acid	U		0.136	1.93	1	03/01/2023 02:49	WG2014199
Benzyl alcohol	U		0.0142	0.384	1	03/01/2023 02:49	WG2014199
Bis(2-chlorethoxy)methane	U		0.0115	0.384	1	03/01/2023 02:49	WG2014199
Bis(2-chloroethyl)ether	U		0.0127	0.384	1	03/01/2023 02:49	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0166	0.384	1	03/01/2023 02:49	WG2014199
4-Bromophenyl-phenylether	U		0.0135	0.384	1	03/01/2023 02:49	WG2014199
Carbazole	U		0.0119	0.384	1	03/01/2023 02:49	WG2014199
2-Chloronaphthalene	U		0.00675	0.0384	1	03/01/2023 02:49	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0138	0.384	1	03/01/2023 02:49	WG2014199
4-Chlorophenyl-phenylether	U		0.0134	0.384	1	03/01/2023 02:49	WG2014199
Chrysene	U		0.00764	0.0384	1	03/01/2023 02:49	WG2014199
Dibenz(a,h)anthracene	U		0.0107	0.0384	1	03/01/2023 02:49	WG2014199
Dibenzofuran	U		0.0126	0.384	1	03/01/2023 02:49	WG2014199
3,3-Dichlorobenzidine	U		0.0142	0.384	1	03/01/2023 02:49	WG2014199
2,4-Dinitrotoluene	U		0.0110	0.384	1	03/01/2023 02:49	WG2014199
2,6-Dinitrotoluene	U		0.0126	0.384	1	03/01/2023 02:49	WG2014199
Fluoranthene	U		0.00694	0.0384	1	03/01/2023 02:49	WG2014199
Fluorene	U		0.00626	0.0384	1	03/01/2023 02:49	WG2014199
Hexachlorobenzene	U		0.0136	0.384	1	03/01/2023 02:49	WG2014199
Hexachloro-1,3-butadiene	U		0.0129	0.384	1	03/01/2023 02:49	WG2014199
Hexachlorocyclopentadiene	U		0.0202	0.384	1	03/01/2023 02:49	WG2014199
Hexachloroethane	U		0.0151	0.384	1	03/01/2023 02:49	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0109	0.0384	1	03/01/2023 02:49	WG2014199
Isophorone	U		0.0118	0.384	1	03/01/2023 02:49	WG2014199
2-Methylnaphthalene	U		0.00499	0.0384	1	03/01/2023 02:49	WG2014199
Naphthalene	U		0.00965	0.0384	1	03/01/2023 02:49	WG2014199
2-Nitroaniline	U		0.0123	0.384	1	03/01/2023 02:49	WG2014199
3-Nitroaniline	U		0.0122	0.384	1	03/01/2023 02:49	WG2014199
4-Nitroaniline	U		0.0112	0.384	1	03/01/2023 02:49	WG2014199
Nitrobenzene	U		0.0134	0.384	1	03/01/2023 02:49	WG2014199
n-Nitrosodimethylamine	U		0.0570	0.384	1	03/01/2023 02:49	WG2014199
n-Nitrosodiphenylamine	U		0.0291	0.384	1	03/01/2023 02:49	WG2014199
n-Nitrosodi-n-propylamine	U		0.0128	0.384	1	03/01/2023 02:49	WG2014199
Phenanthrene	U		0.00763	0.0384	1	03/01/2023 02:49	WG2014199
Benzylbutyl phthalate	U		0.0120	0.384	1	03/01/2023 02:49	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0487	0.384	1	03/01/2023 02:49	WG2014199
Di-n-butyl phthalate	U		0.0132	0.384	1	03/01/2023 02:49	WG2014199
Diethyl phthalate	U		0.0127	0.384	1	03/01/2023 02:49	WG2014199
Dimethyl phthalate	U		0.0815	0.384	1	03/01/2023 02:49	WG2014199
Di-n-octyl phthalate	U		0.0260	0.384	1	03/01/2023 02:49	WG2014199
Pyrene	U		0.00748	0.0384	1	03/01/2023 02:49	WG2014199
Pyridine	U		0.0254	0.384	1	03/01/2023 02:49	WG2014199
1,2,4-Trichlorobenzene	U		0.0120	0.384	1	03/01/2023 02:49	WG2014199
4-Chloro-3-methylphenol	U		0.0125	0.384	1	03/01/2023 02:49	WG2014199
2-Chlorophenol	U		0.0127	0.384	1	03/01/2023 02:49	WG2014199
2,4-Dichlorophenol	U		0.0112	0.384	1	03/01/2023 02:49	WG2014199
2,4-Dimethylphenol	U		0.0100	0.384	1	03/01/2023 02:49	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0871	0.384	1	03/01/2023 02:49	WG2014199
2,4-Dinitrophenol	U		0.0899	0.384	1	03/01/2023 02:49	WG2014199
2-Methylphenol	U		0.0115	0.384	1	03/01/2023 02:49	WG2014199
3&4-Methyl Phenol	U		0.0120	0.384	1	03/01/2023 02:49	WG2014199
2-Nitrophenol	U		0.0137	0.384	1	03/01/2023 02:49	WG2014199
4-Nitrophenol	U		0.0120	0.384	1	03/01/2023 02:49	WG2014199
Pentachlorophenol	U		0.0103	0.384	1	03/01/2023 02:49	WG2014199
Phenol	U		0.0155	0.384	1	03/01/2023 02:49	WG2014199
2,4,5-Trichlorophenol	U		0.0130	0.384	1	03/01/2023 02:49	WG2014199
2,4,6-Trichlorophenol	U		0.0123	0.384	1	03/01/2023 02:49	WG2014199
(S) 2-Fluorophenol	*57.9*			*12.0-120*		*03/01/2023 02:49*	WG2014199
(S) Phenol-d5	*52.8*			*10.0-120*		*03/01/2023 02:49*	WG2014199
(S) Nitrobenzene-d5	*51.9*			*10.0-122*		*03/01/2023 02:49*	WG2014199
(S) 2-Fluorobiphenyl	*62.1*			*15.0-120*		*03/01/2023 02:49*	WG2014199
(S) 2,4,6-Tribromophenol	*75.0*			*10.0-127*		*03/01/2023 02:49*	WG2014199
(S) p-Terphenyl-d14	*61.5*			*10.0-120*		*03/01/2023 02:49*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00265	0.00692	1	03/01/2023 00:28	WG2014146
Acenaphthene	U		0.00241	0.00692	1	03/01/2023 00:28	WG2014146
Acenaphthylene	U		0.00249	0.00692	1	03/01/2023 00:28	WG2014146
Benzo(a)anthracene	U		0.00200	0.00692	1	03/01/2023 00:28	WG2014146
Benzo(a)pyrene	U		0.00207	0.00692	1	03/01/2023 00:28	WG2014146
Benzo(b)fluoranthene	U		0.00177	0.00692	1	03/01/2023 00:28	WG2014146
Benzo(g,h,i)perylene	U		0.00204	0.00692	1	03/01/2023 00:28	WG2014146
Benzo(k)fluoranthene	U		0.00248	0.00692	1	03/01/2023 00:28	WG2014146
Chrysene	U		0.00268	0.00692	1	03/01/2023 00:28	WG2014146
Dibenz(a,h)anthracene	U		0.00199	0.00692	1	03/01/2023 00:28	WG2014146
Fluoranthene	U		0.00262	0.00692	1	03/01/2023 00:28	WG2014146
Fluorene	U		0.00237	0.00692	1	03/01/2023 00:28	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00209	0.00692	1	03/01/2023 00:28	WG2014146
Naphthalene	U		0.00471	0.0231	1	03/01/2023 00:28	WG2014146
Phenanthrene	U		0.00267	0.00692	1	03/01/2023 00:28	WG2014146
Pyrene	U		0.00231	0.00692	1	03/01/2023 00:28	WG2014146
1-Methylnaphthalene	U		0.00518	0.0231	1	03/01/2023 00:28	WG2014146
2-Methylnaphthalene	U		0.00493	0.0231	1	03/01/2023 00:28	WG2014146
2-Chloronaphthalene	U		0.00538	0.0231	1	03/01/2023 00:28	WG2014146
(S) p-Terphenyl-d14	*72.6*			*23.0-120*		*03/01/2023 00:28*	WG2014146
(S) Nitrobenzene-d5	*83.9*			*14.0-149*		*03/01/2023 00:28*	WG2014146
(S) 2-Fluorobiphenyl	*55.1*			*34.0-125*		*03/01/2023 00:28*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.8		1	02/28/2023 12:50	WG2014160

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0203	0.0450	1	02/28/2023 17:54	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9800		6.85	11.3	1	02/28/2023 15:48	WG2014195
Arsenic	2.57		0.583	2.25	1	02/28/2023 15:48	WG2014195
Barium	119		0.0959	0.563	1	02/28/2023 15:48	WG2014195
Cadmium	0.272	J	0.0530	0.563	1	02/28/2023 15:48	WG2014195
Chromium	8.24		0.150	1.13	1	02/28/2023 15:48	WG2014195
Copper	9.48		0.450	2.25	1	02/28/2023 15:48	WG2014195
Lead	12.2		0.234	0.563	1	02/28/2023 15:48	WG2014195
Selenium	U		0.860	2.25	1	02/28/2023 15:48	WG2014195
Silver	U		0.143	1.13	1	02/28/2023 15:48	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.44	B J	1.06	3.13	25	03/01/2023 00:14	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*94.6*			*77.0-120*		*03/01/2023 00:14*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.50	4.50	1	02/28/2023 21:55	WG2014151
Residual Range Organics (RRO)	U		3.75	11.3	1	02/28/2023 21:55	WG2014151
(S) o-Terphenyl	*47.9*			*18.0-148*		*02/28/2023 21:55*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00607	0.0375	1	03/01/2023 03:09	WG2014199
Acenaphthylene	U		0.00528	0.0375	1	03/01/2023 03:09	WG2014199
Anthracene	U		0.00668	0.0375	1	03/01/2023 03:09	WG2014199
Benzo(a)anthracene	U		0.00661	0.0375	1	03/01/2023 03:09	WG2014199
Benzo(b)fluoranthene	U		0.00699	0.0375	1	03/01/2023 03:09	WG2014199
Benzo(k)fluoranthene	U		0.00667	0.0375	1	03/01/2023 03:09	WG2014199
Benzo(g,h,i)perylene	U		0.00686	0.0375	1	03/01/2023 03:09	WG2014199
Benzo(a)pyrene	U		0.00697	0.0375	1	03/01/2023 03:09	WG2014199
Benzoic acid	U		0.133	1.88	1	03/01/2023 03:09	WG2014199
Benzyl alcohol	U		0.0139	0.375	1	03/01/2023 03:09	WG2014199
Bis(2-chlorethoxy)methane	U		0.0113	0.375	1	03/01/2023 03:09	WG2014199
Bis(2-chloroethyl)ether	U		0.0124	0.375	1	03/01/2023 03:09	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0162	0.375	1	03/01/2023 03:09	WG2014199
4-Bromophenyl-phenylether	U		0.0132	0.375	1	03/01/2023 03:09	WG2014199
Carbazole	U		0.0116	0.375	1	03/01/2023 03:09	WG2014199
2-Chloronaphthalene	U		0.00659	0.0375	1	03/01/2023 03:09	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0135	0.375	1	03/01/2023 03:09	WG2014199
4-Chlorophenyl-phenylether	U		0.0131	0.375	1	03/01/2023 03:09	WG2014199
Chrysene	U		0.00745	0.0375	1	03/01/2023 03:09	WG2014199
Dibenz(a,h)anthracene	U		0.0104	0.0375	1	03/01/2023 03:09	WG2014199
Dibenzofuran	U		0.0123	0.375	1	03/01/2023 03:09	WG2014199
3,3-Dichlorobenzidine	U		0.0139	0.375	1	03/01/2023 03:09	WG2014199
2,4-Dinitrotoluene	U		0.0108	0.375	1	03/01/2023 03:09	WG2014199
2,6-Dinitrotoluene	U		0.0123	0.375	1	03/01/2023 03:09	WG2014199
Fluoranthene	U		0.00677	0.0375	1	03/01/2023 03:09	WG2014199
Fluorene	U		0.00610	0.0375	1	03/01/2023 03:09	WG2014199
Hexachlorobenzene	U		0.0133	0.375	1	03/01/2023 03:09	WG2014199
Hexachloro-1,3-butadiene	U		0.0126	0.375	1	03/01/2023 03:09	WG2014199
Hexachlorocyclopentadiene	U		0.0197	0.375	1	03/01/2023 03:09	WG2014199
Hexachloroethane	U		0.0148	0.375	1	03/01/2023 03:09	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0106	0.0375	1	03/01/2023 03:09	WG2014199
Isophorone	U		0.0115	0.375	1	03/01/2023 03:09	WG2014199
2-Methylnaphthalene	U		0.00486	0.0375	1	03/01/2023 03:09	WG2014199
Naphthalene	U		0.00941	0.0375	1	03/01/2023 03:09	WG2014199
2-Nitroaniline	U		0.0120	0.375	1	03/01/2023 03:09	WG2014199
3-Nitroaniline	U		0.0119	0.375	1	03/01/2023 03:09	WG2014199
4-Nitroaniline	U		0.0109	0.375	1	03/01/2023 03:09	WG2014199
Nitrobenzene	U		0.0131	0.375	1	03/01/2023 03:09	WG2014199
n-Nitrosodimethylamine	U		0.0556	0.375	1	03/01/2023 03:09	WG2014199
n-Nitrosodiphenylamine	U		0.0284	0.375	1	03/01/2023 03:09	WG2014199
n-Nitrosodi-n-propylamine	U		0.0125	0.375	1	03/01/2023 03:09	WG2014199
Phenanthrene	U		0.00744	0.0375	1	03/01/2023 03:09	WG2014199
Benzylbutyl phthalate	U		0.0117	0.375	1	03/01/2023 03:09	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0475	0.375	1	03/01/2023 03:09	WG2014199
Di-n-butyl phthalate	U		0.0128	0.375	1	03/01/2023 03:09	WG2014199
Diethyl phthalate	U		0.0124	0.375	1	03/01/2023 03:09	WG2014199
Dimethyl phthalate	U		0.0795	0.375	1	03/01/2023 03:09	WG2014199
Di-n-octyl phthalate	U		0.0253	0.375	1	03/01/2023 03:09	WG2014199
Pyrene	U		0.00730	0.0375	1	03/01/2023 03:09	WG2014199
Pyridine	U		0.0248	0.375	1	03/01/2023 03:09	WG2014199
1,2,4-Trichlorobenzene	U		0.0117	0.375	1	03/01/2023 03:09	WG2014199
4-Chloro-3-methylphenol	U		0.0122	0.375	1	03/01/2023 03:09	WG2014199
2-Chlorophenol	U		0.0124	0.375	1	03/01/2023 03:09	WG2014199
2,4-Dichlorophenol	U		0.0109	0.375	1	03/01/2023 03:09	WG2014199
2,4-Dimethylphenol	U		0.00980	0.375	1	03/01/2023 03:09	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0850	0.375	1	03/01/2023 03:09	WG2014199
2,4-Dinitrophenol	U		0.0877	0.375	1	03/01/2023 03:09	WG2014199
2-Methylphenol	U		0.0113	0.375	1	03/01/2023 03:09	WG2014199
3&4-Methyl Phenol	U		0.0117	0.375	1	03/01/2023 03:09	WG2014199
2-Nitrophenol	U		0.0134	0.375	1	03/01/2023 03:09	WG2014199
4-Nitrophenol	U		0.0117	0.375	1	03/01/2023 03:09	WG2014199
Pentachlorophenol	U		0.0101	0.375	1	03/01/2023 03:09	WG2014199
Phenol	U		0.0151	0.375	1	03/01/2023 03:09	WG2014199
2,4,5-Trichlorophenol	U		0.0127	0.375	1	03/01/2023 03:09	WG2014199
2,4,6-Trichlorophenol	U		0.0120	0.375	1	03/01/2023 03:09	WG2014199
(S) 2-Fluorophenol	*59.3*			*12.0-120*		*03/01/2023 03:09*	WG2014199
(S) Phenol-d5	*53.0*			*10.0-120*		*03/01/2023 03:09*	WG2014199
(S) Nitrobenzene-d5	*52.7*			*10.0-122*		*03/01/2023 03:09*	WG2014199
(S) 2-Fluorobiphenyl	*62.9*			*15.0-120*		*03/01/2023 03:09*	WG2014199
(S) 2,4,6-Tribromophenol	*78.4*			*10.0-127*		*03/01/2023 03:09*	WG2014199
(S) p-Terphenyl-d14	*62.3*			*10.0-120*		*03/01/2023 03:09*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00259	0.00676	1	03/01/2023 00:46	WG2014146
Acenaphthene	U		0.00235	0.00676	1	03/01/2023 00:46	WG2014146
Acenaphthylene	U		0.00243	0.00676	1	03/01/2023 00:46	WG2014146
Benzo(a)anthracene	U		0.00195	0.00676	1	03/01/2023 00:46	WG2014146
Benzo(a)pyrene	U		0.00202	0.00676	1	03/01/2023 00:46	WG2014146
Benzo(b)fluoranthene	U		0.00172	0.00676	1	03/01/2023 00:46	WG2014146
Benzo(g,h,i)perylene	U		0.00199	0.00676	1	03/01/2023 00:46	WG2014146
Benzo(k)fluoranthene	U		0.00242	0.00676	1	03/01/2023 00:46	WG2014146
Chrysene	U		0.00261	0.00676	1	03/01/2023 00:46	WG2014146
Dibenz(a,h)anthracene	U		0.00194	0.00676	1	03/01/2023 00:46	WG2014146
Fluoranthene	U		0.00256	0.00676	1	03/01/2023 00:46	WG2014146
Fluorene	U		0.00231	0.00676	1	03/01/2023 00:46	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00204	0.00676	1	03/01/2023 00:46	WG2014146
Naphthalene	U		0.00459	0.0225	1	03/01/2023 00:46	WG2014146
Phenanthrene	U		0.00260	0.00676	1	03/01/2023 00:46	WG2014146
Pyrene	U		0.00225	0.00676	1	03/01/2023 00:46	WG2014146
1-Methylnaphthalene	U		0.00506	0.0225	1	03/01/2023 00:46	WG2014146
2-Methylnaphthalene	U		0.00481	0.0225	1	03/01/2023 00:46	WG2014146
2-Chloronaphthalene	U		0.00525	0.0225	1	03/01/2023 00:46	WG2014146
(S) p-Terphenyl-d14	*79.1*			*23.0-120*		*03/01/2023 00:46*	WG2014146
(S) Nitrobenzene-d5	*93.9*			*14.0-149*		*03/01/2023 00:46*	WG2014146
(S) 2-Fluorobiphenyl	*72.9*			*34.0-125*		*03/01/2023 00:46*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.8		1	02/28/2023 12:56	WG2014161

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0210	0.0466	1	02/28/2023 17:56	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	14600		7.08	11.6	1	02/28/2023 15:51	WG2014195
Arsenic	4.90		0.603	2.33	1	02/28/2023 15:51	WG2014195
Barium	168		0.0992	0.582	1	02/28/2023 15:51	WG2014195
Cadmium	0.458	J	0.0549	0.582	1	02/28/2023 15:51	WG2014195
Chromium	12.6		0.155	1.16	1	02/28/2023 15:51	WG2014195
Copper	17.0		0.466	2.33	1	02/28/2023 15:51	WG2014195
Lead	20.9		0.242	0.582	1	02/28/2023 15:51	WG2014195
Selenium	1.37	J	0.890	2.33	1	02/28/2023 15:51	WG2014195
Silver	U		0.148	1.16	1	02/28/2023 15:51	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.30	B J	1.30	3.83	29.3	03/01/2023 00:38	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*95.7*			*77.0-120*		*03/01/2023 00:38*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.55	4.66	1	02/28/2023 22:08	WG2014151
Residual Range Organics (RRO)	U		3.88	11.6	1	02/28/2023 22:08	WG2014151
(S) o-Terphenyl	*71.2*			*18.0-148*		*02/28/2023 22:08*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00628	0.0388	1	03/01/2023 03:30	WG2014199
Acenaphthylene	U		0.00546	0.0388	1	03/01/2023 03:30	WG2014199
Anthracene	U		0.00691	0.0388	1	03/01/2023 03:30	WG2014199
Benzo(a)anthracene	U		0.00684	0.0388	1	03/01/2023 03:30	WG2014199
Benzo(b)fluoranthene	U		0.00723	0.0388	1	03/01/2023 03:30	WG2014199
Benzo(k)fluoranthene	U		0.00690	0.0388	1	03/01/2023 03:30	WG2014199
Benzo(g,h,i)perylene	U		0.00709	0.0388	1	03/01/2023 03:30	WG2014199
Benzo(a)pyrene	U		0.00721	0.0388	1	03/01/2023 03:30	WG2014199
Benzoic acid	U		0.137	1.95	1	03/01/2023 03:30	WG2014199
Benzyl alcohol	U		0.0143	0.388	1	03/01/2023 03:30	WG2014199
Bis(2-chlorethoxy)methane	U		0.0116	0.388	1	03/01/2023 03:30	WG2014199
Bis(2-chloroethyl)ether	U		0.0128	0.388	1	03/01/2023 03:30	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0168	0.388	1	03/01/2023 03:30	WG2014199
4-Bromophenyl-phenylether	U		0.0136	0.388	1	03/01/2023 03:30	WG2014199
Carbazole	U		0.0120	0.388	1	03/01/2023 03:30	WG2014199
2-Chloronaphthalene	U		0.00681	0.0388	1	03/01/2023 03:30	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0140	0.388	1	03/01/2023 03:30	WG2014199
4-Chlorophenyl-phenylether	U		0.0135	0.388	1	03/01/2023 03:30	WG2014199
Chrysene	U		0.00771	0.0388	1	03/01/2023 03:30	WG2014199
Dibenz(a,h)anthracene	U		0.0108	0.0388	1	03/01/2023 03:30	WG2014199
Dibenzofuran	U		0.0127	0.388	1	03/01/2023 03:30	WG2014199
3,3-Dichlorobenzidine	U		0.0143	0.388	1	03/01/2023 03:30	WG2014199
2,4-Dinitrotoluene	U		0.0111	0.388	1	03/01/2023 03:30	WG2014199
2,6-Dinitrotoluene	U		0.0127	0.388	1	03/01/2023 03:30	WG2014199
Fluoranthene	U		0.00700	0.0388	1	03/01/2023 03:30	WG2014199
Fluorene	U		0.00631	0.0388	1	03/01/2023 03:30	WG2014199
Hexachlorobenzene	U		0.0137	0.388	1	03/01/2023 03:30	WG2014199
Hexachloro-1,3-butadiene	U		0.0130	0.388	1	03/01/2023 03:30	WG2014199
Hexachlorocyclopentadiene	U		0.0204	0.388	1	03/01/2023 03:30	WG2014199
Hexachloroethane	U		0.0153	0.388	1	03/01/2023 03:30	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0110	0.0388	1	03/01/2023 03:30	WG2014199
Isophorone	U		0.0119	0.388	1	03/01/2023 03:30	WG2014199
2-Methylnaphthalene	U		0.00503	0.0388	1	03/01/2023 03:30	WG2014199
Naphthalene	U		0.00974	0.0388	1	03/01/2023 03:30	WG2014199
2-Nitroaniline	U		0.0125	0.388	1	03/01/2023 03:30	WG2014199
3-Nitroaniline	U		0.0123	0.388	1	03/01/2023 03:30	WG2014199
4-Nitroaniline	U		0.0113	0.388	1	03/01/2023 03:30	WG2014199
Nitrobenzene	U		0.0135	0.388	1	03/01/2023 03:30	WG2014199
n-Nitrosodimethylamine	U		0.0575	0.388	1	03/01/2023 03:30	WG2014199
n-Nitrosodiphenylamine	U		0.0294	0.388	1	03/01/2023 03:30	WG2014199
n-Nitrosodi-n-propylamine	U		0.0129	0.388	1	03/01/2023 03:30	WG2014199
Phenanthrene	U		0.00770	0.0388	1	03/01/2023 03:30	WG2014199
Benzylbutyl phthalate	U		0.0121	0.388	1	03/01/2023 03:30	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0492	0.388	1	03/01/2023 03:30	WG2014199
Di-n-butyl phthalate	U		0.0133	0.388	1	03/01/2023 03:30	WG2014199
Diethyl phthalate	U		0.0128	0.388	1	03/01/2023 03:30	WG2014199
Dimethyl phthalate	U		0.0822	0.388	1	03/01/2023 03:30	WG2014199
Di-n-octyl phthalate	U		0.0262	0.388	1	03/01/2023 03:30	WG2014199
Pyrene	U		0.00755	0.0388	1	03/01/2023 03:30	WG2014199
Pyridine	U		0.0256	0.388	1	03/01/2023 03:30	WG2014199
1,2,4-Trichlorobenzene	U		0.0121	0.388	1	03/01/2023 03:30	WG2014199
4-Chloro-3-methylphenol	U		0.0126	0.388	1	03/01/2023 03:30	WG2014199
2-Chlorophenol	U		0.0128	0.388	1	03/01/2023 03:30	WG2014199
2,4-Dichlorophenol	U		0.0113	0.388	1	03/01/2023 03:30	WG2014199
2,4-Dimethylphenol	U		0.0101	0.388	1	03/01/2023 03:30	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0879	0.388	1	03/01/2023 03:30	WG2014199
2,4-Dinitrophenol	U		0.0907	0.388	1	03/01/2023 03:30	WG2014199
2-Methylphenol	U		0.0116	0.388	1	03/01/2023 03:30	WG2014199
3&4-Methyl Phenol	U		0.0121	0.388	1	03/01/2023 03:30	WG2014199
2-Nitrophenol	U		0.0139	0.388	1	03/01/2023 03:30	WG2014199
4-Nitrophenol	U		0.0121	0.388	1	03/01/2023 03:30	WG2014199
Pentachlorophenol	U		0.0104	0.388	1	03/01/2023 03:30	WG2014199
Phenol	U		0.0156	0.388	1	03/01/2023 03:30	WG2014199
2,4,5-Trichlorophenol	U		0.0132	0.388	1	03/01/2023 03:30	WG2014199
2,4,6-Trichlorophenol	U		0.0125	0.388	1	03/01/2023 03:30	WG2014199
(S) 2-Fluorophenol	*63.9*			*12.0-120*		*03/01/2023 03:30*	WG2014199
(S) Phenol-d5	*58.7*			*10.0-120*		*03/01/2023 03:30*	WG2014199
(S) Nitrobenzene-d5	*57.5*			*10.0-122*		*03/01/2023 03:30*	WG2014199
(S) 2-Fluorobiphenyl	*65.7*			*15.0-120*		*03/01/2023 03:30*	WG2014199
(S) 2,4,6-Tribromophenol	*84.8*			*10.0-127*		*03/01/2023 03:30*	WG2014199
(S) p-Terphenyl-d14	*63.0*			*10.0-120*		*03/01/2023 03:30*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00268	0.00699	1	03/01/2023 01:03	WG2014146
Acenaphthene	U		0.00243	0.00699	1	03/01/2023 01:03	WG2014146
Acenaphthylene	U		0.00252	0.00699	1	03/01/2023 01:03	WG2014146
Benzo(a)anthracene	U		0.00202	0.00699	1	03/01/2023 01:03	WG2014146
Benzo(a)pyrene	U		0.00209	0.00699	1	03/01/2023 01:03	WG2014146
Benzo(b)fluoranthene	U		0.00178	0.00699	1	03/01/2023 01:03	WG2014146
Benzo(g,h,i)perylene	U		0.00206	0.00699	1	03/01/2023 01:03	WG2014146
Benzo(k)fluoranthene	U		0.00250	0.00699	1	03/01/2023 01:03	WG2014146
Chrysene	U		0.00270	0.00699	1	03/01/2023 01:03	WG2014146
Dibenz(a,h)anthracene	U		0.00200	0.00699	1	03/01/2023 01:03	WG2014146
Fluoranthene	U		0.00264	0.00699	1	03/01/2023 01:03	WG2014146
Fluorene	U		0.00239	0.00699	1	03/01/2023 01:03	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00211	0.00699	1	03/01/2023 01:03	WG2014146
Naphthalene	U		0.00475	0.0233	1	03/01/2023 01:03	WG2014146
Phenanthrene	U		0.00269	0.00699	1	03/01/2023 01:03	WG2014146
Pyrene	U		0.00233	0.00699	1	03/01/2023 01:03	WG2014146
1-Methylnaphthalene	U		0.00523	0.0233	1	03/01/2023 01:03	WG2014146
2-Methylnaphthalene	U		0.00497	0.0233	1	03/01/2023 01:03	WG2014146
2-Chloronaphthalene	U		0.00543	0.0233	1	03/01/2023 01:03	WG2014146
(S) p-Terphenyl-d14	*83.4*			*23.0-120*		*03/01/2023 01:03*	WG2014146
(S) Nitrobenzene-d5	*91.6*			*14.0-149*		*03/01/2023 01:03*	WG2014146
(S) 2-Fluorobiphenyl	*75.4*			*34.0-125*		*03/01/2023 01:03*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.1		1	02/28/2023 12:56	WG2014161

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0204	0.0454	1	02/28/2023 17:59	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10700		6.90	11.3	1	02/28/2023 15:54	WG2014195
Arsenic	4.12		0.588	2.27	1	02/28/2023 15:54	WG2014195
Barium	107		0.0967	0.567	1	02/28/2023 15:54	WG2014195
Cadmium	0.255	J	0.0534	0.567	1	02/28/2023 15:54	WG2014195
Chromium	9.14		0.151	1.13	1	02/28/2023 15:54	WG2014195
Copper	13.5		0.454	2.27	1	02/28/2023 15:54	WG2014195
Lead	14.1		0.236	0.567	1	02/28/2023 15:54	WG2014195
Selenium	U		0.867	2.27	1	02/28/2023 15:54	WG2014195
Silver	U		0.144	1.13	1	02/28/2023 15:54	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.28	B J	1.10	3.24	25	03/01/2023 14:57	WG2014774
(S) a,a,a-Trifluorotoluene(FID)	*105*			*77.0-120*		*03/01/2023 14:57*	WG2014774

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.51	4.54	1	02/28/2023 22:21	WG2014151
Residual Range Organics (RRO)	U		3.78	11.3	1	02/28/2023 22:21	WG2014151
(S) o-Terphenyl	*49.2*			*18.0-148*		*02/28/2023 22:21*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00612	0.0378	1	03/01/2023 05:12	WG2014199
Acenaphthylene	U		0.00532	0.0378	1	03/01/2023 05:12	WG2014199
Anthracene	U		0.00673	0.0378	1	03/01/2023 05:12	WG2014199
Benzo(a)anthracene	U		0.00666	0.0378	1	03/01/2023 05:12	WG2014199
Benzo(b)fluoranthene	U		0.00705	0.0378	1	03/01/2023 05:12	WG2014199
Benzo(k)fluoranthene	U		0.00672	0.0378	1	03/01/2023 05:12	WG2014199
Benzo(g,h,i)perylene	U		0.00691	0.0378	1	03/01/2023 05:12	WG2014199
Benzo(a)pyrene	U		0.00702	0.0378	1	03/01/2023 05:12	WG2014199
Benzoic acid	U		0.134	1.90	1	03/01/2023 05:12	WG2014199
Benzyl alcohol	U		0.0140	0.378	1	03/01/2023 05:12	WG2014199
Bis(2-chlorethoxy)methane	U		0.0113	0.378	1	03/01/2023 05:12	WG2014199
Bis(2-chloroethyl)ether	U		0.0125	0.378	1	03/01/2023 05:12	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0163	0.378	1	03/01/2023 05:12	WG2014199
4-Bromophenyl-phenylether	U		0.0133	0.378	1	03/01/2023 05:12	WG2014199
Carbazole	U		0.0117	0.378	1	03/01/2023 05:12	WG2014199
2-Chloronaphthalene	U		0.00664	0.0378	1	03/01/2023 05:12	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0136	0.378	1	03/01/2023 05:12	WG2014199
4-Chlorophenyl-phenylether	U		0.0132	0.378	1	03/01/2023 05:12	WG2014199
Chrysene	U		0.00751	0.0378	1	03/01/2023 05:12	WG2014199
Dibenz(a,h)anthracene	U		0.0105	0.0378	1	03/01/2023 05:12	WG2014199
Dibenzofuran	U		0.0124	0.378	1	03/01/2023 05:12	WG2014199
3,3-Dichlorobenzidine	U		0.0140	0.378	1	03/01/2023 05:12	WG2014199
2,4-Dinitrotoluene	U		0.0108	0.378	1	03/01/2023 05:12	WG2014199
2,6-Dinitrotoluene	U		0.0124	0.378	1	03/01/2023 05:12	WG2014199
Fluoranthene	U		0.00682	0.0378	1	03/01/2023 05:12	WG2014199
Fluorene	U		0.00615	0.0378	1	03/01/2023 05:12	WG2014199
Hexachlorobenzene	U		0.0134	0.378	1	03/01/2023 05:12	WG2014199
Hexachloro-1,3-butadiene	U		0.0127	0.378	1	03/01/2023 05:12	WG2014199
Hexachlorocyclopentadiene	U		0.0199	0.378	1	03/01/2023 05:12	WG2014199
Hexachloroethane	U		0.0149	0.378	1	03/01/2023 05:12	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0107	0.0378	1	03/01/2023 05:12	WG2014199
Isophorone	U		0.0116	0.378	1	03/01/2023 05:12	WG2014199
2-Methylnaphthalene	U		0.00490	0.0378	1	03/01/2023 05:12	WG2014199
Naphthalene	U		0.00949	0.0378	1	03/01/2023 05:12	WG2014199
2-Nitroaniline	U		0.0121	0.378	1	03/01/2023 05:12	WG2014199
3-Nitroaniline	U		0.0120	0.378	1	03/01/2023 05:12	WG2014199
4-Nitroaniline	U		0.0110	0.378	1	03/01/2023 05:12	WG2014199
Nitrobenzene	U		0.0132	0.378	1	03/01/2023 05:12	WG2014199
n-Nitrosodimethylamine	U		0.0561	0.378	1	03/01/2023 05:12	WG2014199
n-Nitrosodiphenylamine	U		0.0286	0.378	1	03/01/2023 05:12	WG2014199
n-Nitrosodi-n-propylamine	U		0.0126	0.378	1	03/01/2023 05:12	WG2014199
Phenanthrene	U		0.00750	0.0378	1	03/01/2023 05:12	WG2014199
Benzylbutyl phthalate	U		0.0118	0.378	1	03/01/2023 05:12	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0479	0.378	1	03/01/2023 05:12	WG2014199
Di-n-butyl phthalate	U		0.0129	0.378	1	03/01/2023 05:12	WG2014199
Diethyl phthalate	U		0.0125	0.378	1	03/01/2023 05:12	WG2014199
Dimethyl phthalate	U		0.0801	0.378	1	03/01/2023 05:12	WG2014199
Di-n-octyl phthalate	U		0.0255	0.378	1	03/01/2023 05:12	WG2014199
Pyrene	U		0.00735	0.0378	1	03/01/2023 05:12	WG2014199
Pyridine	U		0.0250	0.378	1	03/01/2023 05:12	WG2014199
1,2,4-Trichlorobenzene	U		0.0118	0.378	1	03/01/2023 05:12	WG2014199
4-Chloro-3-methylphenol	U		0.0123	0.378	1	03/01/2023 05:12	WG2014199
2-Chlorophenol	U		0.0125	0.378	1	03/01/2023 05:12	WG2014199
2,4-Dichlorophenol	U		0.0110	0.378	1	03/01/2023 05:12	WG2014199
2,4-Dimethylphenol	U		0.00987	0.378	1	03/01/2023 05:12	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0857	0.378	1	03/01/2023 05:12	WG2014199
2,4-Dinitrophenol	U		0.0884	0.378	1	03/01/2023 05:12	WG2014199
2-Methylphenol	U		0.0113	0.378	1	03/01/2023 05:12	WG2014199
3&4-Methyl Phenol	U		0.0118	0.378	1	03/01/2023 05:12	WG2014199
2-Nitrophenol	U		0.0135	0.378	1	03/01/2023 05:12	WG2014199
4-Nitrophenol	U		0.0118	0.378	1	03/01/2023 05:12	WG2014199
Pentachlorophenol	U		0.0102	0.378	1	03/01/2023 05:12	WG2014199
Phenol	U		0.0152	0.378	1	03/01/2023 05:12	WG2014199
2,4,5-Trichlorophenol	U		0.0128	0.378	1	03/01/2023 05:12	WG2014199
2,4,6-Trichlorophenol	U		0.0121	0.378	1	03/01/2023 05:12	WG2014199
(S) 2-Fluorophenol	*55.2*			*12.0-120*		*03/01/2023 05:12*	WG2014199
(S) Phenol-d5	*50.3*			*10.0-120*		*03/01/2023 05:12*	WG2014199
(S) Nitrobenzene-d5	*49.7*			*10.0-122*		*03/01/2023 05:12*	WG2014199
(S) 2-Fluorobiphenyl	*58.5*			*15.0-120*		*03/01/2023 05:12*	WG2014199
(S) 2,4,6-Tribromophenol	*74.8*			*10.0-127*		*03/01/2023 05:12*	WG2014199
(S) p-Terphenyl-d14	*59.5*			*10.0-120*		*03/01/2023 05:12*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00261	0.00681	1	03/01/2023 01:21	WG2014146
Acenaphthene	U		0.00237	0.00681	1	03/01/2023 01:21	WG2014146
Acenaphthylene	U		0.00245	0.00681	1	03/01/2023 01:21	WG2014146
Benzo(a)anthracene	U		0.00196	0.00681	1	03/01/2023 01:21	WG2014146
Benzo(a)pyrene	U		0.00203	0.00681	1	03/01/2023 01:21	WG2014146
Benzo(b)fluoranthene	U		0.00174	0.00681	1	03/01/2023 01:21	WG2014146
Benzo(g,h,i)perylene	U		0.00201	0.00681	1	03/01/2023 01:21	WG2014146
Benzo(k)fluoranthene	U		0.00244	0.00681	1	03/01/2023 01:21	WG2014146
Chrysene	U		0.00263	0.00681	1	03/01/2023 01:21	WG2014146
Dibenz(a,h)anthracene	U		0.00195	0.00681	1	03/01/2023 01:21	WG2014146
Fluoranthene	U		0.00258	0.00681	1	03/01/2023 01:21	WG2014146
Fluorene	U		0.00233	0.00681	1	03/01/2023 01:21	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00205	0.00681	1	03/01/2023 01:21	WG2014146
Naphthalene	U		0.00463	0.0227	1	03/01/2023 01:21	WG2014146
Phenanthrene	U		0.00262	0.00681	1	03/01/2023 01:21	WG2014146
Pyrene	U		0.00227	0.00681	1	03/01/2023 01:21	WG2014146
1-Methylnaphthalene	U		0.00509	0.0227	1	03/01/2023 01:21	WG2014146
2-Methylnaphthalene	U		0.00485	0.0227	1	03/01/2023 01:21	WG2014146
2-Chloronaphthalene	U		0.00529	0.0227	1	03/01/2023 01:21	WG2014146
(S) p-Terphenyl-d14	*49.9*			*23.0-120*		*03/01/2023 01:21*	WG2014146
(S) Nitrobenzene-d5	*87.1*			*14.0-149*		*03/01/2023 01:21*	WG2014146
(S) 2-Fluorobiphenyl	*38.4*			*34.0-125*		*03/01/2023 01:21*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.2		1	02/28/2023 12:56	WG2014161

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0197	0.0439	1	02/28/2023 18:01	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9770	J3 V	6.67	11.0	1	02/28/2023 15:14	WG2014195
Arsenic	2.98		0.568	2.19	1	02/28/2023 15:14	WG2014195
Barium	103		0.0935	0.549	1	02/28/2023 15:14	WG2014195
Cadmium	0.225	J	0.0517	0.549	1	02/28/2023 15:14	WG2014195
Chromium	7.85		0.146	1.10	1	02/28/2023 15:14	WG2014195
Copper	11.5		0.439	2.19	1	02/28/2023 15:14	WG2014195
Lead	11.8		0.228	0.549	1	02/28/2023 15:14	WG2014195
Selenium	U		0.838	2.19	1	02/28/2023 15:14	WG2014195
Silver	U		0.139	1.10	1	02/28/2023 15:14	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.48	B J	1.04	3.07	25.8	03/01/2023 01:03	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*96.5*			*77.0-120*		*03/01/2023 01:03*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.46	4.39	1	02/28/2023 22:34	WG2014151
Residual Range Organics (RRO)	U		3.65	11.0	1	02/28/2023 22:34	WG2014151
(S) o-Terphenyl	*59.5*			*18.0-148*		*02/28/2023 22:34*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00591	0.0365	1	03/01/2023 03:50	WG2014199
Acenaphthylene	U		0.00515	0.0365	1	03/01/2023 03:50	WG2014199
Anthracene	U		0.00651	0.0365	1	03/01/2023 03:50	WG2014199
Benzo(a)anthracene	U		0.00644	0.0365	1	03/01/2023 03:50	WG2014199
Benzo(b)fluoranthene	U		0.00681	0.0365	1	03/01/2023 03:50	WG2014199
Benzo(k)fluoranthene	U		0.00649	0.0365	1	03/01/2023 03:50	WG2014199
Benzo(g,h,i)perylene	U		0.00668	0.0365	1	03/01/2023 03:50	WG2014199
Benzo(a)pyrene	U		0.00679	0.0365	1	03/01/2023 03:50	WG2014199
Benzoic acid	U		0.129	1.83	1	03/01/2023 03:50	WG2014199
Benzyl alcohol	U		0.0135	0.365	1	03/01/2023 03:50	WG2014199
Bis(2-chlorethoxy)methane	U		0.0110	0.365	1	03/01/2023 03:50	WG2014199
Bis(2-chloroethyl)ether	U		0.0121	0.365	1	03/01/2023 03:50	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0158	0.365	1	03/01/2023 03:50	WG2014199
4-Bromophenyl-phenylether	U		0.0128	0.365	1	03/01/2023 03:50	WG2014199
Carbazole	U		0.0113	0.365	1	03/01/2023 03:50	WG2014199
2-Chloronaphthalene	U		0.00642	0.0365	1	03/01/2023 03:50	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0132	0.365	1	03/01/2023 03:50	WG2014199
4-Chlorophenyl-phenylether	U		0.0127	0.365	1	03/01/2023 03:50	WG2014199
Chrysene	U		0.00726	0.0365	1	03/01/2023 03:50	WG2014199
Dibenz(a,h)anthracene	U		0.0101	0.0365	1	03/01/2023 03:50	WG2014199
Dibenzofuran	U		0.0120	0.365	1	03/01/2023 03:50	WG2014199
3,3-Dichlorobenzidine	U		0.0135	0.365	1	03/01/2023 03:50	WG2014199
2,4-Dinitrotoluene	U		0.0105	0.365	1	03/01/2023 03:50	WG2014199
2,6-Dinitrotoluene	U		0.0120	0.365	1	03/01/2023 03:50	WG2014199
Fluoranthene	U		0.00659	0.0365	1	03/01/2023 03:50	WG2014199
Fluorene	U		0.00595	0.0365	1	03/01/2023 03:50	WG2014199
Hexachlorobenzene	U		0.0129	0.365	1	03/01/2023 03:50	WG2014199
Hexachloro-1,3-butadiene	U		0.0123	0.365	1	03/01/2023 03:50	WG2014199
Hexachlorocyclopentadiene	U		0.0192	0.365	1	03/01/2023 03:50	WG2014199
Hexachloroethane	U		0.0144	0.365	1	03/01/2023 03:50	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0103	0.0365	1	03/01/2023 03:50	WG2014199
Isophorone	U		0.0112	0.365	1	03/01/2023 03:50	WG2014199
2-Methylnaphthalene	U		0.00474	0.0365	1	03/01/2023 03:50	WG2014199
Naphthalene	U		0.00917	0.0365	1	03/01/2023 03:50	WG2014199
2-Nitroaniline	U		0.0117	0.365	1	03/01/2023 03:50	WG2014199
3-Nitroaniline	U		0.0116	0.365	1	03/01/2023 03:50	WG2014199
4-Nitroaniline	U		0.0107	0.365	1	03/01/2023 03:50	WG2014199
Nitrobenzene	U		0.0127	0.365	1	03/01/2023 03:50	WG2014199
n-Nitrosodimethylamine	U		0.0542	0.365	1	03/01/2023 03:50	WG2014199
n-Nitrosodiphenylamine	U		0.0276	0.365	1	03/01/2023 03:50	WG2014199
n-Nitrosodi-n-propylamine	U		0.0122	0.365	1	03/01/2023 03:50	WG2014199
Phenanthrene	U		0.00725	0.0365	1	03/01/2023 03:50	WG2014199
Benzylbutyl phthalate	U		0.0114	0.365	1	03/01/2023 03:50	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0463	0.365	1	03/01/2023 03:50	WG2014199
Di-n-butyl phthalate	U		0.0125	0.365	1	03/01/2023 03:50	WG2014199
Diethyl phthalate	U		0.0121	0.365	1	03/01/2023 03:50	WG2014199
Dimethyl phthalate	U		0.0775	0.365	1	03/01/2023 03:50	WG2014199
Di-n-octyl phthalate	U		0.0247	0.365	1	03/01/2023 03:50	WG2014199
Pyrene	U		0.00711	0.0365	1	03/01/2023 03:50	WG2014199
Pyridine	U		0.0241	0.365	1	03/01/2023 03:50	WG2014199
1,2,4-Trichlorobenzene	U		0.0114	0.365	1	03/01/2023 03:50	WG2014199
4-Chloro-3-methylphenol	U		0.0118	0.365	1	03/01/2023 03:50	WG2014199
2-Chlorophenol	U		0.0121	0.365	1	03/01/2023 03:50	WG2014199
2,4-Dichlorophenol	U		0.0106	0.365	1	03/01/2023 03:50	WG2014199
2,4-Dimethylphenol	U		0.00954	0.365	1	03/01/2023 03:50	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0828	0.365	1	03/01/2023 03:50	WG2014199
2,4-Dinitrophenol	U		0.0855	0.365	1	03/01/2023 03:50	WG2014199
2-Methylphenol	U		0.0110	0.365	1	03/01/2023 03:50	WG2014199
3&4-Methyl Phenol	U		0.0114	0.365	1	03/01/2023 03:50	WG2014199
2-Nitrophenol	U		0.0131	0.365	1	03/01/2023 03:50	WG2014199
4-Nitrophenol	U		0.0114	0.365	1	03/01/2023 03:50	WG2014199
Pentachlorophenol	U		0.00983	0.365	1	03/01/2023 03:50	WG2014199
Phenol	U		0.0147	0.365	1	03/01/2023 03:50	WG2014199
2,4,5-Trichlorophenol	U		0.0124	0.365	1	03/01/2023 03:50	WG2014199
2,4,6-Trichlorophenol	U		0.0117	0.365	1	03/01/2023 03:50	WG2014199
(S) 2-Fluorophenol	*61.3*			*12.0-120*		*03/01/2023 03:50*	WG2014199
(S) Phenol-d5	*55.9*			*10.0-120*		*03/01/2023 03:50*	WG2014199
(S) Nitrobenzene-d5	*56.0*			*10.0-122*		*03/01/2023 03:50*	WG2014199
(S) 2-Fluorobiphenyl	*65.4*			*15.0-120*		*03/01/2023 03:50*	WG2014199
(S) 2,4,6-Tribromophenol	*83.0*			*10.0-127*		*03/01/2023 03:50*	WG2014199
(S) p-Terphenyl-d14	*62.0*			*10.0-120*		*03/01/2023 03:50*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00252	0.00658	1	03/01/2023 01:40	WG2014146
Acenaphthene	U		0.00229	0.00658	1	03/01/2023 01:40	WG2014146
Acenaphthylene	U		0.00237	0.00658	1	03/01/2023 01:40	WG2014146
Benzo(a)anthracene	U		0.00190	0.00658	1	03/01/2023 01:40	WG2014146
Benzo(a)pyrene	U		0.00196	0.00658	1	03/01/2023 01:40	WG2014146
Benzo(b)fluoranthene	U		0.00168	0.00658	1	03/01/2023 01:40	WG2014146
Benzo(g,h,i)perylene	U		0.00194	0.00658	1	03/01/2023 01:40	WG2014146
Benzo(k)fluoranthene	U		0.00236	0.00658	1	03/01/2023 01:40	WG2014146
Chrysene	U		0.00255	0.00658	1	03/01/2023 01:40	WG2014146
Dibenz(a,h)anthracene	U		0.00189	0.00658	1	03/01/2023 01:40	WG2014146
Fluoranthene	U		0.00249	0.00658	1	03/01/2023 01:40	WG2014146
Fluorene	U		0.00225	0.00658	1	03/01/2023 01:40	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00199	0.00658	1	03/01/2023 01:40	WG2014146
Naphthalene	U		0.00448	0.0219	1	03/01/2023 01:40	WG2014146
Phenanthrene	U		0.00253	0.00658	1	03/01/2023 01:40	WG2014146
Pyrene	U		0.00219	0.00658	1	03/01/2023 01:40	WG2014146
1-Methylnaphthalene	U		0.00493	0.0219	1	03/01/2023 01:40	WG2014146
2-Methylnaphthalene	U		0.00468	0.0219	1	03/01/2023 01:40	WG2014146
2-Chloronaphthalene	U		0.00511	0.0219	1	03/01/2023 01:40	WG2014146
(S) p-Terphenyl-d14	*49.0*			*23.0-120*		*03/01/2023 01:40*	WG2014146
(S) Nitrobenzene-d5	*85.9*			*14.0-149*		*03/01/2023 01:40*	WG2014146
(S) 2-Fluorobiphenyl	*40.8*			*34.0-125*		*03/01/2023 01:40*	WG2014146

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	0.0390	B J	0.0316	0.100	1	03/01/2023 00:51	WG2014576
(S) a,a,a-Trifluorotoluene(FID)	*97.5*			*78.0-120*		*03/01/2023 00:51*	WG2014576

Method Blank (MB)

(MB) R3896005-1 02/28/23 12:50

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Total Solids	0.000			

L1588269-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1588269-20 02/28/23 12:50 • (DUP) R3896005-3 02/28/23 12:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	87.4	89.4	1	2.19		10

Laboratory Control Sample (LCS)

(LCS) R3896005-2 02/28/23 12:50

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

Method Blank (MB)

(MB) R3896007-1 02/28/23 12:56

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1589835-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1589835-01 02/28/23 12:56 • (DUP) R3896007-3 02/28/23 12:56

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	81.2	81.7	1	0.604		10

Laboratory Control Sample (LCS)

(LCS) R3896007-2 02/28/23 12:56

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

Method Blank (MB)

(MB) R3895901-1 02/28/23 17:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3895901-2 02/28/23 17:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.528	106	80.0-120	

L1588269-20 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588269-20 02/28/23 17:16 • (MS) R3895901-3 02/28/23 17:19 • (MSD) R3895901-4 02/28/23 17:21

Analyte	Spike Amount (dry) mg/kg	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.572	0.0251	0.704	0.693	119	117	1	75.0-125			1.59	20

Method Blank (MB)

(MB) R3895884-1 02/28/23 15:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.08	10.0
Arsenic	U		0.518	2.00
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Chromium	U		0.133	1.00
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Selenium	U		0.764	2.00
Silver	U		0.127	1.00

Laboratory Control Sample (LCS)

(LCS) R3895884-2 02/28/23 15:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	953	95.3	80.0-120	
Arsenic	100	94.0	94.0	80.0-120	
Barium	100	99.1	99.1	80.0-120	
Cadmium	100	97.7	97.7	80.0-120	
Chromium	100	98.3	98.3	80.0-120	
Copper	100	98.3	98.3	80.0-120	
Lead	100	96.9	96.9	80.0-120	
Selenium	100	97.0	97.0	80.0-120	
Silver	20.0	18.1	90.4	80.0-120	

L1589831-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1589831-10 02/28/23 15:14 • (MS) R3895884-5 02/28/23 15:22 • (MSD) R3895884-6 02/28/23 15:24

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1100	9770	11600	8560	164	0.000	1	75.0-125	V	J3 V	29.9	20
Arsenic	110	2.98	105	103	93.0	91.0	1	75.0-125			2.11	20
Barium	110	103	207	189	94.7	78.3	1	75.0-125			9.08	20
Cadmium	110	0.225	107	107	97.1	97.2	1	75.0-125			0.107	20
Chromium	110	7.85	112	110	95.3	93.6	1	75.0-125			1.70	20
Copper	110	11.5	119	116	98.1	95.3	1	75.0-125			2.58	20
Lead	110	11.8	120	116	98.7	95.1	1	75.0-125			3.38	20
Selenium	110	U	106	103	96.4	94.1	1	75.0-125			2.49	20

L1589831-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1589831-10 02/28/23 15:14 • (MS) R3895884-5 02/28/23 15:22 • (MSD) R3895884-6 02/28/23 15:24

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Silver	21.9	U	20.0	19.8	91.3	90.3	1	75.0-125			1.05	20

Method Blank (MB)

(MB) R3895973-2 02/28/23 21:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPHG C6 - C12	1.21	J	0.848	2.50
(S) a,a,a-Trifluorotoluene(FID)	*91.5*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3895973-1 02/28/23 19:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPHG C6 - C12	5.50	5.37	97.6	71.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*95.8*	*77.0-120*	

L1588733-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588733-02 03/01/23 04:20 • (MS) R3895973-3 03/01/23 06:23 • (MSD) R3895973-4 03/01/23 06:47

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	1100	66.3	1040	1140	88.5	97.6	200	50.0-150			9.17	27
(S) a,a,a-Trifluorotoluene(FID)					*96.3*	*97.3*		*77.0-120*				

Method Blank (MB)

(MB) R3896259-2 03/01/23 12:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPHG C6 - C12	0.851	J	0.848	2.50
(S) a,a,a-Trifluorotoluene(FID)	*104*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3896259-1 03/01/23 10:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPHG C6 - C12	5.50	5.27	95.8	71.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*116*	*77.0-120*	

Method Blank (MB)

(MB) R3896053-3 02/28/23 21:41

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Gasoline Range Organics-NWTPH	0.0534	J	0.0316	0.100
(S) a,a,a-Trifluorotoluene(FID)	*97.4*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3896053-1 02/28/23 19:11

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5.50	5.42	98.5	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*102*	*78.0-120*	

Method Blank (MB)

(MB) R3895932-2 02/28/23 19:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*66.1*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3895932-1 02/28/23 19:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Diesel Range Organics (DRO)	50.0	35.4	70.8	50.0-150	
(S) o-Terphenyl			*83.6*	*18.0-148*	

L1589831-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1589831-03 02/28/23 20:37 • (MS) R3895932-3 02/28/23 20:50 • (MSD) R3895932-4 02/28/23 21:03

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	56.1	U	29.8	21.3	53.2	38.0	1	50.0-150		J3 J6	33.3	20
(S) o-Terphenyl					*49.2*	*40.8*		*18.0-148*				

Method Blank (MB)

(MB) R3896244-2 03/01/23 00:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00539	0.0333
Acenaphthylene	U		0.00469	0.0333
Anthracene	U		0.00593	0.0333
Benzo(a)anthracene	U		0.00587	0.0333
Benzo(b)fluoranthene	U		0.00621	0.0333
Benzo(k)fluoranthene	U		0.00592	0.0333
Benzo(g,h,i)perylene	U		0.00609	0.0333
Benzo(a)pyrene	U		0.00619	0.0333
Benzoic Acid	U		0.118	1.67
Benzyl Alcohol	U		0.0123	0.333
Bis(2-chlorethoxy)methane	U		0.0100	0.333
Bis(2-chloroethyl)ether	U		0.0110	0.333
2,2-oxybis(1-chloropropane)	U		0.0144	0.333
4-Bromophenyl-phenylether	U		0.0117	0.333
Carbazole	U		0.0103	0.333
2-Chloronaphthalene	U		0.00585	0.0333
4-Chloroaniline	U		0.0120	0.333
4-Chlorophenyl-phenylether	U		0.0116	0.333
Chrysene	U		0.00662	0.0333
Dibenz(a,h)anthracene	U		0.00923	0.0333
Dibenzofuran	U		0.0109	0.333
3,3-Dichlorobenzidine	U		0.0123	0.333
2,4-Dinitrotoluene	U		0.00955	0.333
2,6-Dinitrotoluene	U		0.0109	0.333
Fluoranthene	U		0.00601	0.0333
Fluorene	U		0.00542	0.0333
Hexachlorobenzene	U		0.0118	0.333
Hexachloro-1,3-butadiene	U		0.0112	0.333
Hexachlorocyclopentadiene	U		0.0175	0.333
Hexachloroethane	U		0.0131	0.333
Indeno(1,2,3-cd)pyrene	U		0.00941	0.0333
Isophorone	U		0.0102	0.333
2-Methylnaphthalene	U		0.00432	0.0333
Naphthalene	U		0.00836	0.0333
2-Nitroaniline	U		0.0107	0.333
3-Nitroaniline	U		0.0106	0.333
4-Nitroaniline	U		0.00971	0.333
Nitrobenzene	U		0.0116	0.333
n-Nitrosodimethylamine	U		0.0494	0.333
n-Nitrosodiphenylamine	U		0.0252	0.333

Method Blank (MB)

(MB) R3896244-2 03/01/23 00:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
n-Nitrosodi-n-propylamine	U		0.0111	0.333
Phenanthrene	U		0.00661	0.0333
Benzylbutyl phthalate	U		0.0104	0.333
Bis(2-ethylhexyl)phthalate	U		0.0422	0.333
Di-n-butyl phthalate	U		0.0114	0.333
Diethyl phthalate	U		0.0110	0.333
Dimethyl phthalate	U		0.0706	0.333
Di-n-octyl phthalate	U		0.0225	0.333
Pyrene	U		0.00648	0.0333
Pyridine	U		0.0220	0.333
1,2,4-Trichlorobenzene	U		0.0104	0.333
4-Chloro-3-methylphenol	U		0.0108	0.333
2-Chlorophenol	U		0.0110	0.333
2,4-Dichlorophenol	U		0.00970	0.333
2,4-Dimethylphenol	U		0.00870	0.333
4,6-Dinitro-2-methylphenol	U		0.0755	0.333
2,4-Dinitrophenol	U		0.0779	0.333
2-Methylphenol	U		0.0100	0.333
3&4-Methyl Phenol	U		0.0104	0.333
2-Nitrophenol	U		0.0119	0.333
4-Nitrophenol	U		0.0104	0.333
Pentachlorophenol	U		0.00896	0.333
Phenol	U		0.0134	0.333
2,4,5-Trichlorophenol	U		0.0113	0.333
2,4,6-Trichlorophenol	U		0.0107	0.333
(S) 2-Fluorophenol	*75.7*			*12.0-120*
(S) Phenol-d5	*68.2*			*10.0-120*
(S) Nitrobenzene-d5	*67.6*			*10.0-122*
(S) 2-Fluorobiphenyl	*79.6*			*15.0-120*
(S) 2,4,6-Tribromophenol	*89.0*			*10.0-127*
(S) p-Terphenyl-d14	*82.3*			*10.0-120*

Laboratory Control Sample (LCS)

(LCS) R3896244-1 02/28/23 23:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.666	0.454	68.2	38.0-120	
Acenaphthylene	0.666	0.503	75.5	40.0-120	

Laboratory Control Sample (LCS)

(LCS) R3896244-1 02/28/23 23:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.666	0.509	76.4	42.0-120	
Benzo(a)anthracene	0.666	0.553	83.0	44.0-120	
Benzo(b)fluoranthene	0.666	0.517	77.6	43.0-120	
Benzo(k)fluoranthene	0.666	0.503	75.5	44.0-120	
Benzo(g,h,i)perylene	0.666	0.661	99.2	43.0-120	
Benzo(a)pyrene	0.666	0.583	87.5	45.0-120	
Benzoic Acid	1.33	0.346	26.0	10.0-120	
Benzyl Alcohol	0.666	0.413	62.0	10.0-120	
Bis(2-chlorethoxy)methane	0.666	0.363	54.5	20.0-120	
Bis(2-chloroethyl)ether	0.666	0.321	48.2	16.0-120	
2,2-Oxybis(1-Chloropropane)	0.666	0.422	63.4	23.0-120	
4-Bromophenyl-phenylether	0.666	0.540	81.1	40.0-120	
Carbazole	0.666	0.498	74.8	48.0-120	
2-Chloronaphthalene	0.666	0.473	71.0	35.0-120	
4-Chloroaniline	0.666	0.292	43.8	18.0-120	
4-Chlorophenyl-phenylether	0.666	0.481	72.2	40.0-120	
Chrysene	0.666	0.538	80.8	43.0-120	
Dibenz(a,h)anthracene	0.666	0.651	97.7	44.0-120	
Dibenzofuran	0.666	0.479	71.9	44.0-120	
3,3-Dichlorobenzidine	1.33	1.04	78.2	28.0-120	
2,4-Dinitrotoluene	0.666	0.556	83.5	45.0-120	
2,6-Dinitrotoluene	0.666	0.487	73.1	42.0-120	
Fluoranthene	0.666	0.523	78.5	44.0-120	
Fluorene	0.666	0.474	71.2	41.0-120	
Hexachlorobenzene	0.666	0.548	82.3	39.0-120	
Hexachloro-1,3-butadiene	0.666	0.420	63.1	15.0-120	
Hexachlorocyclopentadiene	0.666	0.476	71.5	15.0-120	
Hexachloroethane	0.666	0.388	58.3	17.0-120	
Indeno(1,2,3-cd)pyrene	0.666	0.618	92.8	45.0-120	
Isophorone	0.666	0.363	54.5	23.0-120	
2-Methylnaphthalene	0.666	0.394	59.2	34.0-120	
Naphthalene	0.666	0.374	56.2	18.0-120	
2-Nitroaniline	0.666	0.539	80.9	46.0-120	
3-Nitroaniline	0.666	0.500	75.1	36.0-120	
4-Nitroaniline	0.666	0.777	117	36.0-120	
Nitrobenzene	0.666	0.348	52.3	17.0-120	
n-Nitrosodimethylamine	0.666	0.368	55.3	10.0-125	
n-Nitrosodiphenylamine	0.666	0.462	69.4	40.0-120	
n-Nitrosodi-n-propylamine	0.666	0.417	62.6	26.0-120	
Phenanthrene	0.666	0.501	75.2	42.0-120	

Laboratory Control Sample (LCS)

(LCS) R3896244-1 02/28/23 23:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzylbutyl phthalate	0.666	0.506	76.0	40.0-120	
Bis(2-ethylhexyl)phthalate	0.666	0.512	76.9	41.0-120	
Di-n-butyl phthalate	0.666	0.484	72.7	43.0-120	
Diethyl phthalate	0.666	0.495	74.3	43.0-120	
Dimethyl phthalate	0.666	0.490	73.6	43.0-120	
Di-n-octyl phthalate	0.666	0.517	77.6	40.0-120	
Pyrene	0.666	0.489	73.4	41.0-120	
Pyridine	0.666	0.255	38.3	10.0-120	
1,2,4-Trichlorobenzene	0.666	0.393	59.0	17.0-120	
4-Chloro-3-methylphenol	0.666	0.367	55.1	28.0-120	
2-Chlorophenol	0.666	0.438	65.8	28.0-120	
2,4-Dichlorophenol	0.666	0.399	59.9	25.0-120	
2,4-Dimethylphenol	0.666	0.376	56.5	15.0-120	
4,6-Dinitro-2-methylphenol	0.666	0.566	85.0	16.0-120	
2,4-Dinitrophenol	0.666	0.439	65.9	10.0-120	
2-Methylphenol	0.666	0.431	64.7	35.0-120	
3&4-Methyl Phenol	0.666	0.483	72.5	42.0-120	
2-Nitrophenol	0.666	0.441	66.2	20.0-120	
4-Nitrophenol	0.666	0.630	94.6	27.0-120	
Pentachlorophenol	0.666	0.442	66.4	29.0-120	
Phenol	0.666	0.425	63.8	28.0-120	
2,4,5-Trichlorophenol	0.666	0.452	67.9	38.0-120	
2,4,6-Trichlorophenol	0.666	0.473	71.0	37.0-120	
(S) 2-Fluorophenol			*69.2*	*12.0-120*	
(S) Phenol-d5			*66.4*	*10.0-120*	
(S) Nitrobenzene-d5			*52.9*	*10.0-122*	
(S) 2-Fluorobiphenyl			*74.8*	*15.0-120*	
(S) 2,4,6-Tribromophenol			*97.7*	*10.0-127*	
(S) p-Terphenyl-d14			*79.3*	*10.0-120*	

L1588269-19 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588269-19 03/01/23 06:55 • (MS) R3896244-3 03/01/23 07:15 • (MSD) R3896244-4 03/01/23 07:36

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.710	U	0.478	0.532	67.3	74.5	2	18.0-120			10.7	32
Acenaphthylene	0.710	U	0.504	0.563	70.9	78.8	2	25.0-120			11.1	32
Anthracene	0.710	U	0.571	0.562	80.3	78.6	2	22.0-120			1.55	29
Benzo(a)anthracene	0.710	U	0.618	0.594	87.0	83.1	2	25.0-120			3.99	29

L1588269-19 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588269-19 03/01/23 06:55 • (MS) R3896244-3 03/01/23 07:15 • (MSD) R3896244-4 03/01/23 07:36

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzo(b)fluoranthene	0.710	U	0.620	0.605	87.3	84.6	2	19.0-122			2.51	31
Benzo(k)fluoranthene	0.710	U	0.580	0.561	81.7	78.5	2	23.0-120			3.47	30
Benzo(g,h,i)perylene	0.710	U	0.398	0.365	56.0	51.1	2	10.0-120			8.65	33
Benzo(a)pyrene	0.710	U	0.654	0.627	92.1	87.7	2	24.0-120			4.29	30
Benzoic Acid	1.42	U	1.33	1.33	93.8	93.1	2	10.0-152			0.000	40
Benzyl Alcohol	0.710	U	0.440	0.469	61.9	65.7	2	10.0-136			6.53	40
Bis(2-chlorethoxy)methane	0.710	U	0.409	0.420	57.6	58.8	2	10.0-120			2.65	34
Bis(2-chloroethyl)ether	0.710	U	0.334	0.369	47.1	51.7	2	10.0-120			10.0	40
2,2-Oxybis(1-Chloropropane)	0.710	U	0.430	0.475	60.5	66.5	2	10.0-120			9.96	40
4-Bromophenyl-phenylether	0.710	U	0.653	0.600	92.0	84.0	2	27.0-120			8.42	30
Carbazole	0.710	U	0.539	0.554	75.9	77.5	2	31.0-120			2.82	24
2-Chloronaphthalene	0.710	U	0.472	0.529	66.4	74.0	2	20.0-120			11.4	32
4-Chloroaniline	0.710	U	0.423	0.324	59.6	45.4	2	10.0-120			26.5	36
4-Chlorophenyl-phenylether	0.710	U	0.501	0.571	70.6	79.8	2	24.0-120			12.9	29
Chrysene	0.710	U	0.606	0.587	85.3	82.2	2	21.0-120			3.13	29
Dibenz(a,h)anthracene	0.710	U	0.463	0.440	65.2	61.5	2	10.0-120			5.12	32
Dibenzofuran	0.710	U	0.489	0.546	68.9	76.5	2	24.0-120			11.0	30
3,3-Dichlorobenzidine	1.42	U	1.04	1.11	73.5	77.7	2	10.0-120			6.33	34
2,4-Dinitrotoluene	0.710	U	0.574	0.646	80.8	90.5	2	30.0-120			11.9	31
2,6-Dinitrotoluene	0.710	U	0.498	0.560	70.1	78.3	2	25.0-120			11.6	31
Fluoranthene	0.710	0.0181	0.623	0.605	85.2	82.1	2	18.0-126			3.04	32
Fluorene	0.710	U	0.502	0.556	70.7	77.8	2	25.0-120			10.2	30
Hexachlorobenzene	0.710	U	0.596	0.602	83.9	84.3	2	27.0-120			1.10	28
Hexachloro-1,3-butadiene	0.710	U	0.483	0.491	68.0	68.8	2	10.0-120			1.81	38
Hexachlorocyclopentadiene	0.710	U	0.0523	U	7.37	4.94	2	10.0-120	J6	J6	38.9	40
Hexachloroethane	0.710	U	0.317	0.320	44.6	44.8	2	10.0-120			1.04	40
Indeno(1,2,3-cd)pyrene	0.710	U	0.442	0.400	62.2	56.0	2	10.0-120			9.92	32
Isophorone	0.710	U	0.443	0.460	62.4	64.3	2	13.0-120			3.65	34
2-Methylnaphthalene	0.710	U	0.456	0.469	64.2	65.7	2	10.0-120			2.85	37
Naphthalene	0.710	U	0.439	0.449	61.8	62.8	2	10.0-120			2.23	35
2-Nitroaniline	0.710	U	0.517	0.571	72.8	79.8	2	24.0-120			9.91	30
3-Nitroaniline	0.710	U	0.648	0.556	91.2	77.8	2	11.0-120			15.2	32
4-Nitroaniline	0.710	U	0.698	0.820	98.3	115	2	15.0-120			16.1	31
Nitrobenzene	0.710	U	0.401	0.411	56.5	57.5	2	10.0-120			2.44	36
n-Nitrosodimethylamine	0.710	U	0.369	0.379	52.0	53.1	2	10.0-127			2.64	40
n-Nitrosodiphenylamine	0.710	U	0.624	0.671	87.9	93.8	2	17.0-120			7.13	29
n-Nitrosodi-n-propylamine	0.710	U	0.473	0.509	66.6	71.2	2	10.0-120			7.39	37
Phenanthrene	0.710	0.0168	0.557	0.568	76.1	77.2	2	17.0-120			1.95	31
Benzylbutyl phthalate	0.710	U	0.561	0.567	78.9	79.4	2	23.0-120			1.17	30

L1588269-19 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588269-19 03/01/23 06:55 • (MS) R3896244-3 03/01/23 07:15 • (MSD) R3896244-4 03/01/23 07:36

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bis(2-ethylhexyl)phthalate	0.710	U	0.566	0.574	79.7	80.3	2	17.0-126			1.35	30
Di-n-butyl phthalate	0.710	U	0.537	0.543	75.5	76.0	2	30.0-120			1.22	29
Diethyl phthalate	0.710	U	0.504	0.564	70.9	78.9	2	26.0-120			11.3	28
Dimethyl phthalate	0.710	U	0.491	0.549	69.2	76.8	2	25.0-120			11.0	29
Di-n-octyl phthalate	0.710	U	0.666	0.667	93.8	93.4	2	21.0-123			0.165	29
Pyrene	0.710	0.0241	0.573	0.542	77.3	72.5	2	16.0-121			5.52	32
Pyridine	0.710	U	0.298	0.320	42.0	44.8	2	10.0-120			7.12	40
1,2,4-Trichlorobenzene	0.710	U	0.457	0.467	64.4	65.4	2	12.0-120			2.14	37
4-Chloro-3-methylphenol	0.710	U	0.453	0.457	63.8	64.0	2	15.0-120			0.966	30
2-Chlorophenol	0.710	U	0.466	0.488	65.6	68.3	2	15.0-120			4.61	37
2,4-Dichlorophenol	0.710	U	0.491	0.495	69.2	69.2	2	20.0-120			0.669	31
2,4-Dimethylphenol	0.710	U	0.462	0.469	65.0	65.7	2	10.0-120			1.65	33
4,6-Dinitro-2-methylphenol	0.710	U	0.319	U	44.9	0.000	2	10.0-120		J3 J6	200	39
2,4-Dinitrophenol	0.710	U	0.319	0.286	44.9	40.0	2	10.0-121			10.9	40
2-Methylphenol	0.710	U	0.458	0.483	64.6	67.5	2	11.0-120			5.14	40
3&4-Methyl Phenol	0.710	U	0.515	0.545	72.4	76.3	2	12.0-123			5.81	38
2-Nitrophenol	0.710	U	0.482	0.517	67.8	72.3	2	12.0-120			7.05	39
4-Nitrophenol	0.710	U	0.644	0.735	90.7	103	2	10.0-137			13.2	32
Pentachlorophenol	0.710	U	0.539	0.517	75.9	72.3	2	10.0-160			4.17	31
Phenol	0.710	U	0.428	0.458	60.2	64.2	2	12.0-120			6.95	38
2,4,5-Trichlorophenol	0.710	U	0.473	0.520	66.6	72.8	2	20.0-120			9.52	30
2,4,6-Trichlorophenol	0.710	U	0.509	0.547	71.7	76.6	2	19.0-120			7.28	32
(S) 2-Fluorophenol					*67.1*	*70.3*		*12.0-120*				
(S) Phenol-d5					*64.0*	*65.9*		*10.0-120*				
(S) Nitrobenzene-d5					*61.0*	*57.8*		*10.0-122*				
(S) 2-Fluorobiphenyl					*70.6*	*76.3*		*15.0-120*				
(S) 2,4,6-Tribromophenol					*102*	*99.4*		*10.0-127*				
(S) p-Terphenyl-d14					*74.0*	*75.1*		*10.0-120*				

Sample Narrative:

OS: Dilution due to matrix impact during extract concentration procedure

MS: Dilution due to matrix impact during extract concentration procedure

MSD: Dilution due to matrix impact during extract concentration procedure

Method Blank (MB)

(MB) R3896057-2 02/28/23 22:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) p-Terphenyl-d14	*95.1*			*23.0-120*
(S) Nitrobenzene-d5	*97.1*			*14.0-149*
(S) 2-Fluorobiphenyl	*85.5*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3896057-1 02/28/23 22:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0670	83.8	50.0-126	
Acenaphthene	0.0800	0.0660	82.5	50.0-120	
Acenaphthylene	0.0800	0.0688	86.0	50.0-120	
Benzo(a)anthracene	0.0800	0.0735	91.9	45.0-120	
Benzo(a)pyrene	0.0800	0.0614	76.8	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0702	87.8	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0604	75.5	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0631	78.9	49.0-125	
Chrysene	0.0800	0.0712	89.0	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0612	76.5	47.0-125	
Fluoranthene	0.0800	0.0709	88.6	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3896057-1 02/28/23 22:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0691	86.4	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0678	84.8	46.0-125	
Naphthalene	0.0800	0.0639	79.9	50.0-120	
Phenanthrene	0.0800	0.0661	82.6	47.0-120	
Pyrene	0.0800	0.0755	94.4	43.0-123	
1-Methylnaphthalene	0.0800	0.0663	82.9	51.0-121	
2-Methylnaphthalene	0.0800	0.0690	86.3	50.0-120	
2-Chloronaphthalene	0.0800	0.0638	79.8	50.0-120	
(S) p-Terphenyl-d14			*83.5*	*23.0-120*	
(S) Nitrobenzene-d5			*101*	*14.0-149*	
(S) 2-Fluorobiphenyl			*80.7*	*34.0-125*	

L1588236-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588236-10 03/01/23 04:19 • (MS) R3896057-3 03/01/23 04:37 • (MSD) R3896057-4 03/01/23 04:54

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.104	U	0.114	0.113	109	107	1	10.0-145			0.845	30
Acenaphthene	0.104	U	0.0672	0.0797	64.7	75.6	1	14.0-127			17.1	27
Acenaphthylene	0.104	U	0.0852	0.103	82.1	97.7	1	21.0-124			18.9	25
Benzo(a)anthracene	0.104	0.0366	0.139	0.173	98.9	130	1	10.0-139			21.8	30
Benzo(a)pyrene	0.104	0.0810	0.162	0.210	78.6	123	1	10.0-141			25.6	31
Benzo(b)fluoranthene	0.104	0.107	0.191	0.244	81.2	130	1	10.0-140			24.5	36
Benzo(g,h,i)perylene	0.104	0.126	0.188	0.217	60.3	86.5	1	10.0-140			14.1	33
Benzo(k)fluoranthene	0.104	0.0207	0.0921	0.119	68.8	93.4	1	10.0-137			25.6	31
Chrysene	0.104	0.192	0.108	0.138	0.000	0.000	1	10.0-145	J6	J6	23.9	30
Dibenz(a,h)anthracene	0.104	U	0.0782	0.0880	75.4	83.5	1	10.0-132			11.8	31
Fluoranthene	0.104	0.0587	0.136	0.180	74.7	115	1	10.0-153			27.8	33
Fluorene	0.104	U	0.0841	0.103	81.1	97.4	1	11.0-130			19.9	29
Indeno(1,2,3-cd)pyrene	0.104	0.0758	0.152	0.175	73.0	93.9	1	10.0-137			14.2	32
Naphthalene	0.104	0.0216	0.0982	0.121	73.8	94.8	1	10.0-135			21.3	27
Phenanthrene	0.104	0.0760	0.161	0.221	82.0	138	1	10.0-144		J3	31.4	31
Pyrene	0.104	0.466	0.446	0.598	0.000	126	1	10.0-148	V		29.0	35
1-Methylnaphthalene	0.104	U	0.134	0.191	129	181	1	10.0-142		J3 J5	35.4	28
2-Methylnaphthalene	0.104	0.0543	0.146	0.197	88.4	135	1	10.0-137		J3	29.5	28
2-Chloronaphthalene	0.104	U	0.0653	0.0696	62.9	66.1	1	29.0-120			6.48	24
(S) p-Terphenyl-d14					*84.2*	*80.1*		*23.0-120*				
(S) Nitrobenzene-d5					*79.8*	*87.8*		*14.0-149*				
(S) 2-Fluorobiphenyl					*63.4*	*62.4*		*34.0-125*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To: **tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com**

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project # **2494**

Lab Project # **UPRRGOLD-2494**

Collected by (print): James Roman

Site/Facility ID # **IMPORTED BACKFILL SOIL AND**

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed 3/21/2023

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1558831
F215
Tab

Acctnum: **UPRRGOLD**
Template: **T223916**
Prelogin: **P981897**
PM: **829 - Brittnie L Boyd**
PB: DR 2.23.23

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Metals 8ozClr-NoPres	NWTPHDX w/o SGT 8ozClr-NoPres	NWTPHGX 40mlAmb/MeOH10ml/Syr	SV8270 8ozClr-NoPres	SV8270PAHSIM 8ozClr-NoPres	Remarks	Sample # (lab only)
BF5-2494-01-022723	G	SS	-	2-27-2023	1100	3	X	X	X	X	X		-01
BF5-2494-02-022723	"	"	-	"	1110	3	X	X	X	X	X		-02
BF5-2494-03-022723	"	"	-	"	1120	3	X	X	X	X	X		-03
BF5-2494-04-022723	"	"	-	"	1130	3	X	X	X	X	X		-04
BF5-2494-05-022723	"	"	-	"	1140	3	X	X	X	X	X		-05
TS2-2494-01-022723	G	SS	-	2-27-2023	1215	3	X	X	X	X	X		-06
TS2-2494-02-022723	"	"	-	"	1220	3	X	X	X	X	X		-07
TS2-2494-03-022723	"	"	-	"	1230	3	X	X	X	X	X		-08
TS2-2494-04-022723	"	"	-	"	1245	3	X	X	X	X	X		-09
TS2-2494-05-022723	"	"	-	"	1255	3	X	X	X	X	X		-10

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: *Metals = Al, Ag, As, Ba, Cd, Cr, Cu, Hg, Pb, Se by 6010/7471
Custody seal

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	2/27/2023	1530			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4 °C Bottles Received: 1.7-0=1.4 30	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 2.28.23 Time: 0845	Hold: Condition: NCF / OK

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To: **tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com**

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project # **2494**

Lab Project # **UPRRGOLD-2494**

Collected by (print): James Roman

Site/Facility ID # **IMPORTED BACKFILL SOIL AND**

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed 3-1-2023

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
TB-2494-3-022723	-	SS	-	2-27-2023	1200	1
		SS				
		SS				
		SS				
		SS				
		SS				
		SS				
		SS				
		SS				
		SS				

Analysis / Container / Preservative

*Metals 8ozClr-NoPres	NWTPHDX w/o SGT 8ozClr-NoPres	NWTPHGX 40mlAmb/MeOH10ml/Sr- 5% HCl	SV8270 8ozClr-NoPres	SV8270PAHSIM 8ozClr-NoPres
		1		

Chain of Custody Page 2 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1589831

Table #

Acctnum: **UPRRGOLD**
Template: **T223916**
Prelogin: **P981897**
PM: **829 - Brittnie L Boyd**
PB: LPZ 2.23.23

Shipped Via:

Remarks	Sample # (lab only)
	-11

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:*Metals = Al, Ag, As, Ba, Cd, Cr, Cu, Hg, Pb, Se

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP X Y __N
COC Signed/Accurate: X Y __N
Bottles arrive intact: X Y __N
Correct bottles used: X Y __N
Sufficient volume sent: X Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: X Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCl / MeoH TBR	
	2/27/2023	1530			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.7 °C Bottles Received: 1	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 2.28.23 Time: 0750	Hold: / Condition: NCF / OK

ANALYTICAL REPORT

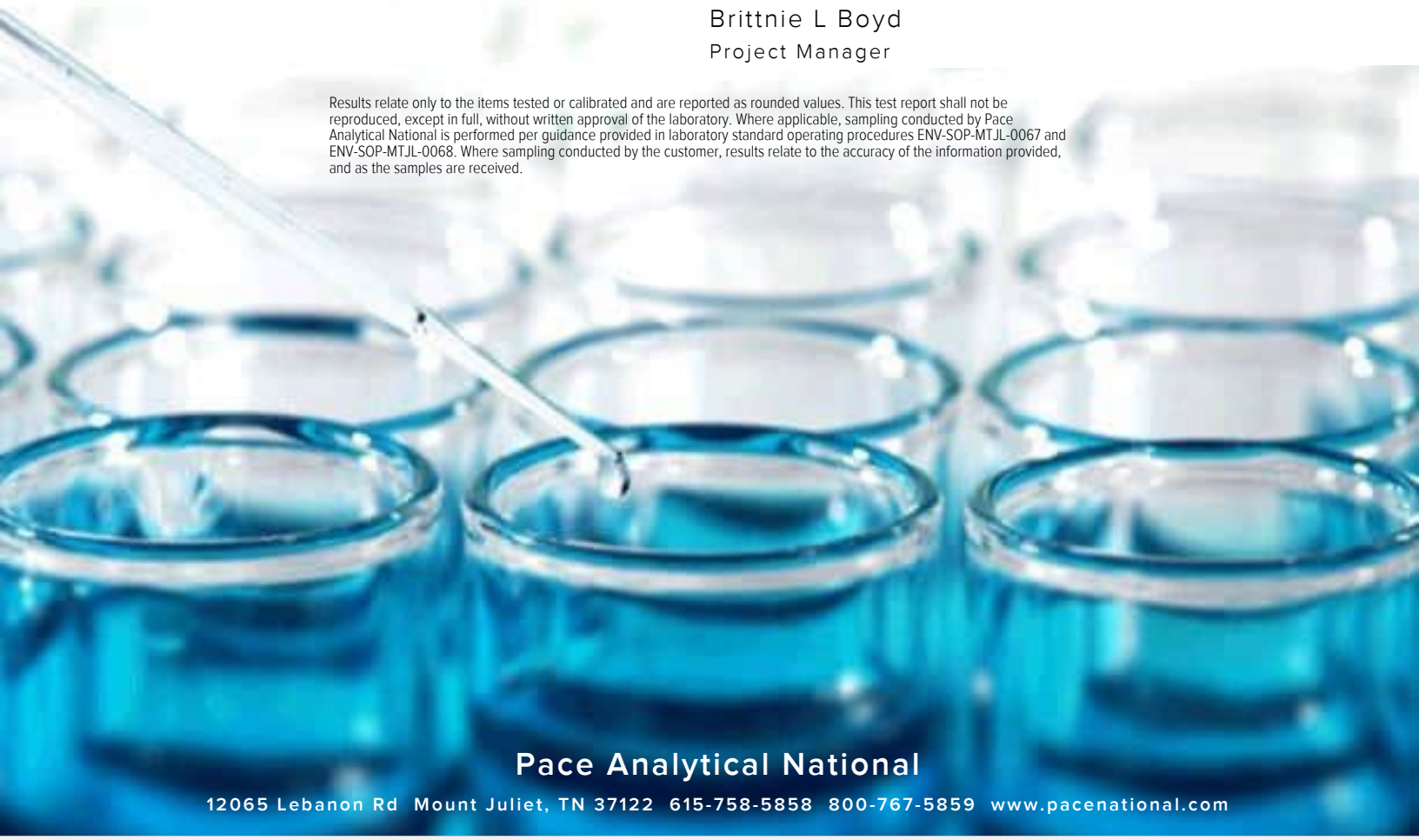
March 06, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1591638
Samples Received:	03/04/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton
	18300 NE Union Hill Rd #200
	Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-EX-1-08B-4.0-030223 L1591638-01 Solid

Collected by	Collected date/time	Received date/time
	03/02/23 13:45	03/04/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2017135	1	03/04/23 14:10	03/04/23 14:24	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2017403	1	03/05/23 20:33	03/06/23 11:01	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2016424	5	03/04/23 17:33	03/05/23 11:33	SJM	Mt. Juliet, TN

SO-2494-EX-1-09W-2.0-030223 L1591638-02 Solid

Collected by	Collected date/time	Received date/time
	03/02/23 13:55	03/04/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2017135	1	03/04/23 14:10	03/04/23 14:24	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2017403	1	03/05/23 20:33	03/06/23 11:04	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2016424	5	03/04/23 17:33	03/05/23 11:13	SJM	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.5		1	03/04/2023 14:24	WG2017135

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0183	0.0406	1	03/06/2023 11:01	WG2017403

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8810		7.01	50.8	5	03/05/2023 11:33	WG2016424
Arsenic	8.36		0.102	1.02	5	03/05/2023 11:33	WG2016424
Barium	49.0		0.154	2.54	5	03/05/2023 11:33	WG2016424
Chromium	11.1		0.301	5.08	5	03/05/2023 11:33	WG2016424
Copper	27.8		0.134	5.08	5	03/05/2023 11:33	WG2016424

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.5		1	03/04/2023 14:24	WG2017135

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0185	0.0410	1	03/06/2023 11:04	WG2017403

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	14200		7.07	51.3	5	03/05/2023 11:13	WG2016424
Arsenic	8.41		0.103	1.03	5	03/05/2023 11:13	WG2016424
Barium	81.3		0.156	2.56	5	03/05/2023 11:13	WG2016424
Chromium	14.8		0.303	5.13	5	03/05/2023 11:13	WG2016424
Copper	31.9		0.135	5.13	5	03/05/2023 11:13	WG2016424

Method Blank (MB)

(MB) R3897617-1 03/04/23 14:24

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00300			

L1591638-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1591638-02 03/04/23 14:24 • (DUP) R3897617-3 03/04/23 14:24

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	97.5	97.7	1	0.164		10

Laboratory Control Sample (LCS)

(LCS) R3897617-2 03/04/23 14:24

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

Method Blank (MB)

(MB) R3897636-1 03/06/23 10:00

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3897636-2 03/06/23 10:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.478	95.7	80.0-120	

L1591331-34 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1591331-34 03/06/23 10:04 • (MS) R3897636-3 03/06/23 10:07 • (MSD) R3897636-4 03/06/23 10:09

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	U	0.580	0.487	116	97.3	1	75.0-125			17.5	20

QUALITY CONTROL SUMMARY

L1591638-01,02

Method Blank (MB)

(MB) R3897404-1 03/05/23 11:06

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	0.151	J	0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3897404-2 03/05/23 11:09

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	945	94.5	80.0-120	
Arsenic	100	96.5	96.5	80.0-120	
Barium	100	90.7	90.7	80.0-120	
Chromium	100	98.7	98.7	80.0-120	
Copper	100	94.5	94.5	80.0-120	

L1591638-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1591638-02 03/05/23 11:13 • (MS) R3897404-5 03/05/23 11:23 • (MSD) R3897404-6 03/05/23 11:26

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1030	14200	13900	15100	0.000	90.6	5	75.0-125	V		8.81	20
Arsenic	103	8.41	107	105	96.1	94.0	5	75.0-125			2.03	20
Barium	103	81.3	169	175	85.4	91.2	5	75.0-125			3.44	20
Chromium	103	14.8	114	113	96.5	96.2	5	75.0-125			0.278	20
Copper	103	31.9	127	127	92.7	92.7	5	75.0-125			0.00913	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To: **tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com**

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
James Roman

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):
[signature]

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres										Remarks	Sample # (lab only)
SO-2494-EX-1-SB-4.0-03222023	G	SS	4.0'	3-22-2023	1345	1	X											-01
SO-2494-EX-1-SW-2.0-03222023	G	SS	2.0'	1	1355	1	X											-02

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1591638

D231

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P981898**
PM: **829 - Brittnie L Boyd**
PB: KP 2/23/23

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al,As,Ba,Cr,Cu by 6020 | one custody seal
Hg by 7471

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6295 1086 5396

Sample Receipt Checklist
COC Seal Present/Intact: __NP X Y __N
COC Signed/Accurate: X Y __N
Bottles arrive intact: X Y __N
Correct bottles used: X Y __N
Sufficient volume sent: X Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: X Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR	
[signature]	3/03/2023	1430			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: NA7 °C 3.8+0=3.8	Bottles Received: 2
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 3/4/23	Time: 845

If preservation required by Login: Date/Time

Hold: | Condition: NCF / OK

ANALYTICAL REPORT

April 11, 2023

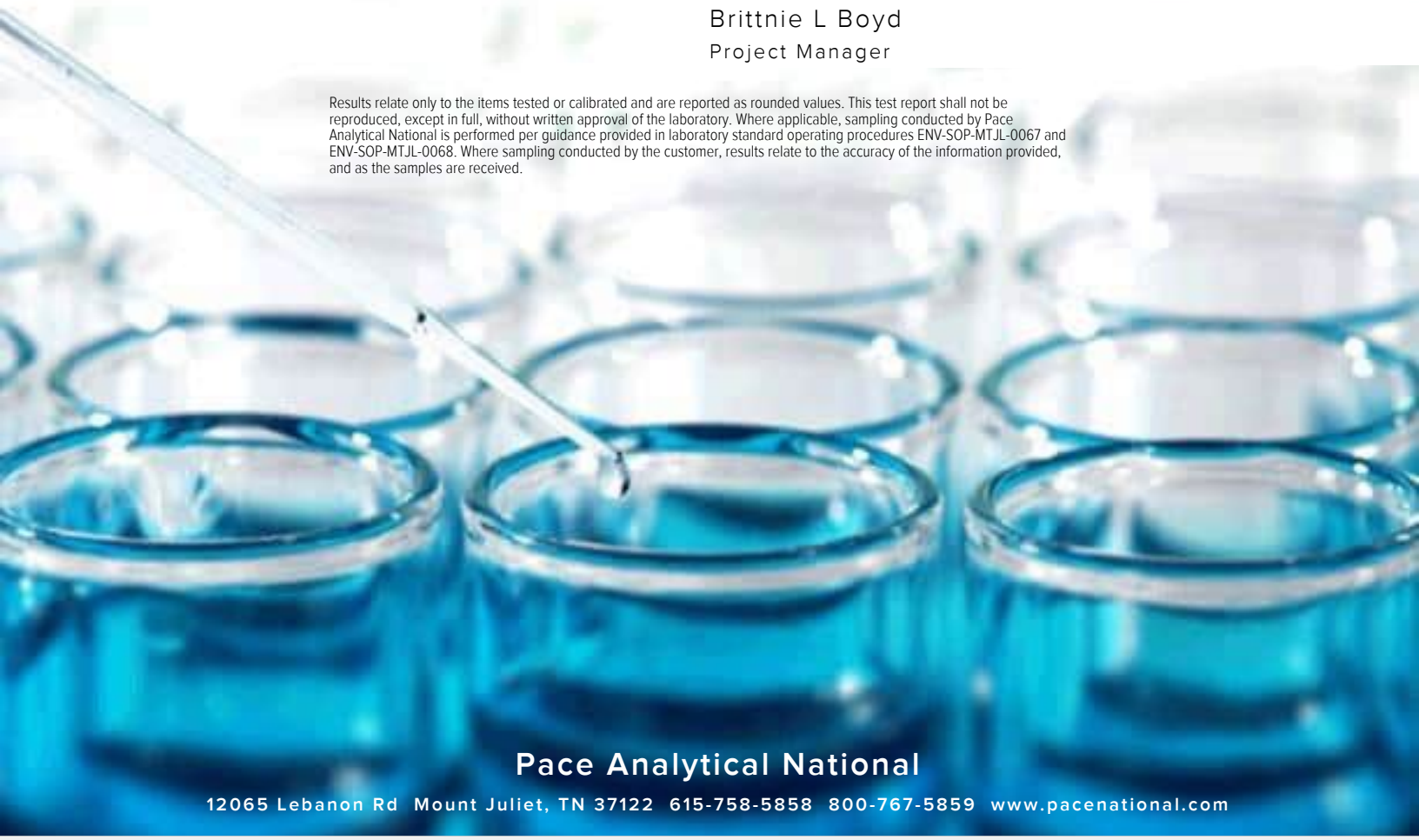
UPRR - Golder Associates

Sample Delivery Group:	L1592492
Samples Received:	03/08/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Zachary Schuehle 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-EX-4-05B-6.0-030623 L1592492-01 Solid

Collected by	Collected date/time	Received date/time
	03/06/23 10:05	03/08/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2036819	1	04/06/23 08:31	04/06/23 08:41	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2036730	1	04/06/23 08:26	04/07/23 13:29	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2036837	5	04/06/23 07:23	04/07/23 11:24	JPD	Mt. Juliet, TN

SO-2494-EX-4-11B-6.0-030623 L1592492-02 Solid

Collected by	Collected date/time	Received date/time
	03/06/23 12:20	03/08/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2036827	1	04/07/23 08:16	04/07/23 08:22	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2036888	1	04/09/23 21:04	04/10/23 10:44	NDL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2036837	5	04/06/23 07:23	04/07/23 11:41	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.3	T8	1	04/06/2023 08:41	WG2036819

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0214	J T8	0.0183	0.0407	1	04/07/2023 13:29	WG2036730

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	17600		7.02	50.9	5	04/07/2023 11:24	WG2036837
Arsenic	13.5		0.102	1.02	5	04/07/2023 11:24	WG2036837
Barium	88.9		0.155	2.54	5	04/07/2023 11:24	WG2036837
Chromium	14.7		0.301	5.09	5	04/07/2023 11:24	WG2036837
Copper	136		0.134	5.09	5	04/07/2023 11:24	WG2036837

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.8	T8	1	04/07/2023 08:22	WG2036827

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0366	J T8	0.0182	0.0405	1	04/10/2023 10:44	WG2036888

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	16600		6.98	50.6	5	04/07/2023 11:41	WG2036837
Arsenic	14.0		0.101	1.01	5	04/07/2023 11:41	WG2036837
Barium	102		0.154	2.53	5	04/07/2023 11:41	WG2036837
Chromium	16.0		0.300	5.06	5	04/07/2023 11:41	WG2036837
Copper	52.3		0.134	5.06	5	04/07/2023 11:41	WG2036837

Method Blank (MB)

(MB) R3910277-1 04/06/23 08:41

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00300			

L1600534-23 Original Sample (OS) • Duplicate (DUP)

(OS) L1600534-23 04/06/23 08:41 • (DUP) R3910277-3 04/06/23 08:41

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	92.5	92.5	1	0.0863		10

Laboratory Control Sample (LCS)

(LCS) R3910277-2 04/06/23 08:41

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

Method Blank (MB)

(MB) R3910737-1 04/07/23 08:22

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00300			

L1592492-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1592492-02 04/07/23 08:22 • (DUP) R3910737-3 04/07/23 08:22

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	98.8	98.8	1	0.0128		10

Laboratory Control Sample (LCS)

(LCS) R3910737-2 04/07/23 08:22

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

Method Blank (MB)

(MB) R3910695-1 04/07/23 13:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3910695-2 04/07/23 13:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.520	104	80.0-120	

L1592492-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1592492-01 04/07/23 13:29 • (MS) R3910695-3 04/07/23 13:37 • (MSD) R3910695-4 04/07/23 13:39

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.509	0.0214	0.499	0.518	93.8	97.7	1	75.0-125			3.85	20

Method Blank (MB)

(MB) R3911385-1 04/10/23 10:31

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3911385-2 04/10/23 10:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.517	103	80.0-120	

L1602109-21 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1602109-21 04/10/23 10:36 • (MS) R3911385-3 04/10/23 10:39 • (MSD) R3911385-4 04/10/23 10:41

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.536	0.258	0.729	0.672	88.1	77.3	1	75.0-125			8.25	20

Method Blank (MB)

(MB) R3910663-1 04/07/23 11:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3910663-2 04/07/23 11:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	969	96.9	80.0-120	
Arsenic	100	98.1	98.1	80.0-120	
Barium	100	94.2	94.2	80.0-120	
Chromium	100	100	100	80.0-120	
Copper	100	83.8	83.8	80.0-120	

L1592492-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1592492-01 04/07/23 11:24 • (MS) R3910663-5 04/07/23 11:34 • (MSD) R3910663-6 04/07/23 11:37

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1020	17600	21000	19900	340	231	5	75.0-125	V	V	5.41	20
Arsenic	102	13.5	110	112	94.4	96.6	5	75.0-125			2.02	20
Barium	102	88.9	188	189	97.4	98.5	5	75.0-125			0.596	20
Chromium	102	14.7	114	117	97.5	100	5	75.0-125			2.41	20
Copper	102	136	242	260	104	122	5	75.0-125		E	7.18	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To: **tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com**

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
James Roman

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed
HOLD

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Analysis / Container / Preservative: Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres										Remarks	Sample # (lab only)
SO-2444-EX-4-058-6.0-033023	G	SS	6'	3-06-2023	1005	1	X										HOLD	-01
SO-2444-EX-4-118-6.0-033023	G	SS	6'	3-06-2023	1220	1	X										HOLD	-02
		SS																
		SS																
		SS																
		SS																
		SS																
		SS																
		SS																
		SS																

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1592492
D115

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P981898**
PM: **829 - Brittnie L Boyd**
PB: KP 2/23/23

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu, Ir by 6020 Hg by 7471 Both samples analyses are to be placed on HOLD

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6094 5470 9104

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
	3-07-2023	1130			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: NSA °C Bottles Received: 4.2+0=4.2 2	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3/8/23 Time: 900	Hold: / Condition: NCF / OK

Nombre: _____ 2/8/22 doo

$\Delta ABC \cong \Delta PQR$

HOIP QTHC ppoo

ANALYTICAL REPORT

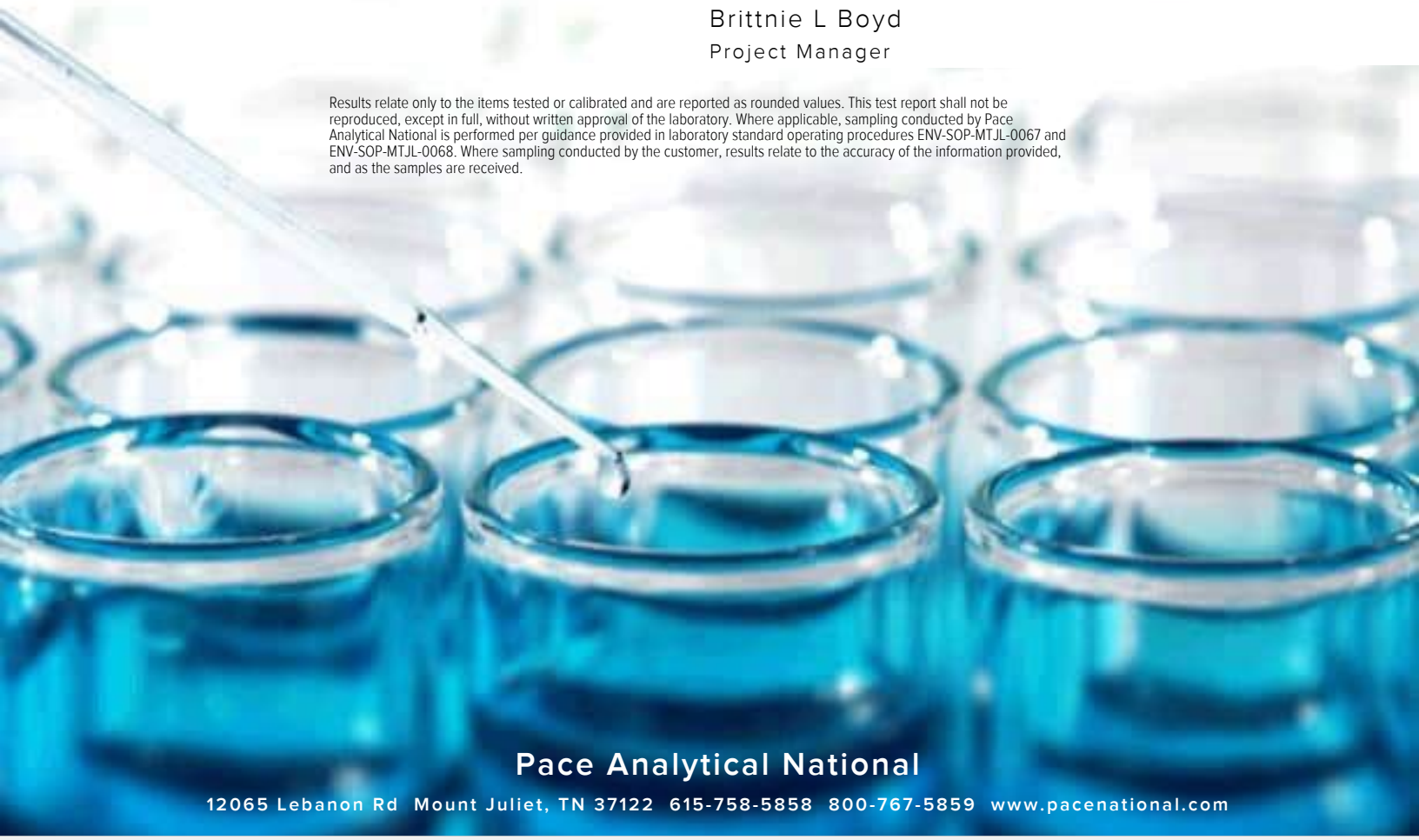
March 09, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1592493
Samples Received:	03/08/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SO-2494-EX-4-01B-6.0-030623 L1592493-01 Solid

Collected by	Collected date/time	Received date/time
	03/06/23 09:30	03/08/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2019232	1	03/08/23 12:48	03/08/23 13:05	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2019231	1	03/08/23 12:33	03/08/23 16:00	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2019234	5	03/08/23 12:37	03/08/23 16:04	JPD	Mt. Juliet, TN

SO-2494-EX-4-02W-3.0-030623 L1592493-02 Solid

Collected by	Collected date/time	Received date/time
	03/06/23 09:45	03/08/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2019232	1	03/08/23 12:48	03/08/23 13:05	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2019231	1	03/08/23 12:33	03/08/23 16:02	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2019234	5	03/08/23 12:37	03/08/23 16:07	JPD	Mt. Juliet, TN

SO-2494-EX-4-03B-4.0-030623 L1592493-03 Solid

Collected by	Collected date/time	Received date/time
	03/06/23 09:55	03/08/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2019232	1	03/08/23 12:48	03/08/23 13:05	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2019231	1	03/08/23 12:33	03/08/23 16:05	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2019234	5	03/08/23 12:37	03/08/23 16:10	JPD	Mt. Juliet, TN

SO-2494-EX-4-04W-4.0-030623 L1592493-04 Solid

Collected by	Collected date/time	Received date/time
	03/06/23 10:00	03/08/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2019232	1	03/08/23 12:48	03/08/23 13:05	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2019231	1	03/08/23 12:33	03/08/23 16:07	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2019234	5	03/08/23 12:37	03/08/23 16:20	JPD	Mt. Juliet, TN

SO-2494-EX-4-06B-4.0-030623 L1592493-05 Solid

Collected by	Collected date/time	Received date/time
	03/06/23 10:10	03/08/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2019232	1	03/08/23 12:48	03/08/23 13:05	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2019231	1	03/08/23 12:33	03/08/23 16:10	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2019234	10	03/08/23 12:37	03/08/23 18:10	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2019234	5	03/08/23 12:37	03/08/23 16:23	JPD	Mt. Juliet, TN

SO-2494-EX-4-07W-3.0-030623 L1592493-06 Solid

Collected by	Collected date/time	Received date/time
	03/06/23 10:20	03/08/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2019232	1	03/08/23 12:48	03/08/23 13:05	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2019231	1	03/08/23 12:33	03/08/23 16:17	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2019234	5	03/08/23 12:37	03/08/23 16:27	JPD	Mt. Juliet, TN

SO-2494-EX-4-08B-4.0-030623 L1592493-07 Solid

Collected by	Collected date/time	Received date/time
	03/06/23 10:25	03/08/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2019232	1	03/08/23 12:48	03/08/23 13:05	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2019231	1	03/08/23 12:33	03/08/23 16:20	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2019234	5	03/08/23 12:37	03/08/23 16:30	JPD	Mt. Juliet, TN

SO-2494-EX-4-09B-4.0-030623 L1592493-08 Solid

Collected by	Collected date/time	Received date/time
	03/06/23 10:40	03/08/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2019232	1	03/08/23 12:48	03/08/23 13:05	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2019231	1	03/08/23 12:33	03/08/23 16:22	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2019234	10	03/08/23 12:37	03/08/23 18:13	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2019234	5	03/08/23 12:37	03/08/23 16:33	JPD	Mt. Juliet, TN

SO-2494-EX-4-10W-4.0-030623 L1592493-09 Solid

Collected by	Collected date/time	Received date/time
	03/06/23 12:15	03/08/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2019232	1	03/08/23 12:48	03/08/23 13:05	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2019231	1	03/08/23 12:33	03/08/23 15:52	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2019234	5	03/08/23 12:37	03/08/23 15:47	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.7		1	03/08/2023 13:05	WG2019232

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0716		0.0182	0.0405	1	03/08/2023 16:00	WG2019231

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	17100		6.99	50.7	5	03/08/2023 16:04	WG2019234
Arsenic	8.91		0.101	1.01	5	03/08/2023 16:04	WG2019234
Barium	109		0.154	2.53	5	03/08/2023 16:04	WG2019234
Chromium	14.5		0.300	5.07	5	03/08/2023 16:04	WG2019234
Copper	59.9		0.134	5.07	5	03/08/2023 16:04	WG2019234

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.5		1	03/08/2023 13:05	WG2019232

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0238	J	0.0181	0.0402	1	03/08/2023 16:02	WG2019231

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12800		6.94	50.3	5	03/08/2023 16:07	WG2019234
Arsenic	12.2		0.101	1.01	5	03/08/2023 16:07	WG2019234
Barium	88.9		0.153	2.51	5	03/08/2023 16:07	WG2019234
Chromium	12.3		0.298	5.03	5	03/08/2023 16:07	WG2019234
Copper	30.4		0.133	5.03	5	03/08/2023 16:07	WG2019234

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.5		1	03/08/2023 13:05	WG2019232

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	03/08/2023 16:05	WG2019231

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12300		6.93	50.2	5	03/08/2023 16:10	WG2019234
Arsenic	11.8		0.100	1.00	5	03/08/2023 16:10	WG2019234
Barium	82.6		0.153	2.51	5	03/08/2023 16:10	WG2019234
Chromium	11.6		0.297	5.02	5	03/08/2023 16:10	WG2019234
Copper	27.2		0.133	5.02	5	03/08/2023 16:10	WG2019234

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.3		1	03/08/2023 13:05	WG2019232

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0403	1	03/08/2023 16:07	WG2019231

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	13200		6.95	50.4	5	03/08/2023 16:20	WG2019234
Arsenic	16.2		0.101	1.01	5	03/08/2023 16:20	WG2019234
Barium	90.6		0.153	2.52	5	03/08/2023 16:20	WG2019234
Chromium	12.5		0.298	5.04	5	03/08/2023 16:20	WG2019234
Copper	28.9		0.133	5.04	5	03/08/2023 16:20	WG2019234

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.3		1	03/08/2023 13:05	WG2019232

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.233		0.0185	0.0411	1	03/08/2023 16:10	WG2019231

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	25700		7.09	51.4	5	03/08/2023 16:23	WG2019234
Arsenic	9.19		0.103	1.03	5	03/08/2023 16:23	WG2019234
Barium	135		0.156	2.57	5	03/08/2023 16:23	WG2019234
Chromium	21.3		0.304	5.14	5	03/08/2023 16:23	WG2019234
Copper	129		0.272	10.3	10	03/08/2023 18:10	WG2019234

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.2		1	03/08/2023 13:05	WG2019232

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0234	J	0.0181	0.0403	1	03/08/2023 16:17	WG2019231

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10900		6.95	50.4	5	03/08/2023 16:27	WG2019234
Arsenic	8.94		0.101	1.01	5	03/08/2023 16:27	WG2019234
Barium	90.5		0.153	2.52	5	03/08/2023 16:27	WG2019234
Chromium	10.6		0.298	5.04	5	03/08/2023 16:27	WG2019234
Copper	29.3		0.133	5.04	5	03/08/2023 16:27	WG2019234

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.7		1	03/08/2023 13:05	WG2019232

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0866		0.0182	0.0405	1	03/08/2023 16:20	WG2019231

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	17600		6.99	50.7	5	03/08/2023 16:30	WG2019234
Arsenic	10.5		0.101	1.01	5	03/08/2023 16:30	WG2019234
Barium	110		0.154	2.53	5	03/08/2023 16:30	WG2019234
Chromium	16.3		0.300	5.07	5	03/08/2023 16:30	WG2019234
Copper	63.0		0.134	5.07	5	03/08/2023 16:30	WG2019234

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.1		1	03/08/2023 13:05	WG2019232

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.143		0.0187	0.0416	1	03/08/2023 16:22	WG2019231

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	28800		7.18	52.0	5	03/08/2023 16:33	WG2019234
Arsenic	8.20		0.104	1.04	5	03/08/2023 16:33	WG2019234
Barium	95.6		0.158	2.60	5	03/08/2023 16:33	WG2019234
Chromium	24.0		0.308	5.20	5	03/08/2023 16:33	WG2019234
Copper	183		0.276	10.4	10	03/08/2023 18:13	WG2019234

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.4		1	03/08/2023 13:05	WG2019232

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.124		0.0183	0.0407	1	03/08/2023 15:52	WG2019231

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	15100		7.01	50.8	5	03/08/2023 15:47	WG2019234
Arsenic	13.9		0.102	1.02	5	03/08/2023 15:47	WG2019234
Barium	83.9		0.155	2.54	5	03/08/2023 15:47	WG2019234
Chromium	14.0		0.301	5.08	5	03/08/2023 15:47	WG2019234
Copper	70.8		0.134	5.08	5	03/08/2023 15:47	WG2019234

Method Blank (MB)

(MB) R3898953-1 03/08/23 13:05

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00200			

L1592493-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1592493-09 03/08/23 13:05 • (DUP) R3898953-3 03/08/23 13:05

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	98.4	98.4	1	0.0630		10

Laboratory Control Sample (LCS)

(LCS) R3898953-2 03/08/23 13:05

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

QUALITY CONTROL SUMMARY

L1592493-01,02,03,04,05,06,07,08,09

Method Blank (MB)

(MB) R3898800-1 03/08/23 15:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3898800-2 03/08/23 15:50

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.519	104	80.0-120	

L1592493-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1592493-09 03/08/23 15:52 • (MS) R3898800-3 03/08/23 15:55 • (MSD) R3898800-4 03/08/23 15:57

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.508	0.124	0.648	0.613	103	96.3	1	75.0-125			5.58	20

Method Blank (MB)

(MB) R3898821-1 03/08/23 15:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	43.9	J	6.90	50.0
Arsenic	U		0.100	1.00
Barium	0.783	J	0.152	2.50
Chromium	0.418	J	0.297	5.00
Copper	0.334	J	0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3898821-2 03/08/23 15:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	953	95.3	80.0-120	
Arsenic	100	94.6	94.6	80.0-120	
Barium	100	94.7	94.7	80.0-120	
Chromium	100	96.5	96.5	80.0-120	
Copper	100	92.7	92.7	80.0-120	

L1592493-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1592493-09 03/08/23 15:47 • (MS) R3898821-5 03/08/23 15:57 • (MSD) R3898821-6 03/08/23 16:00

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1020	15100	18800	18500	367	334	5	75.0-125	V	V	1.81	20
Arsenic	102	13.9	93.0	91.4	77.7	76.2	5	75.0-125			1.72	20
Barium	102	83.9	179	181	93.5	95.2	5	75.0-125			0.962	20
Chromium	102	14.0	100	95.6	85.1	80.3	5	75.0-125			4.90	20
Copper	102	70.8	157	159	84.6	86.8	5	75.0-125			1.43	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To: **tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com**

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Roman

Site/Facility ID #
DROSS STOCKPILE

P.O. #

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

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed
3-09-2023

Analysis / Container / Preservative

Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Remarks	Sample # (lab only)
SO-2494-EX-4-B1B-6.0-030623	G	SS	6 ft	3-06-2023	0930	1 X		-01
SO-2494-EX-4-B2W-3.0-030623			3'		0945	1 X		-02
SO-2494-EX-4-B3B-4.0-030623			4		0955	1 X		-03
SO-2494-EX-4-B4W-4.0-030623			4		1000	1 X		-04
SO-2494-EX-4-B6B-4.0-030623			4		1010	1 X		-05
SO-2494-EX-4-B7W-3.0-030623			3'		1020	1 X		-06
SO-2494-EX-4-B8B-4.0-030623			4		1025	1 X		-07
SO-2494-EX-4-B9B-4.0-030623			4		1040	1 X		-08
SO-2494-EX-4-B10W-4.0-030623			4		~~1220~~ 1215	1 X		-09

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1592413

D116

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P981898**
PM: **829 - Brittnie L Boyd**
PB: KP 2/23/23

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu by 6020
Hg by 7471

1 Custody Seal

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6094 5470 9104

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes (No) HCL / MeoH TBR	If preservation required by Login: Date/Time
Roman	3/07/2023	1130			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: NSAT °C 4.2+0=4.2 Bottles Received: 9	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Kayla T	Date: 3/8/23 Time: 900	Hold: / Condition: NCF / OK

Name: _____ 2/2/23 ODD

P $\frac{\pi}{4}$ $\frac{\pi}{4}$ $\frac{\pi}{2}$

HOW ARE YOU?

ANALYTICAL REPORT

March 10, 2023

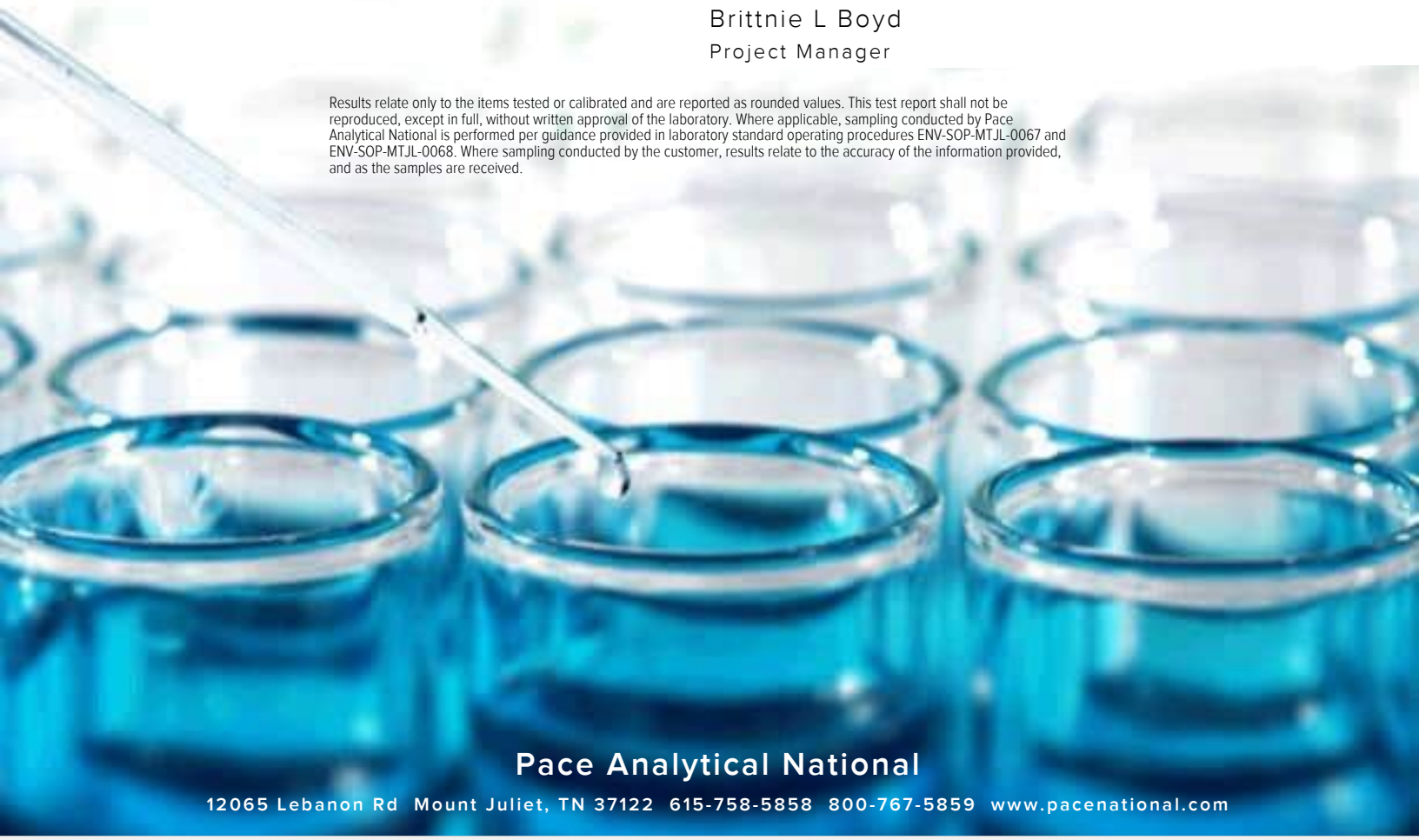
UPRR - Golder Associates

Sample Delivery Group:	L1593050
Samples Received:	03/09/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SO-2494-EX-3-01B-4.0-030723 L1593050-01 Solid

Collected by	Collected date/time	Received date/time
	03/07/23 12:30	03/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2020152	1	03/09/23 12:53	03/09/23 13:00	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2020350	1	03/09/23 15:42	03/10/23 12:53	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2020192	5	03/09/23 15:29	03/09/23 17:06	JPD	Mt. Juliet, TN

SO-2494-EX-3-02W-3.0-030723 L1593050-02 Solid

Collected by	Collected date/time	Received date/time
	03/07/23 12:45	03/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2020152	1	03/09/23 12:53	03/09/23 13:00	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2020350	1	03/09/23 15:42	03/10/23 13:08	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2020192	5	03/09/23 15:29	03/09/23 17:22	JPD	Mt. Juliet, TN

SO-2494-EX-3-03B-4.0-030723 L1593050-03 Solid

Collected by	Collected date/time	Received date/time
	03/07/23 12:50	03/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2020152	1	03/09/23 12:53	03/09/23 13:00	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2020350	1	03/09/23 15:42	03/10/23 13:15	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2020192	5	03/09/23 15:29	03/09/23 17:25	JPD	Mt. Juliet, TN

SO-2494-EX-3-04W-3.0-030723 L1593050-04 Solid

Collected by	Collected date/time	Received date/time
	03/07/23 13:00	03/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2020152	1	03/09/23 12:53	03/09/23 13:00	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2020350	1	03/09/23 15:42	03/10/23 13:18	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2020192	5	03/09/23 15:29	03/09/23 17:28	JPD	Mt. Juliet, TN

SO-2494-EX-3-05B-4.0-030723 L1593050-05 Solid

Collected by	Collected date/time	Received date/time
	03/07/23 13:05	03/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2020152	1	03/09/23 12:53	03/09/23 13:00	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2020350	1	03/09/23 15:42	03/10/23 13:20	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2020192	5	03/09/23 15:29	03/09/23 17:38	JPD	Mt. Juliet, TN

SO-2494-EX-3-06B-6.0-030823 L1593050-06 Solid

Collected by	Collected date/time	Received date/time
	03/08/23 12:30	03/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2020152	1	03/09/23 12:53	03/09/23 13:00	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2020350	1	03/09/23 15:42	03/10/23 13:23	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2020192	5	03/09/23 15:29	03/09/23 17:41	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2020192	50	03/09/23 15:29	03/10/23 11:04	JPD	Mt. Juliet, TN

SO-2494-EX-3-07B-4.0-030823 L1593050-07 Solid

Collected by | Collected date/time 03/08/23 12:40 | Received date/time 03/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2020152	1	03/09/23 12:53	03/09/23 13:00	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2020350	1	03/09/23 15:42	03/10/23 13:25	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2020192	5	03/09/23 15:29	03/09/23 17:45	JPD	Mt. Juliet, TN

SO-2494-W1-02-030723 L1593050-08 Solid

Collected by | Collected date/time 03/07/23 12:00 | Received date/time 03/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2020152	1	03/09/23 12:53	03/09/23 13:00	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2020350	1	03/09/23 15:42	03/10/23 13:28	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2020192	5	03/09/23 15:29	03/09/23 17:48	JPD	Mt. Juliet, TN

SO-2494-W1-18-030823 L1593050-09 Solid

Collected by | Collected date/time 03/08/23 12:15 | Received date/time 03/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2020152	1	03/09/23 12:53	03/09/23 13:00	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2020350	1	03/09/23 15:42	03/10/23 13:30	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2020192	5	03/09/23 15:29	03/09/23 17:51	JPD	Mt. Juliet, TN

SO-2494-DUP-9-030723 L1593050-10 Solid

Collected by | Collected date/time 03/07/23 00:00 | Received date/time 03/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2020152	1	03/09/23 12:53	03/09/23 13:00	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2020350	1	03/09/23 15:42	03/10/23 13:33	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2020192	5	03/09/23 15:29	03/09/23 17:54	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.0		1	03/09/2023 13:00	WG2020152

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.124	J3	0.0186	0.0412	1	03/10/2023 12:53	WG2020350

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	17100		7.12	51.6	5	03/09/2023 17:06	WG2020192
Arsenic	7.42		0.103	1.03	5	03/09/2023 17:06	WG2020192
Barium	99.4		0.157	2.58	5	03/09/2023 17:06	WG2020192
Chromium	15.4		0.305	5.16	5	03/09/2023 17:06	WG2020192
Copper	90.3		0.136	5.16	5	03/09/2023 17:06	WG2020192

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.8		1	03/09/2023 13:00	WG2020152

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.277		0.0190	0.0422	1	03/10/2023 13:08	WG2020350

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	21700		7.28	52.7	5	03/09/2023 17:22	WG2020192
Arsenic	7.11		0.105	1.05	5	03/09/2023 17:22	WG2020192
Barium	118		0.160	2.64	5	03/09/2023 17:22	WG2020192
Chromium	17.0		0.312	5.27	5	03/09/2023 17:22	WG2020192
Copper	121		0.139	5.27	5	03/09/2023 17:22	WG2020192

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.3		1	03/09/2023 13:00	WG2020152

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.157		0.0187	0.0415	1	03/10/2023 13:15	WG2020350

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	18000		7.17	51.9	5	03/09/2023 17:25	WG2020192
Arsenic	7.84		0.104	1.04	5	03/09/2023 17:25	WG2020192
Barium	106		0.158	2.60	5	03/09/2023 17:25	WG2020192
Chromium	14.5		0.307	5.19	5	03/09/2023 17:25	WG2020192
Copper	94.6		0.137	5.19	5	03/09/2023 17:25	WG2020192

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.5		1	03/09/2023 13:00	WG2020152

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0519		0.0183	0.0406	1	03/10/2023 13:18	WG2020350

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	16700		7.01	50.8	5	03/09/2023 17:28	WG2020192
Arsenic	7.63		0.102	1.02	5	03/09/2023 17:28	WG2020192
Barium	110		0.154	2.54	5	03/09/2023 17:28	WG2020192
Chromium	13.8		0.301	5.08	5	03/09/2023 17:28	WG2020192
Copper	68.1		0.134	5.08	5	03/09/2023 17:28	WG2020192

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.8		1	03/09/2023 13:00	WG2020152

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0571		0.0184	0.0409	1	03/10/2023 13:20	WG2020350

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	16500		7.05	51.1	5	03/09/2023 17:38	WG2020192
Arsenic	7.45		0.102	1.02	5	03/09/2023 17:38	WG2020192
Barium	113		0.155	2.56	5	03/09/2023 17:38	WG2020192
Chromium	12.3		0.303	5.11	5	03/09/2023 17:38	WG2020192
Copper	81.1		0.135	5.11	5	03/09/2023 17:38	WG2020192

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.9		1	03/09/2023 13:00	WG2020152

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	1.09		0.0194	0.0430	1	03/10/2023 13:23	WG2020350

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	44300		7.42	53.8	5	03/09/2023 17:41	WG2020192
Arsenic	6.35		0.108	1.08	5	03/09/2023 17:41	WG2020192
Barium	174		0.164	2.69	5	03/09/2023 17:41	WG2020192
Chromium	30.8		0.318	5.38	5	03/09/2023 17:41	WG2020192
Copper	407		1.42	53.8	50	03/10/2023 11:04	WG2020192

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.1		1	03/09/2023 13:00	WG2020152

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.438		0.0191	0.0425	1	03/10/2023 13:25	WG2020350

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	25500		7.33	53.1	5	03/09/2023 17:45	WG2020192
Arsenic	8.23		0.106	1.06	5	03/09/2023 17:45	WG2020192
Barium	97.3		0.161	2.66	5	03/09/2023 17:45	WG2020192
Chromium	19.5		0.314	5.31	5	03/09/2023 17:45	WG2020192
Copper	198		0.140	5.31	5	03/09/2023 17:45	WG2020192

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.1		1	03/09/2023 13:00	WG2020152

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0403	1	03/10/2023 13:28	WG2020350

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8510		6.96	50.4	5	03/09/2023 17:48	WG2020192
Arsenic	10.5		0.101	1.01	5	03/09/2023 17:48	WG2020192
Barium	59.5		0.153	2.52	5	03/09/2023 17:48	WG2020192
Chromium	9.43		0.299	5.04	5	03/09/2023 17:48	WG2020192
Copper	34.0		0.133	5.04	5	03/09/2023 17:48	WG2020192

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.2		1	03/09/2023 13:00	WG2020152

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0403	1	03/10/2023 13:30	WG2020350

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8000		6.96	50.4	5	03/09/2023 17:51	WG2020192
Arsenic	11.9		0.101	1.01	5	03/09/2023 17:51	WG2020192
Barium	69.4		0.153	2.52	5	03/09/2023 17:51	WG2020192
Chromium	8.91		0.298	5.04	5	03/09/2023 17:51	WG2020192
Copper	25.8		0.133	5.04	5	03/09/2023 17:51	WG2020192

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.5		1	03/09/2023 13:00	WG2020152

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.102		0.0185	0.0410	1	03/10/2023 13:33	WG2020350

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	16600		7.08	51.3	5	03/09/2023 17:54	WG2020192
Arsenic	7.17		0.103	1.03	5	03/09/2023 17:54	WG2020192
Barium	95.5		0.156	2.56	5	03/09/2023 17:54	WG2020192
Chromium	14.9		0.304	5.13	5	03/09/2023 17:54	WG2020192
Copper	75.1		0.135	5.13	5	03/09/2023 17:54	WG2020192

Method Blank (MB)

(MB) R3899631-1 03/09/23 13:00

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00300			

L1593050-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1593050-03 03/09/23 13:00 • (DUP) R3899631-3 03/09/23 13:00

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	96.3	96.2	1	0.0609		10

Laboratory Control Sample (LCS)

(LCS) R3899631-2 03/09/23 13:00

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

Method Blank (MB)

(MB) R3899680-1 03/10/23 12:48

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3899680-2 03/10/23 12:50

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.512	102	80.0-120	

L1593050-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1593050-01 03/10/23 12:53 • (MS) R3899680-4 03/10/23 12:58 • (MSD) R3899680-3 03/10/23 12:55

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.516	0.124	0.552	0.680	83.1	108	1	75.0-125		J3	20.8	20

Method Blank (MB)

(MB) R3899450-1 03/09/23 17:00

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3899450-2 03/09/23 17:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	991	99.1	80.0-120	
Arsenic	100	95.3	95.3	80.0-120	
Barium	100	94.2	94.2	80.0-120	
Chromium	100	102	102	80.0-120	
Copper	100	95.1	95.1	80.0-120	

L1593050-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1593050-01 03/09/23 17:06 • (MS) R3899450-5 03/09/23 17:16 • (MSD) R3899450-6 03/09/23 17:19

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1030	17100	17600	18700	43.0	158	5	75.0-125	V	V	6.55	20
Arsenic	103	7.42	95.8	86.0	85.7	76.3	5	75.0-125			10.8	20
Barium	103	99.4	188	184	86.2	81.9	5	75.0-125			2.38	20
Chromium	103	15.4	109	100	91.2	82.4	5	75.0-125			8.59	20
Copper	103	90.3	173	176	79.7	83.5	5	75.0-125			2.25	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To: **tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com**

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
James Roman

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):
James Roman

Immediately
Packed on Ice N___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed
3/10/2023

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres										Remarks	Sample # (lab only)
SO-2494-EX-3-01B-4.0-030723	G	SS	4 ft	3-07-2023	1230	1	X											-01
SO-2494-EX-3-02W-3.0-030723	|	SS	3	|	1245	1	X											-02
SO-2494-EX-3-03B-4.0-030723	|	SS	4	|	1250	1	X											-03
SO-2494-EX-3-04W-3.0-030723	|	SS	3	|	1300	1	X											-04
SO-2494-EX-3-05B-4.0-030723	|	SS	4	|	1305	1	X											-05
SO-2494-EX-3-06B-6.0-030823	|	SS	6	3-08-2023	1230	1	X											-06
SO-2494-EX-3-07B-4.0-030823	|	SS	4	|	1240	1	X											-07
SO-2494-W1-02-030723	|	SS	2	3-07-2023	1200	1	X											-08
SO-2494-W1-18-030823	|	SS	2	3-08-2023	1215	1	X											-09
SO-2494-DUP-9-030723	G	SS	4	3-07-2023	0000	1	X											-10

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1593050

D193

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P981898**
PM: **829 - Brittnie L Boyd**
PB: KR 2/23/23

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6094 5475 5136

Sample Receipt Checklist
COC Seal Present/Intact: __NP X Y __N
COC Signed/Accurate: X Y __N
Bottles arrive intact: X Y __N
Correct bottles used: X Y __N
Sufficient volume sent: X Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: X Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
James Roman	3/08/2023	1515			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: NSAT °C 1.1+0=1.1 Bottles Received: 10	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Kayla	Date: 3/9/23 Time: 900	Hold: / Condition: NCF / OK

Monday → 2/9/22 DOP

10 11=9+11

11:24 AM

ANALYTICAL REPORT

March 13, 2023

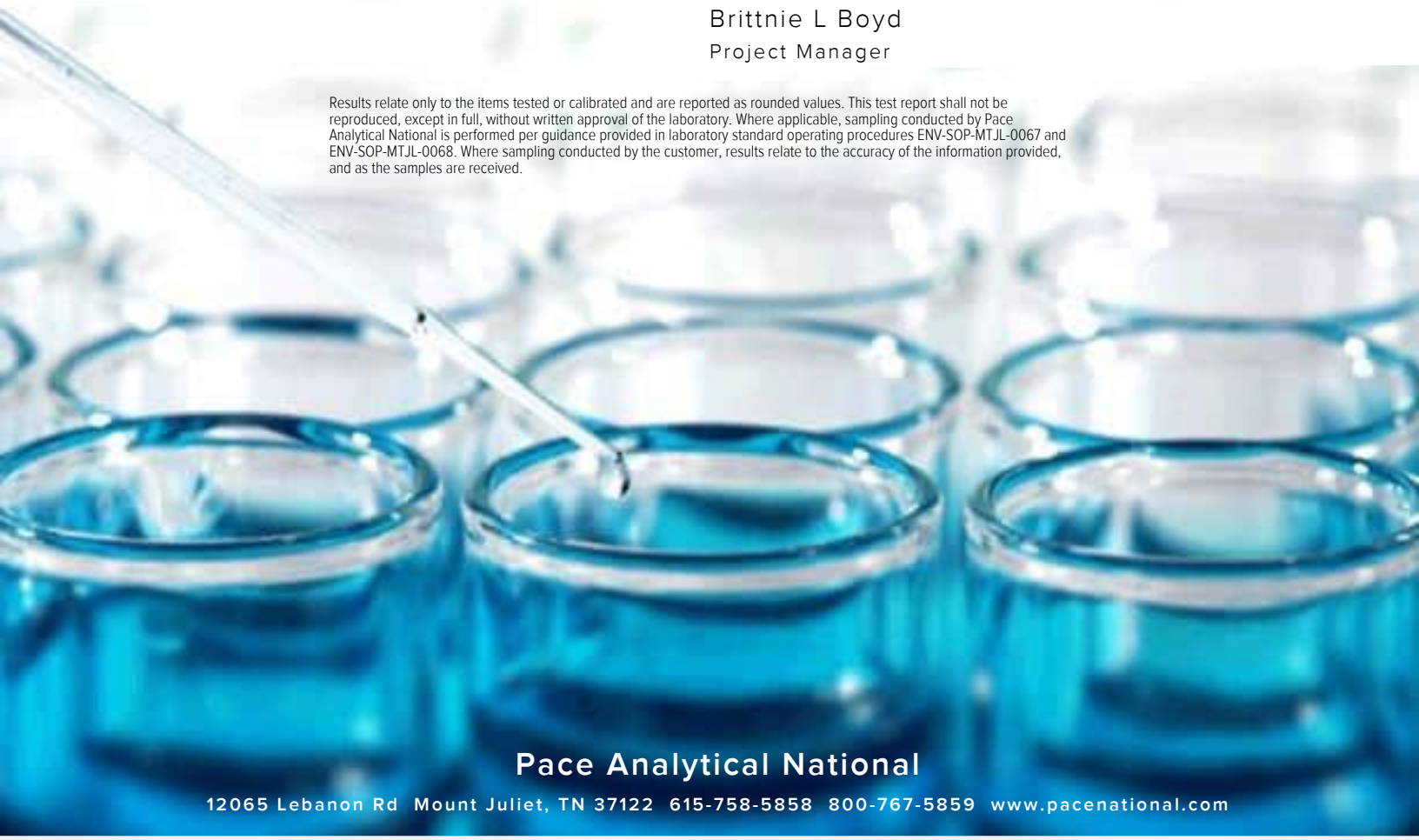
UPRR - Golder Associates

Sample Delivery Group:	L1594018
Samples Received:	03/11/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-W1-05-030723 L1594018-01 Solid

Collected by: James Roman | Collected date/time: 03/07/23 07:05 | Received date/time: 03/11/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2021553	1	03/11/23 12:45	03/11/23 13:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2021930	1	03/12/23 22:27	03/13/23 08:59	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2021588	5	03/11/23 14:24	03/12/23 18:27	LD	Mt. Juliet, TN

SO-2494-W1-06-030723 L1594018-02 Solid

Collected by: James Roman | Collected date/time: 03/07/23 07:15 | Received date/time: 03/11/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2021553	1	03/11/23 12:45	03/11/23 13:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2021930	1	03/12/23 22:27	03/13/23 09:29	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2021588	5	03/11/23 14:24	03/12/23 18:43	LD	Mt. Juliet, TN

SO-2494-W1-11-030723 L1594018-03 Solid

Collected by: James Roman | Collected date/time: 03/09/23 16:10 | Received date/time: 03/11/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2021553	1	03/11/23 12:45	03/11/23 13:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2021930	1	03/12/23 22:27	03/13/23 09:32	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2021588	5	03/11/23 14:24	03/12/23 18:46	LD	Mt. Juliet, TN

SO-2494-EX-2-05B-2.0-030923 L1594018-04 Solid

Collected by: James Roman | Collected date/time: 03/09/23 14:45 | Received date/time: 03/11/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2021553	1	03/11/23 12:45	03/11/23 13:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2021930	1	03/12/23 22:27	03/13/23 09:34	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2021588	5	03/11/23 14:24	03/12/23 18:50	LD	Mt. Juliet, TN

SO-2494-EX-2-06B-4.0-030923 L1594018-05 Solid

Collected by: James Roman | Collected date/time: 03/09/23 14:55 | Received date/time: 03/11/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2021553	1	03/11/23 12:45	03/11/23 13:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2021930	1	03/12/23 22:27	03/13/23 09:37	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2021588	5	03/11/23 14:24	03/12/23 19:01	LD	Mt. Juliet, TN

SO-2494-EX-2-07B-2.0-030923 L1594018-06 Solid

Collected by: James Roman | Collected date/time: 03/09/23 15:05 | Received date/time: 03/11/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2021553	1	03/11/23 12:45	03/11/23 13:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2021930	1	03/12/23 22:27	03/13/23 09:39	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2021588	5	03/11/23 14:24	03/12/23 19:04	LD	Mt. Juliet, TN

SO-2494-EX-2-08B-4.0-030923 L1594018-07 Solid

Collected by: James Roman | Collected date/time: 03/09/23 15:15 | Received date/time: 03/11/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2021553	1	03/11/23 12:45	03/11/23 13:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2021930	.652	03/12/23 22:27	03/13/23 09:42	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2021588	5	03/11/23 14:24	03/12/23 19:08	LD	Mt. Juliet, TN

SO-2494-EX-2-09B-4.0-030923 L1594018-08 Solid

Collected by: James Roman | Collected date/time: 03/09/23 15:20 | Received date/time: 03/11/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2021553	1	03/11/23 12:45	03/11/23 13:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2021930	1	03/12/23 22:27	03/13/23 09:44	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2021588	5	03/11/23 14:24	03/12/23 19:11	LD	Mt. Juliet, TN

SO-2494-EX-2-10B-4.0-030923 L1594018-09 Solid

Collected by: James Roman | Collected date/time: 03/09/23 15:25 | Received date/time: 03/11/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2021553	1	03/11/23 12:45	03/11/23 13:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2021930	1	03/12/23 22:27	03/13/23 09:47	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2021588	5	03/11/23 14:24	03/12/23 19:14	LD	Mt. Juliet, TN

SO-2494-DUP-10-030923 L1594018-10 Solid

Collected by: James Roman | Collected date/time: 03/09/23 12:00 | Received date/time: 03/11/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2021553	1	03/11/23 12:45	03/11/23 13:02	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2021930	1	03/12/23 22:27	03/13/23 09:54	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2021588	5	03/11/23 14:24	03/12/23 19:18	LD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.3		1	03/11/2023 13:02	WG2021553

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U	J3 J6 O1	0.0183	0.0407	1	03/13/2023 08:59	WG2021930

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5530	V	7.02	50.9	5	03/12/2023 18:27	WG2021588
Arsenic	13.7		0.102	1.02	5	03/12/2023 18:27	WG2021588
Barium	61.3		0.155	2.54	5	03/12/2023 18:27	WG2021588
Chromium	6.13		0.301	5.09	5	03/12/2023 18:27	WG2021588
Copper	30.1		0.134	5.09	5	03/12/2023 18:27	WG2021588

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.1		1	03/11/2023 13:02	WG2021553

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0404	1	03/13/2023 09:29	WG2021930

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5310		6.96	50.5	5	03/12/2023 18:43	WG2021588
Arsenic	10.2		0.101	1.01	5	03/12/2023 18:43	WG2021588
Barium	52.0		0.153	2.52	5	03/12/2023 18:43	WG2021588
Chromium	6.93		0.299	5.05	5	03/12/2023 18:43	WG2021588
Copper	45.4		0.133	5.05	5	03/12/2023 18:43	WG2021588

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.8		1	03/11/2023 13:02	WG2021553

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0282	J	0.0180	0.0401	1	03/13/2023 09:32	WG2021930

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8540		6.91	50.1	5	03/12/2023 18:46	WG2021588
Arsenic	12.8		0.100	1.00	5	03/12/2023 18:46	WG2021588
Barium	72.1		0.152	2.50	5	03/12/2023 18:46	WG2021588
Chromium	7.31		0.297	5.01	5	03/12/2023 18:46	WG2021588
Copper	38.5		0.132	5.01	5	03/12/2023 18:46	WG2021588

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.7		1	03/11/2023 13:02	WG2021553

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0216	J	0.0188	0.0418	1	03/13/2023 09:34	WG2021930

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	13700		7.21	52.3	5	03/12/2023 18:50	WG2021588
Arsenic	7.22		0.105	1.05	5	03/12/2023 18:50	WG2021588
Barium	78.2		0.159	2.61	5	03/12/2023 18:50	WG2021588
Chromium	14.6		0.309	5.23	5	03/12/2023 18:50	WG2021588
Copper	27.3		0.138	5.23	5	03/12/2023 18:50	WG2021588

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.9		1	03/11/2023 13:02	WG2021553

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0404	1	03/13/2023 09:37	WG2021930

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	7910		6.97	50.5	5	03/12/2023 19:01	WG2021588
Arsenic	6.78		0.101	1.01	5	03/12/2023 19:01	WG2021588
Barium	31.3		0.154	2.53	5	03/12/2023 19:01	WG2021588
Chromium	8.41		0.299	5.05	5	03/12/2023 19:01	WG2021588
Copper	23.7		0.133	5.05	5	03/12/2023 19:01	WG2021588

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.3		1	03/11/2023 13:02	WG2021553

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0183	0.0407	1	03/13/2023 09:39	WG2021930

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	14000		7.02	50.9	5	03/12/2023 19:04	WG2021588
Arsenic	8.00		0.102	1.02	5	03/12/2023 19:04	WG2021588
Barium	86.8		0.155	2.54	5	03/12/2023 19:04	WG2021588
Chromium	15.8		0.301	5.09	5	03/12/2023 19:04	WG2021588
Copper	22.3		0.134	5.09	5	03/12/2023 19:04	WG2021588

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.8		1	03/11/2023 13:02	WG2021553

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0118	0.0264	.652	03/13/2023 09:42	WG2021930

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	7940		6.98	50.6	5	03/12/2023 19:08	WG2021588
Arsenic	4.36		0.101	1.01	5	03/12/2023 19:08	WG2021588
Barium	47.6		0.154	2.53	5	03/12/2023 19:08	WG2021588
Chromium	11.2		0.300	5.06	5	03/12/2023 19:08	WG2021588
Copper	22.3		0.134	5.06	5	03/12/2023 19:08	WG2021588

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.2		1	03/11/2023 13:02	WG2021553

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0403	1	03/13/2023 09:44	WG2021930

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8310		6.96	50.4	5	03/12/2023 19:11	WG2021588
Arsenic	6.63		0.101	1.01	5	03/12/2023 19:11	WG2021588
Barium	61.6		0.153	2.52	5	03/12/2023 19:11	WG2021588
Chromium	7.99		0.298	5.04	5	03/12/2023 19:11	WG2021588
Copper	22.7		0.133	5.04	5	03/12/2023 19:11	WG2021588

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.4		1	03/11/2023 13:02	WG2021553

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0183	0.0406	1	03/13/2023 09:47	WG2021930

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9760		7.01	50.8	5	03/12/2023 19:14	WG2021588
Arsenic	13.3		0.102	1.02	5	03/12/2023 19:14	WG2021588
Barium	101		0.154	2.54	5	03/12/2023 19:14	WG2021588
Chromium	12.2		0.301	5.08	5	03/12/2023 19:14	WG2021588
Copper	26.1		0.134	5.08	5	03/12/2023 19:14	WG2021588

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.8		1	03/11/2023 13:02	WG2021553

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0285	J	0.0180	0.0401	1	03/13/2023 09:54	WG2021930

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9940		6.91	50.1	5	03/12/2023 19:18	WG2021588
Arsenic	13.9		0.100	1.00	5	03/12/2023 19:18	WG2021588
Barium	87.5		0.152	2.51	5	03/12/2023 19:18	WG2021588
Chromium	8.38		0.297	5.01	5	03/12/2023 19:18	WG2021588
Copper	37.6		0.132	5.01	5	03/12/2023 19:18	WG2021588

Method Blank (MB)

(MB) R3900254-1 03/11/23 13:02

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1594018-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1594018-01 03/11/23 13:02 • (DUP) R3900254-3 03/11/23 13:02

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	98.3	98.2	1	0.0218		10

Laboratory Control Sample (LCS)

(LCS) R3900254-2 03/11/23 13:02

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

Method Blank (MB)

(MB) R3900341-1 03/13/23 08:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3900341-2 03/13/23 08:56

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.580	116	80.0-120	

L1594018-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1594018-01 03/13/23 08:59 • (MS) R3900341-3 03/13/23 09:01 • (MSD) R3900341-4 03/13/23 09:04

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.509	U	0.314	0.563	61.8	111	1	75.0-125	J6	J3	56.7	20

Method Blank (MB)

(MB) R3900132-1 03/12/23 18:20

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	0.627	J	0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3900132-2 03/12/23 18:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	958	95.8	80.0-120	
Arsenic	100	94.2	94.2	80.0-120	
Barium	100	94.6	94.6	80.0-120	
Chromium	100	95.1	95.1	80.0-120	
Copper	100	92.6	92.6	80.0-120	

L1594018-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1594018-01 03/12/23 18:27 • (MS) R3900132-5 03/12/23 18:36 • (MSD) R3900132-6 03/12/23 18:40

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1020	5530	7900	7740	233	217	5	75.0-125	V	V	2.09	20
Arsenic	102	13.7	106	108	90.9	92.9	5	75.0-125			1.89	20
Barium	102	61.3	163	164	99.8	101	5	75.0-125	E	E	0.779	20
Chromium	102	6.13	101	103	93.3	95.4	5	75.0-125			2.11	20
Copper	102	30.1	127	133	95.5	101	5	75.0-125			4.22	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:	Billing Information:	Pres Chk
UPRR - Golder Associates **18300 NE Union Hill Rd #200** **Redmond, WA 98052**	**John DeJong** **1400 W 52nd Ave** **Denver, CO 80221**	
Report to: **Ted Norton**	Email To: **tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com**	

Project Description:	City/State Collected:	Please Circle:
Trentwood WA-Aluminum Dross II	Trentwood, WA	(PT) MT CT ET

Phone:	Client Project #	Lab Project #
425-833-0777	**2494**	**UPRRGOLD-2494**

Collected by (print):	Site/Facility ID #	P.O. #
James Roman	**DROSS STOCKPILE**	

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

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day
Date Results Needed

Quote #

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres									Remarks	Sample # (lab only)
SO-2494-W1-05-030723	G	SS	6	3-07-2023	0705	1	X										-01
SO-2494-W1-06-030723	G	SS	6	3-07-2023	0715	1	X										-02
SO-2494-W1-11-030723	G	SS	4	3-09-2023	1610	1	X										-03
SO-2494-EX-2-05B-2.0-030723	G	SS	2	3-09-2023	1445	1	X										-04
SO-2494-EX-2-06B-4.0-030723		SS	4		1455	1	X										-05
SO-2494-EX-2-07B-2.0-030923		SS	2		1505	1	X										-06
SO-2494-EX-2-08B-4.0-030923		SS	4		1515	1	X										-07
SO-2494-EX-2-09B-4.0-030923		SS	4		1520	1	X										-08
SO-2494-EX-2-10B-4.0-030923		SS	4		1525	1	X										-09
SO-2494-DUP-10-030923	G	SS	4	3-09-2023	1200	1	X										-10

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1594018
C134
Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P981898**
PM: **829 - Brittnie L Boyd**
PB: KP 2/23/23
Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu by 6020 | One custody seal
Hg by 7471

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
James Roman	3/10/2023	1500		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.8 0.1 °C Bottles Received: 10
				.9 + .0 = .9
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 03-11-23 Time: 0900
			D. Ramsey	

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

March 20, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1596169
Samples Received:	03/18/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Zachary Schuehle 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

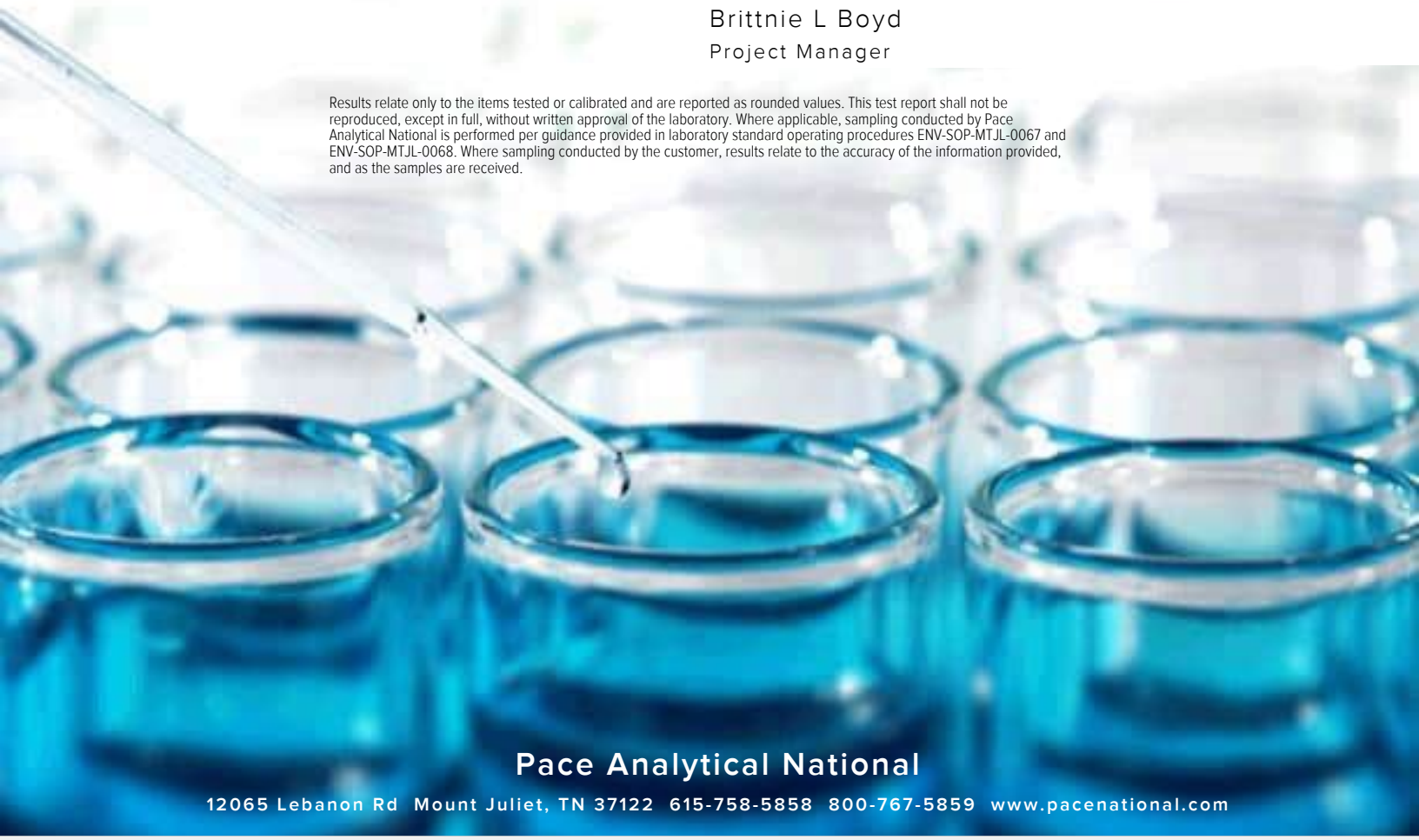


TABLE OF CONTENTS

SO-2494-PRSL-1-031623 L1596169-01 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/16/23 16:30 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025791	1	03/18/23 13:26	03/18/23 13:39	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:03	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 20:35	LD	Mt. Juliet, TN

SO-2494-PRNL-1-031723 L1596169-02 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/17/23 09:25 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025791	1	03/18/23 13:26	03/18/23 13:39	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:05	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 20:38	LD	Mt. Juliet, TN

SO-2494-PRNL-2-031723 L1596169-03 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/17/23 09:35 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025791	1	03/18/23 13:26	03/18/23 13:39	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:08	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 20:42	LD	Mt. Juliet, TN

SO-2494-P1-13-031523 L1596169-04 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/15/23 13:20 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025791	1	03/18/23 13:26	03/18/23 13:39	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:10	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 20:55	LD	Mt. Juliet, TN

SO-2494-P1-27-031523 L1596169-05 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/15/23 14:15 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025791	1	03/18/23 13:26	03/18/23 13:39	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:13	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 20:59	LD	Mt. Juliet, TN

SO-2494-P1-45-031423 L1596169-06 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/14/23 15:25 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025791	1	03/18/23 13:26	03/18/23 13:39	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:20	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 21:02	LD	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

SO-2494-W1-11-031423 L1596169-07 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/14/23 15:00 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025791	1	03/18/23 13:26	03/18/23 13:39	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:23	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 21:05	LD	Mt. Juliet, TN

SO-2494-EX-4-13S-4.0-031723 L1596169-08 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/17/23 12:40 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025791	1	03/18/23 13:26	03/18/23 13:39	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 14:55	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 20:19	LD	Mt. Juliet, TN

SO-2494-EX-4-14S-4.0-031723 L1596169-09 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/17/23 12:45 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025791	1	03/18/23 13:26	03/18/23 13:39	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:25	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 21:09	LD	Mt. Juliet, TN

SO-2494-EX-4-15S-4.0-031723 L1596169-10 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/17/23 12:50 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025794	1	03/18/23 13:41	03/18/23 13:55	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:28	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 21:12	LD	Mt. Juliet, TN

SO-2494-EX-4-16S-4.0-031723 L1596169-11 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/17/23 12:50 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025794	1	03/18/23 13:41	03/18/23 13:55	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:30	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 21:15	LD	Mt. Juliet, TN

SO-2494-EX-4-17S-4.0-031723 L1596169-12 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/17/23 12:55 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025794	1	03/18/23 13:41	03/18/23 13:55	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:33	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 21:18	LD	Mt. Juliet, TN

SO-2494-EX-4-18B-4.0-031723 L1596169-13 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/17/23 13:00 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025794	1	03/18/23 13:41	03/18/23 13:55	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:35	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 21:22	LD	Mt. Juliet, TN

SO-2494-EX-4-19S-4.0-031723 L1596169-14 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/17/23 13:00 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025794	1	03/18/23 13:41	03/18/23 13:55	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:38	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 21:25	LD	Mt. Juliet, TN

SO-2494-EX-3-10S-4.0-031723 L1596169-15 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/17/23 13:05 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025794	1	03/18/23 13:41	03/18/23 13:55	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:40	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 21:43	LD	Mt. Juliet, TN

SO-2494-EX-3-11S-4.0-031723 L1596169-16 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/17/23 13:10 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025794	1	03/18/23 13:41	03/18/23 13:55	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:43	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 21:46	LD	Mt. Juliet, TN

SO-2494-EX-3-12B-4.0-031723 L1596169-17 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/17/23 13:10 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025794	1	03/18/23 13:41	03/18/23 13:55	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:50	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 21:50	LD	Mt. Juliet, TN

SO-2494-EX-3-13S-4.0-031723 L1596169-18 Solid

Collected by: Zachery Schuehle | Collected date/time: 03/16/23 13:15 | Received date/time: 03/18/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2025794	1	03/18/23 13:41	03/18/23 13:55	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2025800	1	03/18/23 12:44	03/19/23 15:53	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2025833	5	03/19/23 08:56	03/19/23 21:53	LD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.9		1	03/18/2023 13:39	WG2025791

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0186	0.0413	1	03/19/2023 15:03	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	7960		7.12	51.6	5	03/19/2023 20:35	WG2025833
Arsenic	7.00		0.103	1.03	5	03/19/2023 20:35	WG2025833
Barium	73.1		0.157	2.58	5	03/19/2023 20:35	WG2025833
Chromium	8.62		0.305	5.16	5	03/19/2023 20:35	WG2025833
Copper	8.51		0.136	5.16	5	03/19/2023 20:35	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.4		1	03/18/2023 13:39	WG2025791

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0183	0.0406	1	03/19/2023 15:05	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11200		7.01	50.8	5	03/19/2023 20:38	WG2025833
Arsenic	6.91		0.102	1.02	5	03/19/2023 20:38	WG2025833
Barium	111		0.154	2.54	5	03/19/2023 20:38	WG2025833
Chromium	9.97		0.301	5.08	5	03/19/2023 20:38	WG2025833
Copper	23.7		0.134	5.08	5	03/19/2023 20:38	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.3		1	03/18/2023 13:39	WG2025791

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0403	1	03/19/2023 15:08	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9100		6.95	50.3	5	03/19/2023 20:42	WG2025833
Arsenic	8.75		0.101	1.01	5	03/19/2023 20:42	WG2025833
Barium	48.9		0.153	2.52	5	03/19/2023 20:42	WG2025833
Chromium	10.3		0.298	5.03	5	03/19/2023 20:42	WG2025833
Copper	26.2		0.133	5.03	5	03/19/2023 20:42	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.0		1	03/18/2023 13:39	WG2025791

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0186	0.0412	1	03/19/2023 15:10	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	16600		7.11	51.6	5	03/19/2023 20:55	WG2025833
Arsenic	7.20		0.103	1.03	5	03/19/2023 20:55	WG2025833
Barium	96.7		0.157	2.58	5	03/19/2023 20:55	WG2025833
Chromium	16.0		0.305	5.16	5	03/19/2023 20:55	WG2025833
Copper	28.6		0.136	5.16	5	03/19/2023 20:55	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.7		1	03/18/2023 13:39	WG2025791

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0188	0.0418	1	03/19/2023 15:13	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	13400		7.21	52.3	5	03/19/2023 20:59	WG2025833
Arsenic	6.92		0.105	1.05	5	03/19/2023 20:59	WG2025833
Barium	120		0.159	2.61	5	03/19/2023 20:59	WG2025833
Chromium	12.5		0.309	5.23	5	03/19/2023 20:59	WG2025833
Copper	26.9		0.138	5.23	5	03/19/2023 20:59	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.4		1	03/18/2023 13:39	WG2025791

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0183	0.0406	1	03/19/2023 15:20	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11600		7.01	50.8	5	03/19/2023 21:02	WG2025833
Arsenic	17.0		0.102	1.02	5	03/19/2023 21:02	WG2025833
Barium	53.4		0.154	2.54	5	03/19/2023 21:02	WG2025833
Chromium	12.7		0.301	5.08	5	03/19/2023 21:02	WG2025833
Copper	24.3		0.134	5.08	5	03/19/2023 21:02	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.8		1	03/18/2023 13:39	WG2025791

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0184	0.0409	1	03/19/2023 15:23	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	6990		7.06	51.1	5	03/19/2023 21:05	WG2025833
Arsenic	14.6		0.102	1.02	5	03/19/2023 21:05	WG2025833
Barium	67.0		0.155	2.56	5	03/19/2023 21:05	WG2025833
Chromium	7.89		0.303	5.11	5	03/19/2023 21:05	WG2025833
Copper	31.6		0.135	5.11	5	03/19/2023 21:05	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.9		1	03/18/2023 13:39	WG2025791

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.110		0.0186	0.0413	1	03/19/2023 14:55	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	13200	V	7.12	51.6	5	03/19/2023 20:19	WG2025833
Arsenic	10.9		0.103	1.03	5	03/19/2023 20:19	WG2025833
Barium	91.1		0.157	2.58	5	03/19/2023 20:19	WG2025833
Chromium	14.7		0.305	5.16	5	03/19/2023 20:19	WG2025833
Copper	94.5	O1	0.136	5.16	5	03/19/2023 20:19	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.0		1	03/18/2023 13:39	WG2025791

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.158		0.0186	0.0412	1	03/19/2023 15:25	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	19300		7.11	51.5	5	03/19/2023 21:09	WG2025833
Arsenic	11.2		0.103	1.03	5	03/19/2023 21:09	WG2025833
Barium	117		0.157	2.58	5	03/19/2023 21:09	WG2025833
Chromium	17.4		0.305	5.15	5	03/19/2023 21:09	WG2025833
Copper	135		0.136	5.15	5	03/19/2023 21:09	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.7		1	03/18/2023 13:55	WG2025794

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.177		0.0184	0.0410	1	03/19/2023 15:28	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	24200		7.07	51.2	5	03/19/2023 21:12	WG2025833
Arsenic	9.51		0.102	1.02	5	03/19/2023 21:12	WG2025833
Barium	121		0.156	2.56	5	03/19/2023 21:12	WG2025833
Chromium	20.1		0.303	5.12	5	03/19/2023 21:12	WG2025833
Copper	170		0.135	5.12	5	03/19/2023 21:12	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.3		1	03/18/2023 13:55	WG2025794

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0630		0.0185	0.0411	1	03/19/2023 15:30	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	15700		7.09	51.4	5	03/19/2023 21:15	WG2025833
Arsenic	10.8		0.103	1.03	5	03/19/2023 21:15	WG2025833
Barium	116		0.156	2.57	5	03/19/2023 21:15	WG2025833
Chromium	13.4		0.304	5.14	5	03/19/2023 21:15	WG2025833
Copper	145		0.136	5.14	5	03/19/2023 21:15	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.4		1	03/18/2023 13:55	WG2025794

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0572		0.0185	0.0411	1	03/19/2023 15:33	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11900		7.08	51.3	5	03/19/2023 21:18	WG2025833
Arsenic	11.3		0.103	1.03	5	03/19/2023 21:18	WG2025833
Barium	89.7		0.156	2.57	5	03/19/2023 21:18	WG2025833
Chromium	12.0		0.304	5.13	5	03/19/2023 21:18	WG2025833
Copper	63.2		0.136	5.13	5	03/19/2023 21:18	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.7		1	03/18/2023 13:55	WG2025794

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0180	0.0401	1	03/19/2023 15:35	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	6470		6.92	50.1	5	03/19/2023 21:22	WG2025833
Arsenic	13.3		0.100	1.00	5	03/19/2023 21:22	WG2025833
Barium	68.3		0.152	2.51	5	03/19/2023 21:22	WG2025833
Chromium	7.85		0.297	5.01	5	03/19/2023 21:22	WG2025833
Copper	24.3		0.132	5.01	5	03/19/2023 21:22	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.6		1	03/18/2023 13:55	WG2025794

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	03/19/2023 15:38	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5820		6.93	50.2	5	03/19/2023 21:25	WG2025833
Arsenic	12.3		0.100	1.00	5	03/19/2023 21:25	WG2025833
Barium	59.6		0.153	2.51	5	03/19/2023 21:25	WG2025833
Chromium	6.38		0.297	5.02	5	03/19/2023 21:25	WG2025833
Copper	24.6		0.133	5.02	5	03/19/2023 21:25	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.7		1	03/18/2023 13:55	WG2025794

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.130		0.0182	0.0405	1	03/19/2023 15:40	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	17200		6.99	50.6	5	03/19/2023 21:43	WG2025833
Arsenic	7.73		0.101	1.01	5	03/19/2023 21:43	WG2025833
Barium	120		0.154	2.53	5	03/19/2023 21:43	WG2025833
Chromium	15.7		0.300	5.06	5	03/19/2023 21:43	WG2025833
Copper	113		0.134	5.06	5	03/19/2023 21:43	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.8		1	03/18/2023 13:55	WG2025794

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.308		0.0182	0.0405	1	03/19/2023 15:43	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	21600		6.98	50.6	5	03/19/2023 21:46	WG2025833
Arsenic	10.0		0.101	1.01	5	03/19/2023 21:46	WG2025833
Barium	141		0.154	2.53	5	03/19/2023 21:46	WG2025833
Chromium	18.0		0.299	5.06	5	03/19/2023 21:46	WG2025833
Copper	137		0.134	5.06	5	03/19/2023 21:46	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.0		1	03/18/2023 13:55	WG2025794

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.241		0.0182	0.0404	1	03/19/2023 15:50	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	26000		6.97	50.5	5	03/19/2023 21:50	WG2025833
Arsenic	9.30		0.101	1.01	5	03/19/2023 21:50	WG2025833
Barium	129		0.153	2.52	5	03/19/2023 21:50	WG2025833
Chromium	18.7		0.299	5.05	5	03/19/2023 21:50	WG2025833
Copper	190		0.133	5.05	5	03/19/2023 21:50	WG2025833

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.2		1	03/18/2023 13:55	WG2025794

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0598		0.0181	0.0403	1	03/19/2023 15:53	WG2025800

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	14900		6.95	50.4	5	03/19/2023 21:53	WG2025833
Arsenic	13.0		0.101	1.01	5	03/19/2023 21:53	WG2025833
Barium	119		0.153	2.52	5	03/19/2023 21:53	WG2025833
Chromium	13.6		0.298	5.04	5	03/19/2023 21:53	WG2025833
Copper	51.3		0.133	5.04	5	03/19/2023 21:53	WG2025833

Method Blank (MB)

(MB) R3902899-1 03/18/23 13:39

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00400			

L1596169-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1596169-08 03/18/23 13:39 • (DUP) R3902899-3 03/18/23 13:39

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	96.9	96.8	1	0.0919		10

Laboratory Control Sample (LCS)

(LCS) R3902899-2 03/18/23 13:39

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

Method Blank (MB)

(MB) R3902905-1 03/18/23 13:55

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00300			

L1596169-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1596169-18 03/18/23 13:55 • (DUP) R3902905-3 03/18/23 13:55

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	99.2	99.2	1	0.0404		10

Laboratory Control Sample (LCS)

(LCS) R3902905-2 03/18/23 13:55

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

Method Blank (MB)

(MB) R3902751-1 03/19/23 14:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3902751-2 03/19/23 14:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.456	91.2	80.0-120	

L1596169-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1596169-08 03/19/23 14:55 • (MS) R3902751-3 03/19/23 14:58 • (MSD) R3902751-4 03/19/23 15:00

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.516	0.110	0.735	0.710	121	116	1	75.0-125			3.47	20

Method Blank (MB)

(MB) R3902795-1 03/19/23 20:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	0.284	J	0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3902795-2 03/19/23 20:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	948	94.8	80.0-120	
Arsenic	100	95.3	95.3	80.0-120	
Barium	100	91.8	91.8	80.0-120	
Chromium	100	96.8	96.8	80.0-120	
Copper	100	89.9	89.9	80.0-120	

L1596169-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1596169-08 03/19/23 20:19 • (MS) R3902795-5 03/19/23 20:29 • (MSD) R3902795-6 03/19/23 20:32

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1030	13200	15300	14400	208	120	5	75.0-125	V		6.13	20
Arsenic	103	10.9	109	107	95.0	92.8	5	75.0-125			2.12	20
Barium	103	91.1	191	192	96.4	98.1	5	75.0-125			0.918	20
Chromium	103	14.7	108	108	90.8	90.7	5	75.0-125			0.124	20
Copper	103	94.5	176	177	79.1	79.6	5	75.0-125			0.278	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Zachary Schuehle

Email To: zachary.schuehle@wsp.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com;ansel

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: PT MT CT ET

Phone: 425-833-0777

Client Project # 2494

Lab Project # UPRRGOLD-2494

Collected by (print): Zachary Schuehle

Site/Facility ID # DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres									Remarks	Sample # (lab only)
SO-2494-PRSL-1-031623	G	SS	2.0	03/16/23	1630	1	X										-01
SO-2494-PRNL-1-031723	G	SS	2.0	03/17/23	0925	1	X										-02
SO-2494-PRNL-2-031723	G	SS	2.0	03/17/23	0935	1	X										-03
SO-2494-PI-13-031523	G	SS	2.0	03/15/23	1320	1	X										-04
SO-2494-PI-27-031523	G	SS	2.0	03/15/23	1415	1	X										-05
SO-2494-PI-45-031423	G	SS	4.0	03/14/23	1525	1	X										-06
SO-2494-WI-11-031423	G	SS	6.0	03/14/23	1500	1	X										-07
SO-2494-EX-4-135-4.0-031723	G	SS	4.0	03/17/23	1240	1	X										-08
SO-2494-EX-4-145-4.0-031723	G	SS	4.0	03/17/23	1245	1	X										-09
SO-2494-EX4-155-4.0-031723	G	SS	4.0	03/17/23	1250	1	X										-10

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1596169
D177

Acctnum: UPRRGOLD
Template: T222123
Prelogin: P987010
PM: 829 - Brittnie L Boyd
PB:
Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu, 6Y 6020
Hg 6Y 7471
Fish Basin Sample

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6193 3532 1460

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR	If preservation required by Login: Date/Time
Zach DeJong	03/17/23	1600			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: GBA7°C 1.8+0=1.8 Bottles Received: 18	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Kayci	Date: 3/18/23 Time: 900	Hold: / Condition: NCF / OK

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to: Zachary Schuehle

Email To: zachary.schuehle@wsp.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com;ansel

Project Description: Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: PT MT CT ET

Phone: 425-833-0777

Client Project # 2494

Lab Project # UPRRGOLD-2494

Collected by (print): Zachary Schuehle

Site/Facility ID # DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres	Remarks	Sample # (lab only)
SO-2494-EX-4-16S-4.0-031723	G	SS	4.0	031723	1250	1	X		-11
SO-2494-EX-4-17S-4.0-031723	G	SS	4.0	03-17-23	1255	1	X		-12
SO-2494-EX-4-18B-4.0-031723	G	SS	4.0	03-17-23	1300	1	X		-13
SO-2494-EX-4-19S-4.0-031723	G	SS	4.0	03-17-23	1300	1	X		-14
SO-2494-EX-3-10S-4.0-031723	G	SS	4.0	03-17-23	1305	1	X		-15
SO-2494-EX-3-11S-4.0-031723	G	SS	4.0	03-17-23	1310	1	X		-16
SO-2494-EX-3-12B-4.0-031723	G	SS	4.0	03-17-23	1310	1	X		-17
SO-2494-EX-3-13S-4.0-031723	G	SS	4.0	03-17-23	1315	1	X		-18
		SS							
		SS							

Analysis / Container / Preservative

Chain of Custody Page 2 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1596169

Table #

Acctnum: UPRRGOLD

Template: T222123

Prelogin: P987010

PM: 829 - Brittnie L Boyd

PB:

Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu by 6020
Hg by 7471

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Zach Schuehle	03/17/23	1600	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			Kayce

Trip Blank Received: Yes (No) HCL / MeoH TBR

Temp: GBA7C 1.8+0=1.8 Bottles Received: 18

Date: 3/18/23 Time: 900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

March 24, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1597478
Samples Received:	03/23/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Zachary Schuehle 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

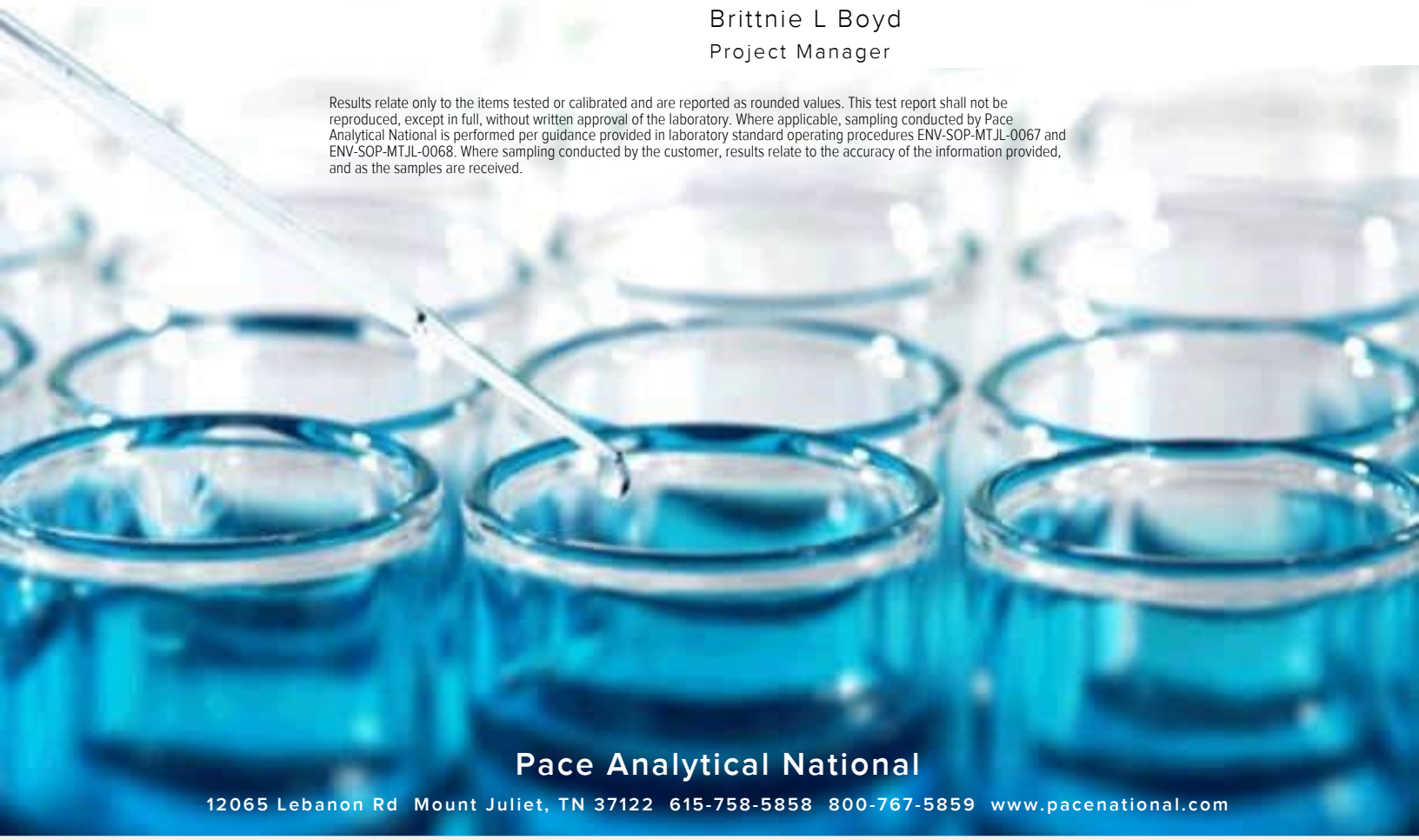


TABLE OF CONTENTS

SO-2494-EX-3-17B-4.0-032123 L1597478-01 Solid

Collected by: Zachary Schuehle | Collected date/time: 03/21/23 10:45 | Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2028804	1	03/23/23 13:00	03/23/23 13:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2028845	1	03/23/23 13:32	03/24/23 10:24	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2028835	5	03/23/23 13:36	03/23/23 16:42	LD	Mt. Juliet, TN

SO-2494-EX-3-18B-4.0-032123 L1597478-02 Solid

Collected by: Zachary Schuehle | Collected date/time: 03/21/23 10:50 | Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2028804	1	03/23/23 13:00	03/23/23 13:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2028845	1	03/23/23 13:32	03/24/23 10:31	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2028835	5	03/23/23 13:36	03/23/23 16:45	LD	Mt. Juliet, TN

SO-2494-EX-3-19S-4.0-032123 L1597478-03 Solid

Collected by: Zachary Schuehle | Collected date/time: 03/21/23 10:55 | Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2028804	1	03/23/23 13:00	03/23/23 13:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2028845	1	03/23/23 13:32	03/24/23 10:34	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2028835	5	03/23/23 13:36	03/23/23 16:48	LD	Mt. Juliet, TN

SO-2494-EX-3-20S-4.0-032123 L1597478-04 Solid

Collected by: Zachary Schuehle | Collected date/time: 03/21/23 11:00 | Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2028804	1	03/23/23 13:00	03/23/23 13:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2028845	1	03/23/23 13:32	03/24/23 10:36	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2028835	5	03/23/23 13:36	03/23/23 16:51	LD	Mt. Juliet, TN

SO-2494-EX-4-21B-4.0-032123 L1597478-05 Solid

Collected by: Zachary Schuehle | Collected date/time: 03/21/23 15:10 | Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2028804	1	03/23/23 13:00	03/23/23 13:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2028845	1	03/23/23 13:32	03/24/23 10:39	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2028835	5	03/23/23 13:36	03/23/23 16:55	LD	Mt. Juliet, TN

SO-2494-EX-3-23S-5.0-032223 L1597478-06 Solid

Collected by: Zachary Schuehle | Collected date/time: 03/22/23 10:55 | Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2028804	1	03/23/23 13:00	03/23/23 13:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2028845	1	03/23/23 13:32	03/24/23 10:42	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2028835	5	03/23/23 13:36	03/23/23 16:58	LD	Mt. Juliet, TN

SO-2494-EX-3-24B-6.0-032223 L1597478-07 Solid

Collected by: Zachary Schuehle | Collected date/time: 03/22/23 11:00 | Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2028804	1	03/23/23 13:00	03/23/23 13:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2028845	1	03/23/23 13:32	03/24/23 10:49	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2028835	5	03/23/23 13:36	03/23/23 17:01	LD	Mt. Juliet, TN

SO-2494-EX-3-25B-4.0-032223 L1597478-08 Solid

Collected by: Zachary Schuehle | Collected date/time: 03/22/23 11:50 | Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2028804	1	03/23/23 13:00	03/23/23 13:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2028845	1	03/23/23 13:32	03/24/23 10:52	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2028835	5	03/23/23 13:36	03/23/23 17:04	LD	Mt. Juliet, TN

SO-2494-EX-4-22S-4.0-032223 L1597478-09 Solid

Collected by: Zachary Schuehle | Collected date/time: 03/22/23 10:45 | Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2028804	1	03/23/23 13:00	03/23/23 13:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2028845	1	03/23/23 13:32	03/24/23 10:54	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2028835	5	03/23/23 13:36	03/23/23 17:08	LD	Mt. Juliet, TN

SO-2494-PI-45-032223 L1597478-10 Solid

Collected by: Zachary Schuehle | Collected date/time: 03/22/23 11:45 | Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2028804	1	03/23/23 13:00	03/23/23 13:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2028845	1	03/23/23 13:32	03/24/23 10:57	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2028835	5	03/23/23 13:36	03/23/23 17:11	LD	Mt. Juliet, TN

SO-2494-EX-3-14B-6.0-032123 L1597478-11 Solid

Collected by: Zachary Schuehle | Collected date/time: 03/21/23 10:30 | Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2028806	1	03/23/23 13:07	03/23/23 13:12	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2028845	1	03/23/23 13:32	03/24/23 10:59	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2028835	5	03/23/23 13:36	03/23/23 17:22	LD	Mt. Juliet, TN

SO-2494-EX-3-15B-6.0-032123 L1597478-12 Solid

Collected by: Zachary Schuehle | Collected date/time: 03/21/23 10:35 | Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2028806	1	03/23/23 13:07	03/23/23 13:12	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2028845	1	03/23/23 13:32	03/24/23 11:02	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2028835	5	03/23/23 13:36	03/23/23 17:25	LD	Mt. Juliet, TN

SO-2494-EX-3-16B-6.0-032123 L1597478-13 Solid

Collected by: Zachary Schuehle
Collected date/time: 03/21/23 10:40
Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2028806	1	03/23/23 13:07	03/23/23 13:12	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2028845	1	03/23/23 13:32	03/24/23 11:04	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2028835	5	03/23/23 13:36	03/23/23 17:28	LD	Mt. Juliet, TN

SO-2494-EX-3-21S-4.0-032123 L1597478-14 Solid

Collected by: Zachary Schuehle
Collected date/time: 03/21/23 14:55
Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2028806	1	03/23/23 13:07	03/23/23 13:12	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2028845	1	03/23/23 13:32	03/24/23 11:07	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2028835	5	03/23/23 13:36	03/23/23 17:32	LD	Mt. Juliet, TN

SO-2494-EX-3-22S-4.0-032123 L1597478-15 Solid

Collected by: Zachary Schuehle
Collected date/time: 03/21/23 15:00
Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2028806	1	03/23/23 13:07	03/23/23 13:12	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2028845	1	03/23/23 13:32	03/24/23 11:09	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2028835	5	03/23/23 13:36	03/23/23 17:35	LD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.3		1	03/23/2023 13:06	WG2028804

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0185	0.0411	1	03/24/2023 10:24	WG2028845

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5200		7.09	51.4	5	03/23/2023 16:42	WG2028835
Arsenic	8.34		0.103	1.03	5	03/23/2023 16:42	WG2028835
Barium	43.3		0.156	2.57	5	03/23/2023 16:42	WG2028835
Chromium	5.54		0.304	5.14	5	03/23/2023 16:42	WG2028835
Copper	22.4		0.136	5.14	5	03/23/2023 16:42	WG2028835

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.0		1	03/23/2023 13:06	WG2028804

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0299	J	0.0184	0.0408	1	03/24/2023 10:31	WG2028845

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	7860		7.04	51.0	5	03/23/2023 16:45	WG2028835
Arsenic	9.37		0.102	1.02	5	03/23/2023 16:45	WG2028835
Barium	40.4		0.155	2.55	5	03/23/2023 16:45	WG2028835
Chromium	7.78		0.302	5.10	5	03/23/2023 16:45	WG2028835
Copper	30.0		0.135	5.10	5	03/23/2023 16:45	WG2028835

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.4		1	03/23/2023 13:06	WG2028804

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.226		0.0187	0.0415	1	03/24/2023 10:34	WG2028845

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	19000		7.16	51.9	5	03/23/2023 16:48	WG2028835
Arsenic	8.08		0.104	1.04	5	03/23/2023 16:48	WG2028835
Barium	169		0.158	2.59	5	03/23/2023 16:48	WG2028835
Chromium	14.5		0.307	5.19	5	03/23/2023 16:48	WG2028835
Copper	87.9		0.137	5.19	5	03/23/2023 16:48	WG2028835

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.3		1	03/23/2023 13:06	WG2028804

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0769		0.0187	0.0415	1	03/24/2023 10:36	WG2028845

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12800		7.16	51.9	5	03/23/2023 16:51	WG2028835
Arsenic	8.33		0.104	1.04	5	03/23/2023 16:51	WG2028835
Barium	101		0.158	2.59	5	03/23/2023 16:51	WG2028835
Chromium	11.7		0.307	5.19	5	03/23/2023 16:51	WG2028835
Copper	60.7		0.137	5.19	5	03/23/2023 16:51	WG2028835

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.6		1	03/23/2023 13:06	WG2028804

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0183	0.0406	1	03/24/2023 10:39	WG2028845

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	6020		7.00	50.7	5	03/23/2023 16:55	WG2028835
Arsenic	12.7		0.101	1.01	5	03/23/2023 16:55	WG2028835
Barium	70.7		0.154	2.54	5	03/23/2023 16:55	WG2028835
Chromium	6.84		0.300	5.07	5	03/23/2023 16:55	WG2028835
Copper	26.1		0.134	5.07	5	03/23/2023 16:55	WG2028835

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.6		1	03/23/2023 13:06	WG2028804

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0361	J	0.0182	0.0405	1	03/24/2023 10:42	WG2028845

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10600		6.99	50.7	5	03/23/2023 16:58	WG2028835
Arsenic	8.24		0.101	1.01	5	03/23/2023 16:58	WG2028835
Barium	86.7		0.154	2.53	5	03/23/2023 16:58	WG2028835
Chromium	10.9		0.300	5.07	5	03/23/2023 16:58	WG2028835
Copper	48.2		0.134	5.07	5	03/23/2023 16:58	WG2028835

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.3		1	03/23/2023 13:06	WG2028804

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0967		0.0181	0.0403	1	03/24/2023 10:49	WG2028845

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	16100		6.95	50.4	5	03/23/2023 17:01	WG2028835
Arsenic	10.3		0.101	1.01	5	03/23/2023 17:01	WG2028835
Barium	88.6		0.153	2.52	5	03/23/2023 17:01	WG2028835
Chromium	12.4		0.298	5.04	5	03/23/2023 17:01	WG2028835
Copper	94.4		0.133	5.04	5	03/23/2023 17:01	WG2028835

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.1		1	03/23/2023 13:06	WG2028804

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0372	J	0.0187	0.0416	1	03/24/2023 10:52	WG2028845

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11000		7.18	52.0	5	03/23/2023 17:04	WG2028835
Arsenic	7.72		0.104	1.04	5	03/23/2023 17:04	WG2028835
Barium	70.8		0.158	2.60	5	03/23/2023 17:04	WG2028835
Chromium	10.4		0.308	5.20	5	03/23/2023 17:04	WG2028835
Copper	43.3		0.137	5.20	5	03/23/2023 17:04	WG2028835

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.7		1	03/23/2023 13:06	WG2028804

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0405	1	03/24/2023 10:54	WG2028845

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	4050		6.99	50.7	5	03/23/2023 17:08	WG2028835
Arsenic	6.70		0.101	1.01	5	03/23/2023 17:08	WG2028835
Barium	44.3		0.154	2.53	5	03/23/2023 17:08	WG2028835
Chromium	4.80	J	0.300	5.07	5	03/23/2023 17:08	WG2028835
Copper	16.9		0.134	5.07	5	03/23/2023 17:08	WG2028835

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.4		1	03/23/2023 13:06	WG2028804

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0289	J	0.0183	0.0407	1	03/24/2023 10:57	WG2028845

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	5610		7.01	50.8	5	03/23/2023 17:11	WG2028835
Arsenic	10.9		0.102	1.02	5	03/23/2023 17:11	WG2028835
Barium	47.7		0.155	2.54	5	03/23/2023 17:11	WG2028835
Chromium	6.27		0.301	5.08	5	03/23/2023 17:11	WG2028835
Copper	18.8		0.134	5.08	5	03/23/2023 17:11	WG2028835

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.4		1	03/23/2023 13:12	WG2028806

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.302		0.0189	0.0419	1	03/24/2023 10:59	WG2028845

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	20700		7.23	52.4	5	03/23/2023 17:22	WG2028835
Arsenic	10.1		0.105	1.05	5	03/23/2023 17:22	WG2028835
Barium	110		0.159	2.62	5	03/23/2023 17:22	WG2028835
Chromium	16.0		0.310	5.24	5	03/23/2023 17:22	WG2028835
Copper	133		0.138	5.24	5	03/23/2023 17:22	WG2028835

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.1		1	03/23/2023 13:12	WG2028806

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.211		0.0189	0.0421	1	03/24/2023 11:02	WG2028845

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	19700		7.26	52.6	5	03/23/2023 17:25	WG2028835
Arsenic	8.27		0.105	1.05	5	03/23/2023 17:25	WG2028835
Barium	130		0.160	2.63	5	03/23/2023 17:25	WG2028835
Chromium	14.3		0.311	5.26	5	03/23/2023 17:25	WG2028835
Copper	111		0.139	5.26	5	03/23/2023 17:25	WG2028835

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.5		1	03/23/2023 13:12	WG2028806

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.158		0.0186	0.0414	1	03/24/2023 11:04	WG2028845

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12900		7.15	51.8	5	03/23/2023 17:28	WG2028835
Arsenic	9.24		0.104	1.04	5	03/23/2023 17:28	WG2028835
Barium	92.8		0.157	2.59	5	03/23/2023 17:28	WG2028835
Chromium	10.2		0.307	5.18	5	03/23/2023 17:28	WG2028835
Copper	74.2		0.137	5.18	5	03/23/2023 17:28	WG2028835

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.2		1	03/23/2023 13:12	WG2028806

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0403	1	03/24/2023 11:07	WG2028845

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9040		6.96	50.4	5	03/23/2023 17:32	WG2028835
Arsenic	7.15		0.101	1.01	5	03/23/2023 17:32	WG2028835
Barium	48.3		0.153	2.52	5	03/23/2023 17:32	WG2028835
Chromium	10.8		0.298	5.04	5	03/23/2023 17:32	WG2028835
Copper	22.0		0.133	5.04	5	03/23/2023 17:32	WG2028835

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.8		1	03/23/2023 13:12	WG2028806

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0270	J	0.0184	0.0409	1	03/24/2023 11:09	WG2028845

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	14300		7.05	51.1	5	03/23/2023 17:35	WG2028835
Arsenic	8.43		0.102	1.02	5	03/23/2023 17:35	WG2028835
Barium	84.0		0.155	2.56	5	03/23/2023 17:35	WG2028835
Chromium	10.9		0.303	5.11	5	03/23/2023 17:35	WG2028835
Copper	75.4		0.135	5.11	5	03/23/2023 17:35	WG2028835

Method Blank (MB)

(MB) R3904872-1 03/23/23 13:06

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1597478-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1597478-01 03/23/23 13:06 • (DUP) R3904872-3 03/23/23 13:06

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	97.3	97.3	1	0.0192		10

Laboratory Control Sample (LCS)

(LCS) R3904872-2 03/23/23 13:06

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

Method Blank (MB)

(MB) R3904873-1 03/23/23 13:12

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00200			

L1597478-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1597478-13 03/23/23 13:12 • (DUP) R3904873-3 03/23/23 13:12

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	96.5	96.5	1	0.0162		10

Laboratory Control Sample (LCS)

(LCS) R3904873-2 03/23/23 13:12

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

QUALITY CONTROL SUMMARY

L1597478-01,02,03,04,05,06,07,08,09,10,11,12,13,14,15

Method Blank (MB)

(MB) R3904998-1 03/24/23 10:19

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3904998-2 03/24/23 10:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.508	102	80.0-120	

L1597478-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1597478-01 03/24/23 10:24 • (MS) R3904998-3 03/24/23 10:26 • (MSD) R3904998-4 03/24/23 10:29

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.514	U	0.539	0.634	105	123	1	75.0-125			16.1	20

Method Blank (MB)

(MB) R3904766-1 03/23/23 16:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3904766-2 03/23/23 16:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	940	94.0	80.0-120	
Arsenic	100	89.5	89.5	80.0-120	
Barium	100	93.9	93.9	80.0-120	
Chromium	100	91.1	91.1	80.0-120	
Copper	100	86.2	86.2	80.0-120	

L1597464-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1597464-01 03/23/23 16:09 • (MS) R3904766-5 03/23/23 16:19 • (MSD) R3904766-6 03/23/23 16:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	5570	6550	5980	97.5	41.1	5	75.0-125		V	9.00	20
Arsenic	100	2.59	90.5	84.1	87.9	81.5	5	75.0-125			7.42	20
Barium	100	98.6	197	182	98.3	83.9	5	75.0-125			7.63	20
Chromium	100	9.18	97.9	89.5	88.7	80.3	5	75.0-125			9.00	20
Copper	100	7.74	98.5	90.9	90.8	83.2	5	75.0-125			8.02	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Zachary Schuehle

Email To: zachary.schuehle@wsp.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com;ansel

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: 425-833-0777

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Zachary Schuehle

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
X Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Al,As,Ba,Cr,Cu,Hg 4oz Clr-NoPres

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4oz Clr-NoPres	Remarks	Sample # (lab only)
SO-2494-EX-3-17B-4.0-032123	G	SS	4.0	03/21/23	1645	1	X		-01
SO-2494-EX-3-18B-4.0-032123	G	SS	4.0	03/21/23	1650	1	X		-02
SO-2494-EX-3-19S-4.0-032123	G	SS	4.0	03/21/23	1455	1	X		-03
SO-2494-EX-3-20S-4.0-032123	G	SS	4.0	03/21/23	1400	1	X		-04
SO-2494-EX-3-21B-4.0-032123	G	SS	4.0	03/21/23	1510	1	X		-05

Chain of Custody Page 2 of 3
1 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

A037
U597478

Acctnum: UPRRGOLD
Template: T222123
Prelogin: P987010
PM: 829 - Brittnie L Boyd
PB:
Shipped Via:

Remarks | Sample # (lab only)

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: As, Al, Ba, Cr, Cu 6y 6020
Hg 6y 7471

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6894 5462 7258

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Zach Schuehle	3-22-23	1545		—	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.1 °C Bottles Received:	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3.23.23 Time: 0905	Hold: / Condition: NCF / OK

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Zachary Schuehle

Email To: zachary.schuehle@wsp.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com;ansel

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project # **2494**

Lab Project # **UPRRGOLD-2494**

Collected by (print): Zachary Schuehle

Site/Facility ID # **DROSS STOCKPILE**

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Immediately Packed on Ice N ___ Y X

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres										Remarks	Sample # (lab only)
SO-2494-EX-3-23S-5.0-032323	G	SS	5.0	03/22/23	1655	1	X											-06
SO-2494-EX-3-24B-6.0-032323	G	SS	6.0	03/22/23	1100	1	X											-07
SO-2494-EX-3-25B-4.0-032323	G	SS	4.0	03/22/23	1154	1	X											-08
SO-2494-EX-4-22S-4.0-032223	G	SS	4.0	03/22/23	1045	1	X											-09
SO-2494-P1-45-032223	G	SS	6.0	03/22/23	1145	1	X											-10
SO-2494-EX-3-14B-6.0-032123	G	SS	6.0	03/21/23	1030	1	X											-11
SO-2494-EX-3-15B-6.0-032123	G	SS	6.0	03/21/23	1035	1	X											-12
SO-2494-EX-3-16B-6.0-032123	G	SS	6.0	03/21/23	1040	1	X											-13
SO-2494-EX-3-21S-4.0-032123	G	SS	4.0	03/21/23	1455	1	X											-14
SO-2494-EX-3-22S-4.0-032123	G	SS	4.0	03/21/23	1500	1	X											-15

Analysis / Container / Preservative

Chain of Custody Page 3 of 3 (2 of 2)

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1597478

Table #

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P987010**
PM: **829 - Brittnie L Boyd**
PB:

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: As, Ba, Cr, Cu, Hg 6Y 6P2D
Hg 67471

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 609456227 58

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Zach Schuehle	3-22-23	1545		—
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.1 °C Bottles Received: 0915
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3.23.23 Time: 0915

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

March 30, 2023

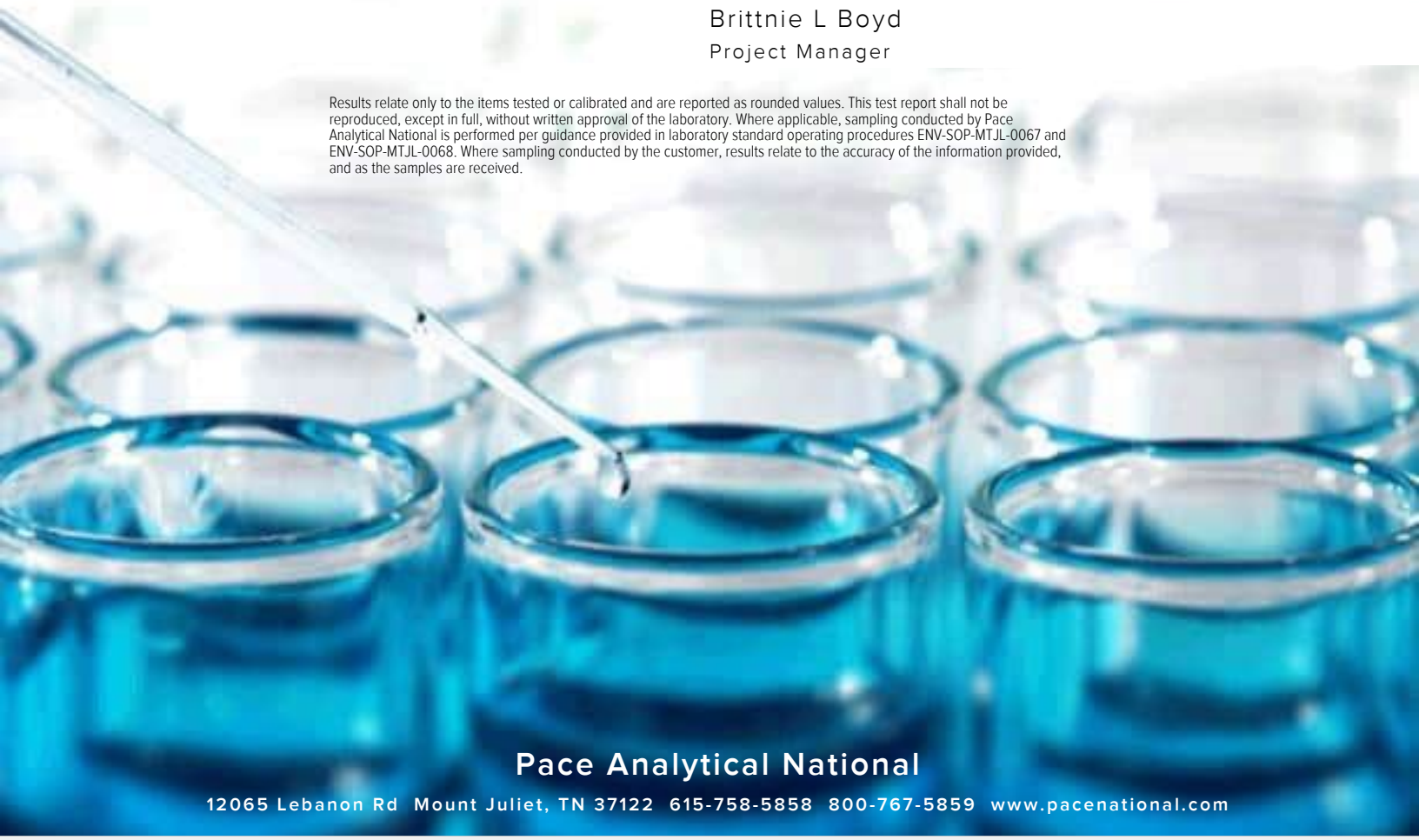
Revised Report

UPRR - Golder Associates

Sample Delivery Group:	L1598332
Samples Received:	03/25/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	IMPORTED BACKFILL SOIL AND GRA
Report To:	Zachary Schuehle 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SO-2494-EX-2-11S-4.0-032423 L1598332-01 Solid

Collected by	Collected date/time	Received date/time
	03/24/23 12:30	03/25/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2030015	1	03/25/23 12:02	03/25/23 12:18	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2030108	1	03/26/23 20:11	03/27/23 09:59	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2030077	5	03/26/23 07:10	03/26/23 19:02	LD	Mt. Juliet, TN

SO-2494-EX-2-12B-4.5-032423 L1598332-02 Solid

Collected by	Collected date/time	Received date/time
	03/24/23 14:10	03/25/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2030015	1	03/25/23 12:02	03/25/23 12:18	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2030108	1	03/26/23 20:11	03/27/23 10:01	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2030077	5	03/26/23 07:10	03/26/23 19:05	JDG	Mt. Juliet, TN

SO-2494-EX-2-13S-4.0-032423 L1598332-03 Solid

Collected by	Collected date/time	Received date/time
	03/24/23 14:15	03/25/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2030015	1	03/25/23 12:02	03/25/23 12:18	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2030108	1	03/26/23 20:11	03/27/23 10:04	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2030077	5	03/26/23 07:10	03/26/23 19:08	LD	Mt. Juliet, TN

SO-2494-EX-2-14S-4.0-032423 L1598332-04 Solid

Collected by	Collected date/time	Received date/time
	03/24/23 14:20	03/25/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2030015	1	03/25/23 12:02	03/25/23 12:18	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2030108	1	03/26/23 20:11	03/27/23 10:07	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2030077	5	03/26/23 07:10	03/26/23 19:19	LD	Mt. Juliet, TN

SO-2494-EX-2-15B-4.0-032423 L1598332-05 Solid

Collected by	Collected date/time	Received date/time
	03/24/23 14:30	03/25/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2030015	1	03/25/23 12:02	03/25/23 12:18	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2030108	1	03/26/23 20:11	03/27/23 10:09	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2030077	5	03/26/23 08:34	03/26/23 19:22	LD	Mt. Juliet, TN

SO-2494-FD-11-032423 L1598332-06 Solid

Collected by	Collected date/time	Received date/time
	03/24/23 00:00	03/25/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2030015	1	03/25/23 12:02	03/25/23 12:18	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2030108	1	03/26/23 20:11	03/27/23 10:12	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2030077	5	03/26/23 07:10	03/26/23 18:45	LD	Mt. Juliet, TN

SAMPLE SUMMARY

RB-2494-9-932423 L1598332-07 WW

Collected by	Collected date/time	Received date/time
	03/24/23 15:20	03/25/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 245.1	WG2030836	1	03/27/23 16:09	03/28/23 09:56	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 200.8	WG2030046	1	03/26/23 15:28	03/27/23 10:22	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Report Revision History

Level II Report - Version 1: 03/28/23 15:57

Project Narrative

Added Cu to -02

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.6		1	03/25/2023 12:18	WG2030015

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0186	0.0414	1	03/27/2023 09:59	WG2030108

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	30500		7.15	51.8	5	03/26/2023 19:02	WG2030077
Arsenic	17.2		0.104	1.04	5	03/26/2023 19:02	WG2030077
Barium	124		0.157	2.59	5	03/26/2023 19:02	WG2030077
Chromium	21.2		0.307	5.18	5	03/26/2023 19:02	WG2030077
Copper	91.4		0.137	5.18	5	03/26/2023 19:02	WG2030077

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.5		1	03/25/2023 12:18	WG2030015

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	03/27/2023 10:01	WG2030108

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12400		6.94	50.3	5	03/26/2023 19:05	WG2030077
Arsenic	10.7		0.101	1.01	5	03/26/2023 19:05	WG2030077
Barium	50.8		0.153	2.51	5	03/26/2023 19:05	WG2030077
Chromium	14.6		0.298	5.03	5	03/26/2023 19:05	WG2030077
Copper	17.0		0.133	5.03	5	03/26/2023 19:05	WG2030077

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.4		1	03/25/2023 12:18	WG2030015

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	03/27/2023 10:04	WG2030108

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	14800		6.94	50.3	5	03/26/2023 19:08	WG2030077
Arsenic	11.0		0.101	1.01	5	03/26/2023 19:08	WG2030077
Barium	67.3		0.153	2.51	5	03/26/2023 19:08	WG2030077
Chromium	14.6		0.298	5.03	5	03/26/2023 19:08	WG2030077
Copper	24.3		0.133	5.03	5	03/26/2023 19:08	WG2030077

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.0		1	03/25/2023 12:18	WG2030015

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0404	1	03/27/2023 10:07	WG2030108

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	15600		6.97	50.5	5	03/26/2023 19:19	WG2030077
Arsenic	7.46		0.101	1.01	5	03/26/2023 19:19	WG2030077
Barium	60.9		0.154	2.53	5	03/26/2023 19:19	WG2030077
Chromium	14.0		0.299	5.05	5	03/26/2023 19:19	WG2030077
Copper	134		0.133	5.05	5	03/26/2023 19:19	WG2030077

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.4		1	03/25/2023 12:18	WG2030015

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0183	0.0406	1	03/27/2023 10:09	WG2030108

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	16600		7.01	50.8	5	03/26/2023 19:22	WG2030077
Arsenic	6.93		0.102	1.02	5	03/26/2023 19:22	WG2030077
Barium	61.5		0.154	2.54	5	03/26/2023 19:22	WG2030077
Chromium	16.3		0.301	5.08	5	03/26/2023 19:22	WG2030077
Copper	23.5		0.134	5.08	5	03/26/2023 19:22	WG2030077

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.3		1	03/25/2023 12:18	WG2030015

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0183	0.0407	1	03/27/2023 10:12	WG2030108

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	14400	O1 V	7.02	50.9	5	03/26/2023 18:45	WG2030077
Arsenic	9.69		0.102	1.02	5	03/26/2023 18:45	WG2030077
Barium	54.9		0.155	2.54	5	03/26/2023 18:45	WG2030077
Chromium	14.1		0.301	5.09	5	03/26/2023 18:45	WG2030077
Copper	21.3		0.134	5.09	5	03/26/2023 18:45	WG2030077

Mercury by Method 245.1

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	U		0.000100	0.000200	1	03/28/2023 09:56	WG2030836

Metals (ICPMS) by Method 200.8

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	U		0.0470	0.100	1	03/27/2023 10:22	WG2030046
Arsenic	0.00128		0.000195	0.00100	1	03/27/2023 10:22	WG2030046
Barium	U		0.000476	0.00500	1	03/27/2023 10:22	WG2030046
Chromium	U		0.00560	0.0200	1	03/27/2023 10:22	WG2030046
Copper	U		0.000670	0.00100	1	03/27/2023 10:22	WG2030046

Method Blank (MB)

(MB) R3905693-1 03/25/23 12:18

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00200			

L1598332-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1598332-06 03/25/23 12:18 • (DUP) R3905693-3 03/25/23 12:18

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	98.3	98.3	1	0.0335		10

Laboratory Control Sample (LCS)

(LCS) R3905693-2 03/25/23 12:18

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

Method Blank (MB)

(MB) R3906199-1 03/28/23 09:07

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3906199-2 03/28/23 09:09

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00302	101	85.0-115	

L1597522-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1597522-01 03/28/23 09:11 • (MS) R3906199-3 03/28/23 09:13 • (MSD) R3906199-4 03/28/23 09:15

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	U	0.00236	0.00223	78.8	74.2	1	70.0-130			6.00	20

L1597737-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1597737-01 03/28/23 09:17 • (MS) R3906199-5 03/28/23 09:19 • (MSD) R3906199-6 03/28/23 09:21

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	U	0.00320	0.00319	107	106	1	70.0-130			0.354	20

Method Blank (MB)

(MB) R3905752-1 03/27/23 09:27

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3905752-2 03/27/23 09:29

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Mercury	0.500	0.508	102	80.0-120	

L1598382-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1598382-01 03/27/23 09:32 • (MS) R3905752-3 03/27/23 09:34 • (MSD) R3905752-4 03/27/23 09:37

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Mercury	0.545	U	0.623	0.575	114	106	1	75.0-125			8.00	20

Method Blank (MB)

(MB) R3905731-1 03/27/23 09:59

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aluminum	U		0.0470	0.100
Arsenic	U		0.000195	0.00100
Barium	U		0.000476	0.00500
Chromium	U		0.00560	0.0200
Copper	U		0.000670	0.00100

Laboratory Control Sample (LCS)

(LCS) R3905731-2 03/27/23 10:02

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	5.00	4.69	93.7	85.0-115	
Arsenic	0.0500	0.0495	98.9	85.0-115	
Barium	0.0500	0.0465	93.0	85.0-115	
Chromium	0.0500	0.0516	103	85.0-115	
Copper	0.0500	0.0488	97.6	85.0-115	

L1598305-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1598305-01 03/27/23 10:06 • (MS) R3905731-4 03/27/23 10:12 • (MSD) R3905731-5 03/27/23 10:15

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	5.00	0.151	4.73	4.76	91.6	92.1	1	70.0-130			0.550	20
Arsenic	0.0500	0.00115	0.0495	0.0505	96.6	98.8	1	70.0-130			2.17	20
Barium	0.0500	0.0124	0.0585	0.0582	92.2	91.5	1	70.0-130			0.605	20
Chromium	0.0500	U	0.0491	0.0500	98.1	100	1	70.0-130			1.92	20
Copper	0.0500	0.00843	0.0566	0.0551	96.3	93.3	1	70.0-130			2.69	20

Method Blank (MB)

(MB) R3905562-1 03/26/23 18:39

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3905562-2 03/26/23 18:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	929	92.9	80.0-120	
Arsenic	100	92.4	92.4	80.0-120	
Barium	100	93.0	93.0	80.0-120	
Chromium	100	93.2	93.2	80.0-120	
Copper	100	90.0	90.0	80.0-120	

L1598332-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1598332-06 03/26/23 18:45 • (MS) R3905562-5 03/26/23 18:55 • (MSD) R3905562-6 03/26/23 18:58

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1020	14400	16300	15200	181	79.7	5	75.0-125	V		6.55	20
Arsenic	102	9.69	112	106	101	94.6	5	75.0-125			6.03	20
Barium	102	54.9	167	160	111	103	5	75.0-125			4.61	20
Chromium	102	14.1	118	112	102	96.5	5	75.0-125			5.14	20
Copper	102	21.3	119	117	96.1	93.6	5	75.0-125			2.20	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To: **tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com**

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: PT MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Zachary Schuelke

Site/Facility ID #
IMPORTED BACKFILL SOIL AND

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres	Al,As,Ba,Cr,Cu,Hg 250mL MDPE w/ HNO3 L2								Remarks	Sample # (lab only)
SO-2494-EX-2-11S-4.0-032423	G	SS	4.0	03/24/23	1230	1	X										-01
SO-2494-EX-2-12B-4.5-032423	G	SS	4.5	03/24/23	1410	1	X										-02
SO-2494-EX-2-13S-4.0-032423	G	SS	4.0	03/24/23	1415	1	X										-03
SO-2494-EX-2-14S-4.0-032423	G	SS	4.0	03/24/23	1420	1	X										-04
SO-2494-EX-2-15B-4.0-032423	G	SS	4.0	03/24/23	1430	1	X										-05
SO-2494-FD-11-032423	G	SS	—	03/24/23	—	1	X										-06
RB-2494-9-032423	G	~~AQ~~ SS	—	03/24/23	1520	1	~~NO~~ X	X									-07
		SS				1	X										
		SS				1	X										
		SS				1	X										

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu 6y 6020
Hg 6y 7471

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier _____

Tracking # 6193 3532 1574

Trip Blank Received: Yes (No) HCL / MeoH TBR

Temp: 2.0 °C Bottles Received: 7
2.0+0=2.0

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Zach Schuelke	3-24-23	1630	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) (TZ)
			Date: 3/25/23 Time: 0900

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1598332

H117

Acctnum: **UPRRGOLD**
Template: **T223917**
Prelogin: **P978676**
PM: **829 - Brittnie L Boyd**
PB: 3/2/23

Shipped Via: **FedEX Ground**

ANALYTICAL REPORT

March 30, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1598851
Samples Received:	03/28/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Zachary Schuehle 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

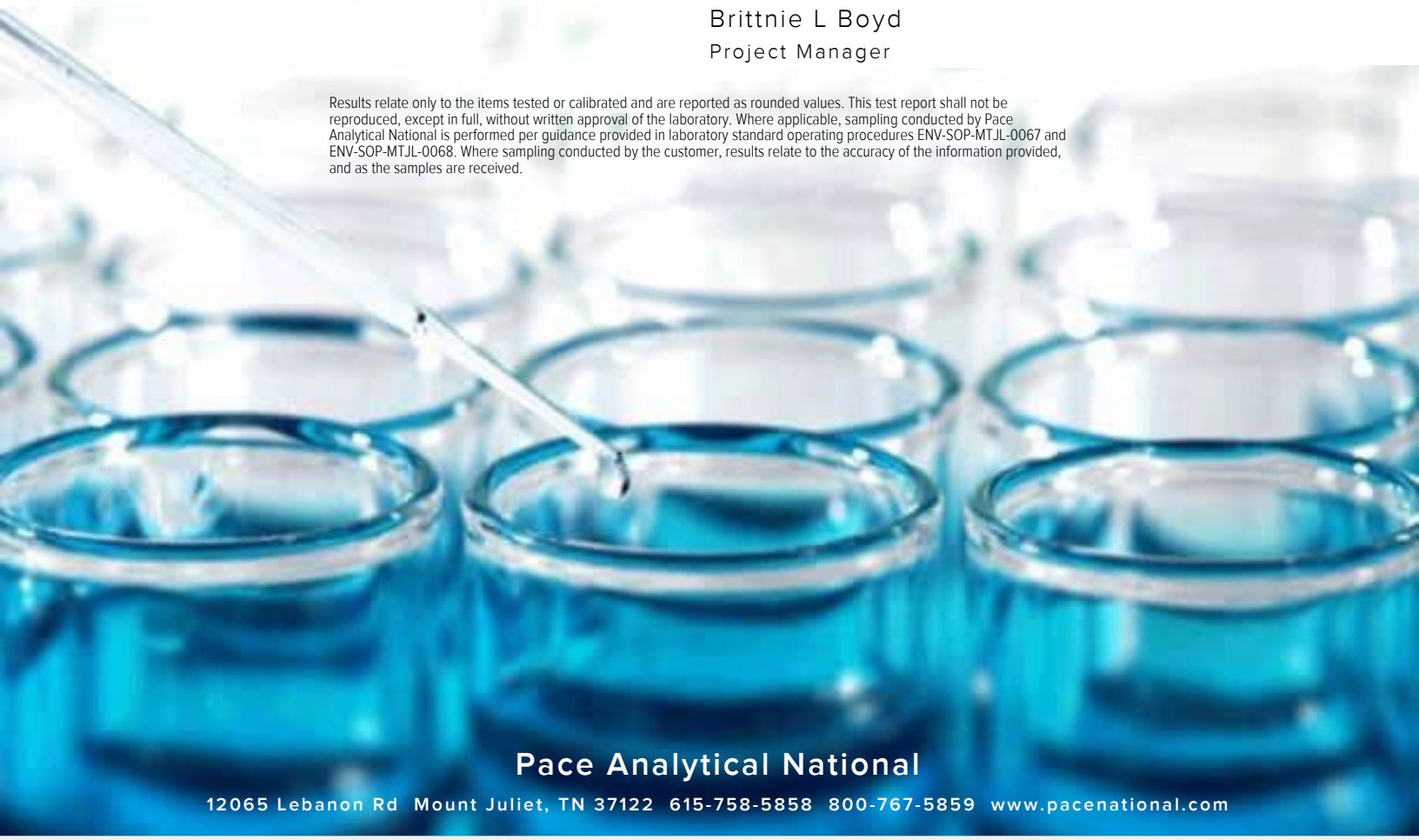


TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-P1-34-032723 L1598851-01 Solid

Collected by: Zachary S
Collected date/time: 03/27/23 11:05
Received date/time: 03/28/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2031764	1	03/29/23 14:13	03/29/23 14:18	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2031457	1	03/28/23 19:52	03/29/23 09:50	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2031786	5	03/29/23 07:30	03/29/23 17:45	LD	Mt. Juliet, TN

SO-2494-EX-3-26B-6.0-032723 L1598851-02 Solid

Collected by: Zachary S
Collected date/time: 03/27/23 11:00
Received date/time: 03/28/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2031764	1	03/29/23 14:13	03/29/23 14:18	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2031457	1	03/28/23 19:52	03/29/23 09:52	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2031786	10	03/29/23 07:30	03/29/23 20:31	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2031786	5	03/29/23 07:30	03/29/23 18:23	LD	Mt. Juliet, TN

SO-2494-FD-12-032723 L1598851-03 Solid

Collected by: Zachary S
Collected date/time: 03/27/23 00:00
Received date/time: 03/28/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2031764	1	03/29/23 14:13	03/29/23 14:18	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2031457	1	03/28/23 19:52	03/29/23 09:54	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2031786	10	03/29/23 07:30	03/29/23 20:34	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2031786	5	03/29/23 07:30	03/29/23 18:26	LD	Mt. Juliet, TN

RB-2494-10-032723 L1598851-04 GW

Collected by: Zachary S
Collected date/time: 03/27/23 15:00
Received date/time: 03/28/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG2031774	1	03/29/23 09:36	03/30/23 10:01	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2031877	1	03/29/23 08:36	03/29/23 11:54	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2032094	1	03/29/23 12:55	03/29/23 15:00	SJM	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.5		1	03/29/2023 14:18	WG2031764

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	03/29/2023 09:50	WG2031457

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10800	V	6.93	50.3	5	03/29/2023 17:45	WG2031786
Arsenic	7.71		0.101	1.01	5	03/29/2023 17:45	WG2031786
Barium	54.7		0.153	2.51	5	03/29/2023 17:45	WG2031786
Chromium	11.7		0.297	5.03	5	03/29/2023 17:45	WG2031786
Copper	20.2		0.133	5.03	5	03/29/2023 17:45	WG2031786

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.3		1	03/29/2023 14:18	WG2031764

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0516		0.0183	0.0407	1	03/29/2023 09:52	WG2031457

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	26600		14.0	102	10	03/29/2023 20:31	WG2031786
Arsenic	10.3		0.102	1.02	5	03/29/2023 18:23	WG2031786
Barium	144		0.309	5.09	10	03/29/2023 20:31	WG2031786
Chromium	19.4		0.301	5.09	5	03/29/2023 18:23	WG2031786
Copper	68.2		0.134	5.09	5	03/29/2023 18:23	WG2031786

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.2		1	03/29/2023 14:18	WG2031764

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0546		0.0183	0.0407	1	03/29/2023 09:54	WG2031457

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	22200		7.03	50.9	5	03/29/2023 18:26	WG2031786
Arsenic	9.20		0.102	1.02	5	03/29/2023 18:26	WG2031786
Barium	128		0.310	5.09	10	03/29/2023 20:34	WG2031786
Chromium	16.6		0.301	5.09	5	03/29/2023 18:26	WG2031786
Copper	60.4		0.134	5.09	5	03/29/2023 18:26	WG2031786

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	U		0.000100	0.000200	1	03/30/2023 10:01	WG2031774

Metals (ICPMS) by Method 6020B

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	0.0809	J	0.0185	0.100	1	03/29/2023 11:54	WG2031877
Arsenic	U		0.000180	0.00200	1	03/29/2023 11:54	WG2031877
Barium	0.000528	J	0.000381	0.00200	1	03/29/2023 11:54	WG2031877
Chromium	0.00230		0.00124	0.00200	1	03/29/2023 11:54	WG2031877
Copper	U		0.00151	0.00500	1	03/29/2023 15:00	WG2032094

Method Blank (MB)

(MB) R3907215-1 03/29/23 14:18

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1598841-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1598841-15 03/29/23 14:18 • (DUP) R3907215-3 03/29/23 14:18

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	78.1	79.4	1	1.62		10

Laboratory Control Sample (LCS)

(LCS) R3907215-2 03/29/23 14:18

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

QUALITY CONTROL SUMMARY

L1598851-04

Method Blank (MB)

(MB) R3907243-1 03/30/23 09:10

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3907243-2 03/30/23 09:12

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00315	105	80.0-120	

L1597529-67 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1597529-67 03/30/23 09:14 • (MS) R3907243-3 03/30/23 09:16 • (MSD) R3907243-4 03/30/23 09:18

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	U	0.00270	0.00248	90.1	82.6	1	75.0-125			8.74	20

Method Blank (MB)

(MB) R3906740-1 03/29/23 08:53

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3906740-2 03/29/23 08:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.503	101	80.0-120	

L1598820-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1598820-02 03/29/23 08:57 • (MS) R3906740-3 03/29/23 09:00 • (MSD) R3906740-4 03/29/23 09:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	0.0781	0.637	0.636	112	112	1	75.0-125			0.0846	20

Method Blank (MB)

(MB) R3907035-1 03/29/23 17:38

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3907035-2 03/29/23 17:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	936	93.6	80.0-120	
Arsenic	100	94.6	94.6	80.0-120	
Barium	100	91.9	91.9	80.0-120	
Chromium	100	97.1	97.1	80.0-120	
Copper	100	90.8	90.8	80.0-120	

L1598851-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1598851-01 03/29/23 17:45 • (MS) R3907035-5 03/29/23 17:54 • (MSD) R3907035-6 03/29/23 17:58

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1010	10800	13300	13400	243	253	5	75.0-125	V	V	0.725	20
Arsenic	101	7.71	88.6	92.8	80.5	84.7	5	75.0-125			4.62	20
Barium	101	54.7	139	148	84.0	93.3	5	75.0-125	E	E	6.52	20
Chromium	101	11.7	95.4	99.5	83.3	87.4	5	75.0-125			4.23	20
Copper	101	20.2	99.1	101	78.5	80.4	5	75.0-125			1.85	20

Method Blank (MB)

(MB) R3906809-1 03/29/23 11:28

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aluminum	U		0.0185	0.100
Arsenic	U		0.000180	0.00200
Barium	U		0.000381	0.00200
Chromium	U		0.00124	0.00200

Laboratory Control Sample (LCS)

(LCS) R3906809-2 03/29/23 11:31

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	5.00	4.67	93.4	80.0-120	
Arsenic	0.0500	0.0477	95.4	80.0-120	
Barium	0.0500	0.0473	94.7	80.0-120	
Chromium	0.0500	0.0492	98.5	80.0-120	

L1598038-18 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1598038-18 03/29/23 11:35 • (MS) R3906809-4 03/29/23 11:41 • (MSD) R3906809-5 03/29/23 11:44

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	5.00	1.47	6.02	6.22	91.1	95.0	1	75.0-125			3.18	20
Arsenic	0.0500	0.00599	0.0527	0.0519	93.5	91.9	1	75.0-125			1.50	20
Barium	0.0500	0.0417	0.0900	0.0913	96.7	99.2	1	75.0-125			1.37	20
Chromium	0.0500	0.00336	0.0490	0.0490	98.0	98.0	1	75.0-125			0.0237	20

Method Blank (MB)

(MB) R3906959-1 03/29/23 14:53

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Copper	U		0.00151	0.00500

Laboratory Control Sample (LCS)

(LCS) R3906959-2 03/29/23 14:57

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Copper	0.0500	0.0488	97.5	80.0-120	

L1598851-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1598851-04 03/29/23 15:00 • (MS) R3906959-3 03/29/23 15:07 • (MSD) R3906959-4 03/29/23 15:10

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Copper	0.0500	U	0.0500	0.0471	99.9	94.2	1	75.0-125			5.94	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To: **tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com**

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project # **2494**

Lab Project # **UPRRGOLD-2494**

Collected by (print):
Zachary Schvehle

Site/Facility ID # **DROSS STOCKPILE**

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
X Three Day

Quote #

Date Results Needed
3-31-23

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4ozClr-NoPres	4Z									
SO-2494-P1-34-032723	G	SS	6 ft	3-27-23	1105	1	X										-01
SO-2494-Ex-3-26B-6.0-032723	G	SS	6 ft	3-27-23	1100	1	X										-02
SO-2494-FD-12-032723	G	SS	—	3-27-23		1	X										-03
RB-2494-10-032723	G	AQ	—	3-27-23	1500	1		X									-04

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1598851
D233

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P981898**
PM: **829 - Brittnie L Boyd**
PB: KP 2/23/23

Shipped Via:

Remarks | Sample # (lab only)

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu by 6020
Hg by 7471

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 5528 5951 9132

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR
Zach Schvehle	3-27-23	1700		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: NSA 7 °C Bottles Received: 1.0+0=1.0 4
				If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3/28/23 Time: 920
			Kayla J	Hold: / Condition: NCF / OK

ANALYTICAL REPORT

April 04, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1600677
Samples Received:	04/01/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Zachary Schuehle 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

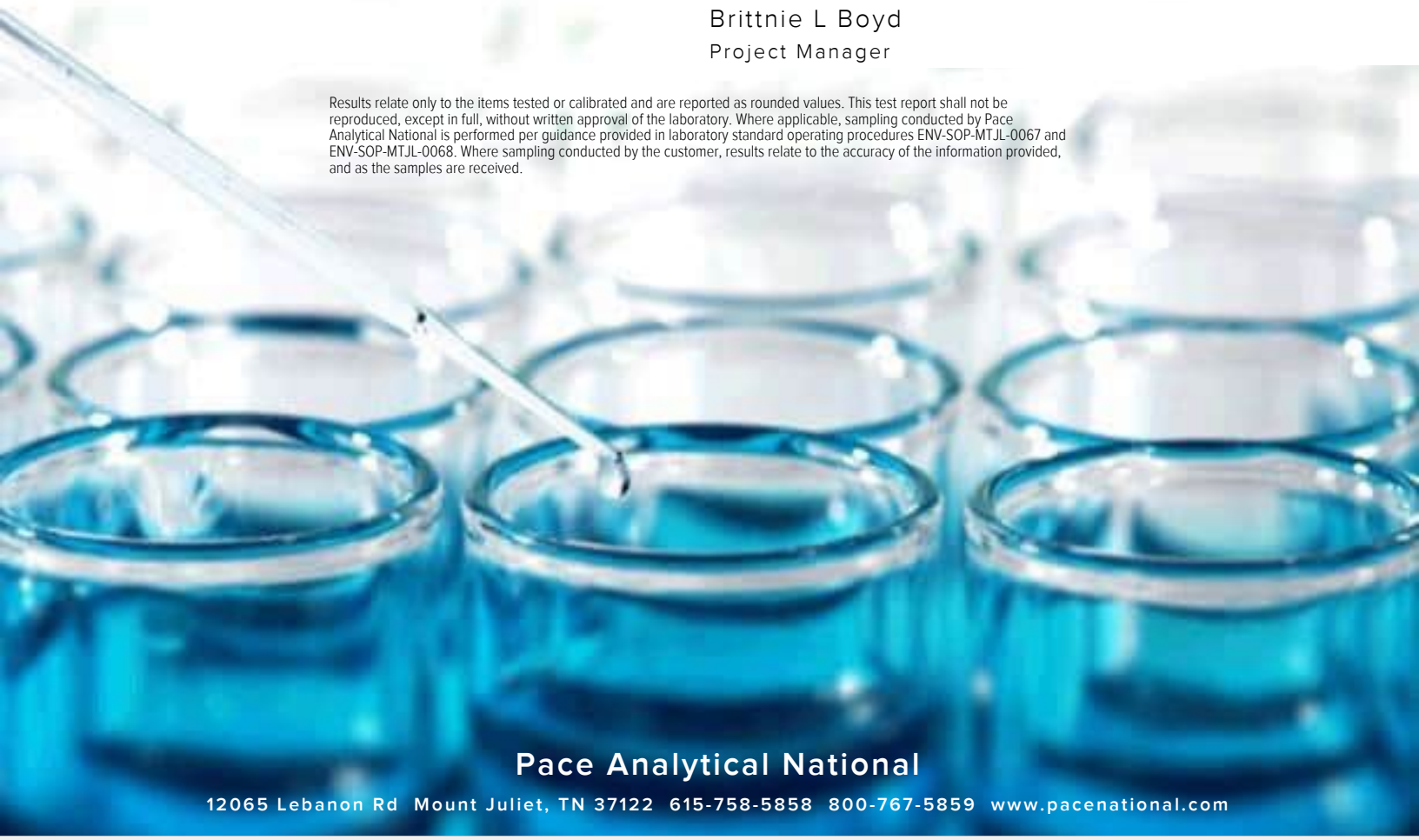


TABLE OF CONTENTS

SO-2494-EX-2-16B-6.0-033123 L1600677-01 Solid

Collected by	Collected date/time	Received date/time
	03/31/23 11:40	04/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2034594	1	04/03/23 12:52	04/03/23 12:59	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2034402	1	04/02/23 19:45	04/03/23 09:32	NDL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2034343	5	04/02/23 10:57	04/02/23 14:26	SJM	Mt. Juliet, TN

SO-2494-EX-2-17S-4.0-033123 L1600677-02 Solid

Collected by	Collected date/time	Received date/time
	03/31/23 11:50	04/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2034594	1	04/03/23 12:52	04/03/23 12:59	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2034402	1	04/02/23 19:45	04/03/23 09:35	NDL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2034343	5	04/02/23 10:57	04/02/23 14:36	SJM	Mt. Juliet, TN

SO-2494-EX-2-18B-6.0-033123 L1600677-03 Solid

Collected by	Collected date/time	Received date/time
	03/31/23 11:55	04/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2034594	1	04/03/23 12:52	04/03/23 12:59	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2034402	1	04/02/23 19:45	04/03/23 08:52	NDL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2034343	5	04/02/23 10:57	04/02/23 14:03	SJM	Mt. Juliet, TN

SO-2494-FD-13-033123 L1600677-04 Solid

Collected by	Collected date/time	Received date/time
	03/31/23 00:00	04/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2034594	1	04/03/23 12:52	04/03/23 12:59	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2034402	1	04/02/23 19:45	04/03/23 09:37	NDL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2034343	5	04/02/23 10:57	04/02/23 14:39	SJM	Mt. Juliet, TN

RB-2494-11-033123 L1600677-05 GW

Collected by	Collected date/time	Received date/time
	03/31/23 15:30	04/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG2034408	1	04/02/23 21:37	04/03/23 22:00	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2034085	1	04/02/23 12:10	04/03/23 11:58	SJM	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.6		1	04/03/2023 12:59	WG2034594

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0184	0.0410	1	04/03/2023 09:32	WG2034402

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11600		7.07	51.2	5	04/02/2023 14:26	WG2034343
Arsenic	6.93		0.102	1.02	5	04/02/2023 14:26	WG2034343
Barium	40.8		0.156	2.56	5	04/02/2023 14:26	WG2034343
Chromium	8.51		0.303	5.12	5	04/02/2023 14:26	WG2034343
Copper	43.1		0.135	5.12	5	04/02/2023 14:26	WG2034343

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.6		1	04/03/2023 12:59	WG2034594

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0184	0.0410	1	04/03/2023 09:35	WG2034402

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	14200		7.07	51.2	5	04/02/2023 14:36	WG2034343
Arsenic	9.23		0.102	1.02	5	04/02/2023 14:36	WG2034343
Barium	47.7		0.156	2.56	5	04/02/2023 14:36	WG2034343
Chromium	8.00		0.303	5.12	5	04/02/2023 14:36	WG2034343
Copper	120		0.135	5.12	5	04/02/2023 14:36	WG2034343

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.0		1	04/03/2023 12:59	WG2034594

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0406	J	0.0185	0.0412	1	04/03/2023 08:52	WG2034402

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	15100		7.11	51.5	5	04/02/2023 14:03	WG2034343
Arsenic	8.02		0.103	1.03	5	04/02/2023 14:03	WG2034343
Barium	45.1		0.157	2.58	5	04/02/2023 14:03	WG2034343
Chromium	9.58		0.305	5.15	5	04/02/2023 14:03	WG2034343
Copper	97.9		0.136	5.15	5	04/02/2023 14:03	WG2034343

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.6		1	04/03/2023 12:59	WG2034594

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0184	0.0410	1	04/03/2023 09:37	WG2034402

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11600		7.07	51.2	5	04/02/2023 14:39	WG2034343
Arsenic	8.84		0.102	1.02	5	04/02/2023 14:39	WG2034343
Barium	52.0		0.156	2.56	5	04/02/2023 14:39	WG2034343
Chromium	7.01		0.303	5.12	5	04/02/2023 14:39	WG2034343
Copper	44.5		0.135	5.12	5	04/02/2023 14:39	WG2034343

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Mercury	U		0.000100	0.000200	1	04/03/2023 22:00	WG2034408

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Aluminum	0.0206	J	0.0185	0.100	1	04/03/2023 11:58	WG2034085
Arsenic	U		0.000180	0.00200	1	04/03/2023 11:58	WG2034085
Barium	U		0.000381	0.00200	1	04/03/2023 11:58	WG2034085
Chromium	U		0.00124	0.00200	1	04/03/2023 11:58	WG2034085
Copper	U		0.00151	0.00500	1	04/03/2023 11:58	WG2034085

Method Blank (MB)

(MB) R3908849-1 04/03/23 12:59

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1600677-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1600677-03 04/03/23 12:59 • (DUP) R3908849-3 04/03/23 12:59

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	97.0	98.3	1	1.24		10

Laboratory Control Sample (LCS)

(LCS) R3908849-2 04/03/23 12:59

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

Method Blank (MB)

(MB) R3908814-1 04/03/23 21:07

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3908814-2 04/03/23 21:12

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00308	103	80.0-120	

L1600578-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1600578-06 04/03/23 21:14 • (MS) R3908814-3 04/03/23 21:16 • (MSD) R3908814-4 04/03/23 21:18

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	U	0.00306	0.00306	102	102	1	75.0-125			0.000	20

Method Blank (MB)

(MB) R3908605-1 04/03/23 08:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3908605-2 04/03/23 08:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.513	103	80.0-120	

L1600677-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1600677-03 04/03/23 08:52 • (MS) R3908605-3 04/03/23 08:55 • (MSD) R3908605-4 04/03/23 08:57

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.515	0.0406	0.521	0.443	93.3	78.2	1	75.0-125			16.1	20

QUALITY CONTROL SUMMARY

L1600677-05

Method Blank (MB)

(MB) R3908607-1 04/03/23 10:19

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aluminum	U		0.0185	0.100
Arsenic	U		0.000180	0.00200
Barium	U		0.000381	0.00200
Chromium	U		0.00124	0.00200
Copper	U		0.00151	0.00500

Laboratory Control Sample (LCS)

(LCS) R3908607-2 04/03/23 10:22

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	5.00	4.88	97.7	80.0-120	
Arsenic	0.0500	0.0515	103	80.0-120	
Barium	0.0500	0.0482	96.5	80.0-120	
Chromium	0.0500	0.0531	106	80.0-120	
Copper	0.0500	0.0502	100	80.0-120	

L1598983-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1598983-01 04/03/23 10:25 • (MS) R3908607-4 04/03/23 10:36 • (MSD) R3908607-5 04/03/23 10:39

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	5.00	0.0286	4.89	4.62	97.2	91.9	1	75.0-125			5.60	20
Arsenic	0.0500	0.000755	0.0490	0.0463	96.4	91.1	1	75.0-125			5.56	20
Barium	0.0500	0.583	0.620	0.628	74.6	90.3	1	75.0-125	E V	E	1.26	20
Chromium	0.0500	U	0.0495	0.0466	99.0	93.1	1	75.0-125			6.18	20
Copper	0.0500	0.00837	0.0573	0.0546	97.9	92.5	1	75.0-125			4.87	20

Method Blank (MB)

(MB) R3908346-1 04/02/23 13:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	1.44	J	0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3908346-2 04/02/23 14:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	988	98.8	80.0-120	
Arsenic	100	99.5	99.5	80.0-120	
Barium	100	99.6	99.6	80.0-120	
Chromium	100	102	102	80.0-120	
Copper	100	99.0	99.0	80.0-120	

L1600677-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1600677-03 04/02/23 14:03 • (MS) R3908346-5 04/02/23 14:13 • (MSD) R3908346-6 04/02/23 14:16

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1030	15100	13800	13800	0.000	0.000	5	75.0-125	V	V	0.511	20
Arsenic	103	8.02	106	91.5	95.4	81.0	5	75.0-125			15.0	20
Barium	103	45.1	136	139	88.5	90.7	5	75.0-125			1.66	20
Chromium	103	9.58	107	93.4	94.9	81.4	5	75.0-125			13.9	20
Copper	103	97.9	180	161	80.0	60.9	5	75.0-125		J6	11.6	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: **Trentwood, WA**

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Zachary Schuehle

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 4oz Cl-NoPres 8oz, Cl	Al,As,Ba,Cr,Cu,Hg,Ca,Mg 250mL mDPE w/HNO3								Remarks	Sample # (lab only)
SO-2494-EX-2-16B-6.0-033123	G	SS	6.0	03/31/23	1140	1	X										-01
SO-2494-EX-2-17S-4.0-033123	G	SS	4.0	03/31/23	1150	1	X										-02
SO-2494-EX-2-18B-6.0-033123	G	SS	6.0	03/31/23	1155	1	X										-03
SO-2494-FD-13-033123	G	SS	—	03/31/23	—	1	X										-04
SO-2494-EX-2-18B-MS/MSD	G	SS	—	03/31/23	—	1	X										
RB-2494-11-033123	G	~~AQ~~ SS	—	03/31/23	1530	1		X									-05
		SS															
		SS															
		SS															
		SS															

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1606677

Tab G049

Acctnum: UPRRGOLD

Template: T222123

Prelogin: P972606

PM: 134 - Mark W. Beasley

PB: CS 12/04/23

Shipped Via: FedEX Ground

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al,As,Ba,Cr,Cu,Hg,Ca,Mg 6020 Hg 7471

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier _____

Tracking # 6193 3529 2953

Sample Receipt Checklist

COC Seal Present/Intact:	NP	N
COC Signed/Accurate:	Y	N
Bottles arrive intact:	Y	N
Correct bottles used:	Y	N
Sufficient volume sent:	Y	N
If Applicable		
VOA Zero Headspace:	Y	N
Preservation Correct/Checked:	Y	N
RAD Screen <0.5 mR/hr:	Y	N

Relinquished by : (Signature) Zach Schuehle	Date: 3-31-23 ~~1630~~	Time: 1630	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 4.8 +0=4.8 7
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Hana Wachuta (c)	Date: 4.1.23 Time: 0910

If preservation required by Login: Date/Time

Hold:

Condition: NCF OK

ANALYTICAL REPORT

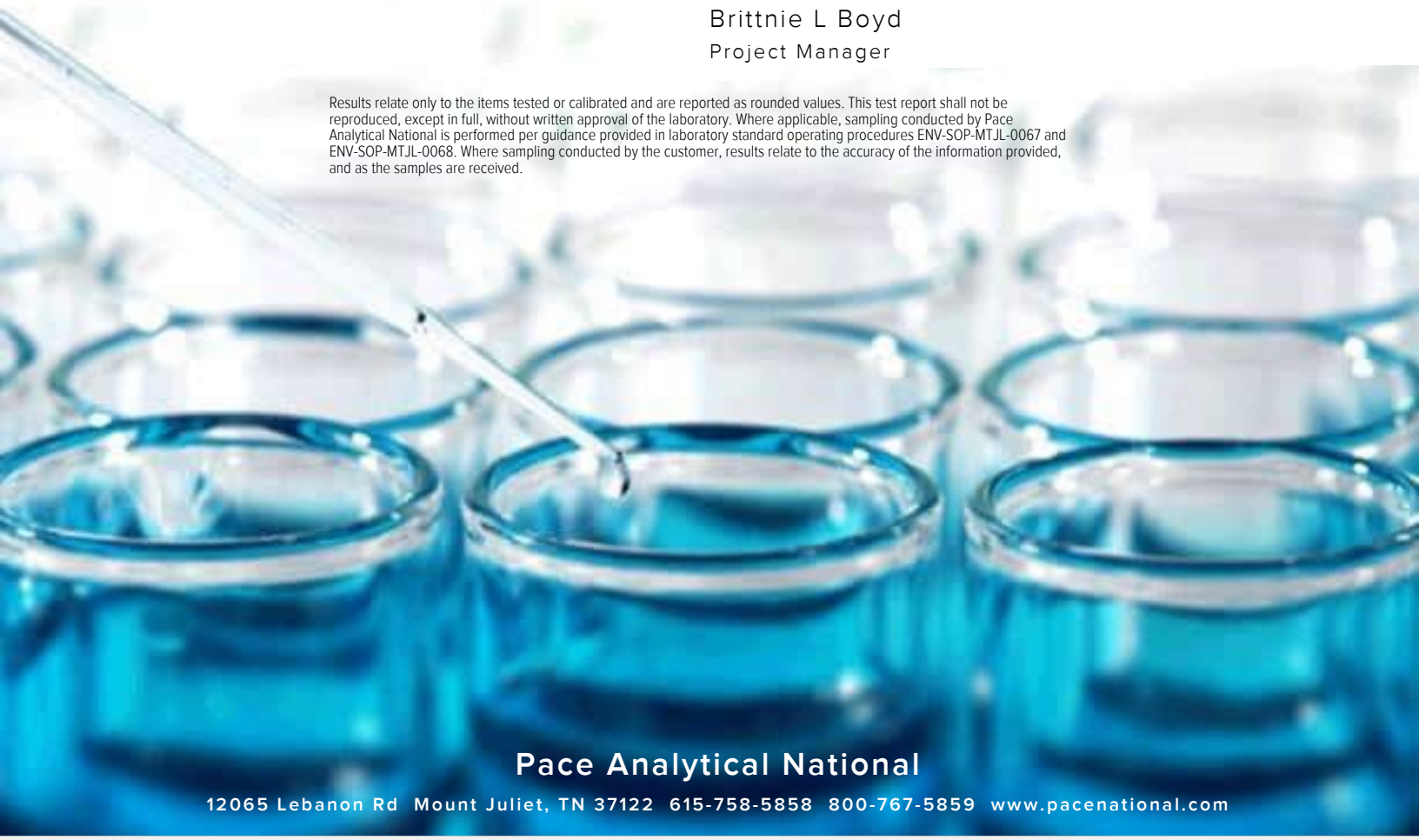
April 07, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1601511
Samples Received:	04/04/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	IMPORTED BACKFILL SOIL AND GRA
Report To:	Zachary Schuehle 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

BF3-2494-06-040323 L1601511-01 Solid

Collected by: Ansel C.
Collected date/time: 04/03/23 13:15
Received date/time: 04/04/23 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2035963	1	04/05/23 08:00	04/05/23 08:07	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2036019	1	04/05/23 08:23	04/05/23 20:21	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2035877	5	04/05/23 02:07	04/05/23 10:55	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2035734	27.5	04/03/23 13:15	04/05/23 06:23	MGF	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2036767	1	04/06/23 06:24	04/06/23 13:44	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2036088	1	04/05/23 16:29	04/06/23 01:02	JCH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2035901	1	04/05/23 06:16	04/06/23 18:59	AMG	Mt. Juliet, TN

TB-2494-4-040323 L1601511-02 GW

Collected by: Ansel C.
Collected date/time: 04/03/23 15:00
Received date/time: 04/04/23 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2036409	1	04/05/23 17:51	04/05/23 17:51	DWR	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Sample Delivery Group (SDG) Narrative

Analyzed from headspace vial.

Lab Sample ID	Project Sample ID	Method
L1601511-02	TB-2494-4-040323	NWTPHGX

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.8		1	04/05/2023 08:07	WG2035963

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0186	0.0413	1	04/05/2023 20:21	WG2036019

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	956		7.13	51.7	5	04/05/2023 10:55	WG2035877
Arsenic	6.12		0.103	1.03	5	04/05/2023 10:55	WG2035877
Barium	24.0		0.157	2.58	5	04/05/2023 10:55	WG2035877
Chromium	1.05	J	0.306	5.17	5	04/05/2023 10:55	WG2035877
Copper	6.65		0.136	5.17	5	04/05/2023 10:55	WG2035877

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.77	B J	0.991	2.92	27.5	04/05/2023 06:23	WG2035734
(S) a,a,a-Trifluorotoluene(FID)	*96.5*			*77.0-120*		*04/05/2023 06:23*	WG2035734

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.37	4.13	1	04/06/2023 13:44	WG2036767
Residual Range Organics (RRO)	U		3.44	10.3	1	04/06/2023 13:44	WG2036767
(S) o-Terphenyl	*69.5*			*18.0-148*		*04/06/2023 13:44*	WG2036767

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00557	0.0344	1	04/06/2023 01:02	WG2036088
Acenaphthylene	U		0.00485	0.0344	1	04/06/2023 01:02	WG2036088
Anthracene	U		0.00613	0.0344	1	04/06/2023 01:02	WG2036088
Benzo(a)anthracene	U		0.00606	0.0344	1	04/06/2023 01:02	WG2036088
Benzo(b)fluoranthene	U		0.00642	0.0344	1	04/06/2023 01:02	WG2036088
Benzo(k)fluoranthene	U	J4 J5	0.00612	0.0344	1	04/06/2023 01:02	WG2036088
Benzo(g,h,i)perylene	U	J4 J5	0.00629	0.0344	1	04/06/2023 01:02	WG2036088
Benzo(a)pyrene	U	J4 J5	0.00640	0.0344	1	04/06/2023 01:02	WG2036088
Benzoic acid	U		0.122	1.73	1	04/06/2023 01:02	WG2036088
Benzyl alcohol	U		0.0127	0.344	1	04/06/2023 01:02	WG2036088
Bis(2-chlorethoxy)methane	U		0.0103	0.344	1	04/06/2023 01:02	WG2036088
Bis(2-chloroethyl)ether	U		0.0114	0.344	1	04/06/2023 01:02	WG2036088
2,2-Oxybis(1-Chloropropane)	U		0.0149	0.344	1	04/06/2023 01:02	WG2036088
4-Bromophenyl-phenylether	U		0.0121	0.344	1	04/06/2023 01:02	WG2036088
Carbazole	U		0.0106	0.344	1	04/06/2023 01:02	WG2036088
2-Chloronaphthalene	U		0.00604	0.0344	1	04/06/2023 01:02	WG2036088
4-Chloroaniline	U		0.0124	0.344	1	04/06/2023 01:02	WG2036088
4-Chlorophenyl-phenylether	U		0.0120	0.344	1	04/06/2023 01:02	WG2036088
Chrysene	U		0.00684	0.0344	1	04/06/2023 01:02	WG2036088
Dibenz(a,h)anthracene	U	J4 J5	0.00954	0.0344	1	04/06/2023 01:02	WG2036088

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Dibenzofuran	U		0.0113	0.344	1	04/06/2023 01:02	WG2036088
3,3-Dichlorobenzidine	U	J4 J5	0.0127	0.344	1	04/06/2023 01:02	WG2036088
2,4-Dinitrotoluene	U		0.00987	0.344	1	04/06/2023 01:02	WG2036088
2,6-Dinitrotoluene	U		0.0113	0.344	1	04/06/2023 01:02	WG2036088
Fluoranthene	U		0.00621	0.0344	1	04/06/2023 01:02	WG2036088
Fluorene	U		0.00560	0.0344	1	04/06/2023 01:02	WG2036088
Hexachlorobenzene	U		0.0122	0.344	1	04/06/2023 01:02	WG2036088
Hexachloro-1,3-butadiene	U		0.0116	0.344	1	04/06/2023 01:02	WG2036088
Hexachlorocyclopentadiene	U		0.0181	0.344	1	04/06/2023 01:02	WG2036088
Hexachloroethane	U		0.0135	0.344	1	04/06/2023 01:02	WG2036088
Indeno(1,2,3-cd)pyrene	U		0.00972	0.0344	1	04/06/2023 01:02	WG2036088
Isophorone	U		0.0105	0.344	1	04/06/2023 01:02	WG2036088
2-Methylnaphthalene	U		0.00446	0.0344	1	04/06/2023 01:02	WG2036088
Naphthalene	U		0.00864	0.0344	1	04/06/2023 01:02	WG2036088
2-Nitroaniline	U		0.0111	0.344	1	04/06/2023 01:02	WG2036088
3-Nitroaniline	U		0.0110	0.344	1	04/06/2023 01:02	WG2036088
4-Nitroaniline	U	J4 J5	0.0100	0.344	1	04/06/2023 01:02	WG2036088
Nitrobenzene	U		0.0120	0.344	1	04/06/2023 01:02	WG2036088
n-Nitrosodimethylamine	U		0.0510	0.344	1	04/06/2023 01:02	WG2036088
n-Nitrosodiphenylamine	U		0.0260	0.344	1	04/06/2023 01:02	WG2036088
n-Nitrosodi-n-propylamine	U		0.0115	0.344	1	04/06/2023 01:02	WG2036088
Phenanthrene	U		0.00683	0.0344	1	04/06/2023 01:02	WG2036088
Benzylbutyl phthalate	U		0.0107	0.344	1	04/06/2023 01:02	WG2036088
Bis(2-ethylhexyl)phthalate	U		0.0436	0.344	1	04/06/2023 01:02	WG2036088
Di-n-butyl phthalate	U		0.0118	0.344	1	04/06/2023 01:02	WG2036088
Diethyl phthalate	U		0.0114	0.344	1	04/06/2023 01:02	WG2036088
Dimethyl phthalate	U		0.0729	0.344	1	04/06/2023 01:02	WG2036088
Di-n-octyl phthalate	U		0.0232	0.344	1	04/06/2023 01:02	WG2036088
Pyrene	U		0.00670	0.0344	1	04/06/2023 01:02	WG2036088
Pyridine	U		0.0227	0.344	1	04/06/2023 01:02	WG2036088
1,2,4-Trichlorobenzene	U		0.0107	0.344	1	04/06/2023 01:02	WG2036088
4-Chloro-3-methylphenol	U		0.0112	0.344	1	04/06/2023 01:02	WG2036088
2-Chlorophenol	U		0.0114	0.344	1	04/06/2023 01:02	WG2036088
2,4-Dichlorophenol	U		0.0100	0.344	1	04/06/2023 01:02	WG2036088
2,4-Dimethylphenol	U		0.00899	0.344	1	04/06/2023 01:02	WG2036088
4,6-Dinitro-2-methylphenol	U		0.0780	0.344	1	04/06/2023 01:02	WG2036088
2,4-Dinitrophenol	U		0.0805	0.344	1	04/06/2023 01:02	WG2036088
2-Methylphenol	U		0.0103	0.344	1	04/06/2023 01:02	WG2036088
3&4-Methyl Phenol	U		0.0107	0.344	1	04/06/2023 01:02	WG2036088
2-Nitrophenol	U		0.0123	0.344	1	04/06/2023 01:02	WG2036088
4-Nitrophenol	U		0.0107	0.344	1	04/06/2023 01:02	WG2036088
Pentachlorophenol	U		0.00926	0.344	1	04/06/2023 01:02	WG2036088
Phenol	U		0.0138	0.344	1	04/06/2023 01:02	WG2036088
2,4,5-Trichlorophenol	U		0.0117	0.344	1	04/06/2023 01:02	WG2036088
2,4,6-Trichlorophenol	U		0.0111	0.344	1	04/06/2023 01:02	WG2036088
(S) 2-Fluorophenol	*44.0*			*12.0-120*		*04/06/2023 01:02*	WG2036088
(S) Phenol-d5	*38.5*			*10.0-120*		*04/06/2023 01:02*	WG2036088
(S) Nitrobenzene-d5	*40.3*			*10.0-122*		*04/06/2023 01:02*	WG2036088
(S) 2-Fluorobiphenyl	*40.0*			*15.0-120*		*04/06/2023 01:02*	WG2036088
(S) 2,4,6-Tribromophenol	*46.2*			*10.0-127*		*04/06/2023 01:02*	WG2036088
(S) p-Terphenyl-d14	*50.5*			*10.0-120*		*04/06/2023 01:02*	WG2036088

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00238	0.00620	1	04/06/2023 18:59	WG2035901
Acenaphthene	U		0.00216	0.00620	1	04/06/2023 18:59	WG2035901
Acenaphthylene	U		0.00223	0.00620	1	04/06/2023 18:59	WG2035901
Benzo(a)anthracene	U		0.00179	0.00620	1	04/06/2023 18:59	WG2035901
Benzo(a)pyrene	U		0.00185	0.00620	1	04/06/2023 18:59	WG2035901
Benzo(b)fluoranthene	U		0.00158	0.00620	1	04/06/2023 18:59	WG2035901
Benzo(g,h,i)perylene	U		0.00183	0.00620	1	04/06/2023 18:59	WG2035901
Benzo(k)fluoranthene	U		0.00222	0.00620	1	04/06/2023 18:59	WG2035901
Chrysene	U		0.00240	0.00620	1	04/06/2023 18:59	WG2035901
Dibenz(a,h)anthracene	U		0.00178	0.00620	1	04/06/2023 18:59	WG2035901
Fluoranthene	U		0.00235	0.00620	1	04/06/2023 18:59	WG2035901
Fluorene	U		0.00212	0.00620	1	04/06/2023 18:59	WG2035901
Indeno(1,2,3-cd)pyrene	U		0.00187	0.00620	1	04/06/2023 18:59	WG2035901
Naphthalene	U		0.00422	0.0207	1	04/06/2023 18:59	WG2035901
Phenanthrene	U		0.00239	0.00620	1	04/06/2023 18:59	WG2035901
Pyrene	U		0.00207	0.00620	1	04/06/2023 18:59	WG2035901
1-Methylnaphthalene	U		0.00464	0.0207	1	04/06/2023 18:59	WG2035901
2-Methylnaphthalene	U		0.00441	0.0207	1	04/06/2023 18:59	WG2035901
2-Chloronaphthalene	U		0.00481	0.0207	1	04/06/2023 18:59	WG2035901
(S) p-Terphenyl-d14	*115*			*23.0-120*		*04/06/2023 18:59*	WG2035901
(S) Nitrobenzene-d5	*87.0*			*14.0-149*		*04/06/2023 18:59*	WG2035901
(S) 2-Fluorobiphenyl	*101*			*34.0-125*		*04/06/2023 18:59*	WG2035901

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Gasoline Range Organics-NWTPH	U		0.0316	0.100	1	04/05/2023 17:51	WG2036409
(S) a,a,a-Trifluorotoluene(FID)	*108*			*78.0-120*		*04/05/2023 17:51*	WG2036409

Method Blank (MB)

(MB) R3909909-1 04/05/23 08:07

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1601280-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1601280-01 04/05/23 08:07 • (DUP) R3909909-3 04/05/23 08:07

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	75.0	75.6	1	0.841		10

Laboratory Control Sample (LCS)

(LCS) R3909909-2 04/05/23 08:07

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

QUALITY CONTROL SUMMARY

L1601511-01

Method Blank (MB)

(MB) R3909837-1 04/05/23 19:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3909837-2 04/05/23 19:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.503	101	80.0-120	

L1601377-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1601377-10 04/05/23 19:16 • (MS) R3909837-3 04/05/23 19:18 • (MSD) R3909837-4 04/05/23 19:21

Analyte	Spike Amount (dry) mg/kg	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.551	U	0.442	0.513	80.2	93.1	1	75.0-125			15.0	20

QUALITY CONTROL SUMMARY

L1601511-01

Method Blank (MB)

(MB) R3909636-1 04/05/23 10:26

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3909636-2 04/05/23 10:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	995	99.5	80.0-120	
Arsenic	100	97.1	97.1	80.0-120	
Barium	100	96.5	96.5	80.0-120	
Chromium	100	98.5	98.5	80.0-120	
Copper	100	87.6	87.6	80.0-120	

L1601486-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1601486-04 04/05/23 10:32 • (MS) R3909636-5 04/05/23 10:42 • (MSD) R3909636-6 04/05/23 10:45

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	609	1620	1850	101	124	5	75.0-125			13.5	20
Arsenic	100	0.454	72.0	86.4	71.5	86.0	5	75.0-125	J6		18.3	20
Barium	100	80.4	183	195	103	115	5	75.0-125			6.28	20
Chromium	100	0.367	74.0	88.4	73.6	88.0	5	75.0-125	J6		17.7	20
Copper	100	2.16	73.2	84.3	71.0	82.1	5	75.0-125	J6		14.1	20

Method Blank (MB)

(MB) R3909490-3 04/05/23 03:59

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPHG C6 - C12	1.22	J	0.848	2.50
(S) a,a,a-Trifluorotoluene(FID)	*95.7*			*77.0-120*

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

(LCS) R3909490-1 04/05/23 02:37 • (LCSD) R3909490-2 04/05/23 02:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPHG C6 - C12	5.50	4.18	4.77	76.0	86.7	71.0-124			13.2	20
(S) a,a,a-Trifluorotoluene(FID)				*105*	*107*	*77.0-120*				

L1600341-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1600341-01 04/05/23 09:07 • (MS) R3909490-4 04/05/23 11:30 • (MSD) R3909490-5 04/05/23 11:50

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	106	U	83.0	81.5	78.3	76.9	25	50.0-150			1.82	27
(S) a,a,a-Trifluorotoluene(FID)					*102*	*103*		*77.0-120*				

Method Blank (MB)

(MB) R3909980-2 04/05/23 13:29

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Gasoline Range Organics-NWTPH	U		0.0316	0.100
(S) a,a,a-Trifluorotoluene(FID)	*109*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3909980-1 04/05/23 12:32

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5.50	5.00	90.9	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*105*	*78.0-120*	

Method Blank (MB)

(MB) R3910334-1 04/06/23 10:41

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Diesel Range Organics (DRO)	1.37	J	1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*59.8*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3910334-2 04/06/23 10:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Diesel Range Organics (DRO)	50.0	36.8	73.6	50.0-150	
(S) o-Terphenyl			*75.5*	*18.0-148*	

L1601511-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1601511-01 04/06/23 13:44 • (MS) R3910334-3 04/06/23 13:58 • (MSD) R3910334-4 04/06/23 14:12

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	50.5	U	37.5	38.2	74.2	78.2	1	50.0-150			1.91	20
(S) o-Terphenyl					*77.1*	*79.4*		*18.0-148*				

Method Blank (MB)

(MB) R3910327-2 04/06/23 00:13

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00539	0.0333
Acenaphthylene	U		0.00469	0.0333
Anthracene	U		0.00593	0.0333
Benzo(a)anthracene	U		0.00587	0.0333
Benzo(b)fluoranthene	U		0.00621	0.0333
Benzo(k)fluoranthene	U		0.00592	0.0333
Benzo(g,h,i)perylene	U		0.00609	0.0333
Benzo(a)pyrene	U		0.00619	0.0333
Benzoic Acid	U		0.118	1.67
Benzyl Alcohol	U		0.0123	0.333
Bis(2-chlorethoxy)methane	U		0.0100	0.333
Bis(2-chloroethyl)ether	U		0.0110	0.333
2,2-oxybis(1-chloropropane)	U		0.0144	0.333
4-Bromophenyl-phenylether	U		0.0117	0.333
Carbazole	U		0.0103	0.333
2-Chloronaphthalene	U		0.00585	0.0333
4-Chloroaniline	U		0.0120	0.333
4-Chlorophenyl-phenylether	U		0.0116	0.333
Chrysene	U		0.00662	0.0333
Dibenz(a,h)anthracene	U		0.00923	0.0333
Dibenzofuran	U		0.0109	0.333
3,3-Dichlorobenzidine	U		0.0123	0.333
2,4-Dinitrotoluene	U		0.00955	0.333
2,6-Dinitrotoluene	U		0.0109	0.333
Fluoranthene	U		0.00601	0.0333
Fluorene	U		0.00542	0.0333
Hexachlorobenzene	U		0.0118	0.333
Hexachloro-1,3-butadiene	U		0.0112	0.333
Hexachlorocyclopentadiene	U		0.0175	0.333
Hexachloroethane	U		0.0131	0.333
Indeno(1,2,3-cd)pyrene	U		0.00941	0.0333
Isophorone	U		0.0102	0.333
2-Methylnaphthalene	U		0.00432	0.0333
Naphthalene	U		0.00836	0.0333
2-Nitroaniline	U		0.0107	0.333
3-Nitroaniline	U		0.0106	0.333
4-Nitroaniline	U		0.00971	0.333
Nitrobenzene	U		0.0116	0.333
n-Nitrosodimethylamine	U		0.0494	0.333
n-Nitrosodiphenylamine	U		0.0252	0.333

Method Blank (MB)

(MB) R3910327-2 04/06/23 00:13

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
n-Nitrosodi-n-propylamine	U		0.0111	0.333
Phenanthrene	U		0.00661	0.0333
Benzylbutyl phthalate	U		0.0104	0.333
Bis(2-ethylhexyl)phthalate	U		0.0422	0.333
Di-n-butyl phthalate	U		0.0114	0.333
Diethyl phthalate	U		0.0110	0.333
Dimethyl phthalate	U		0.0706	0.333
Di-n-octyl phthalate	U		0.0225	0.333
Pyrene	U		0.00648	0.0333
Pyridine	U		0.0220	0.333
1,2,4-Trichlorobenzene	U		0.0104	0.333
4-Chloro-3-methylphenol	U		0.0108	0.333
2-Chlorophenol	U		0.0110	0.333
2,4-Dichlorophenol	U		0.00970	0.333
2,4-Dimethylphenol	U		0.00870	0.333
4,6-Dinitro-2-methylphenol	U		0.0755	0.333
2,4-Dinitrophenol	U		0.0779	0.333
2-Methylphenol	U		0.0100	0.333
3&4-Methyl Phenol	U		0.0104	0.333
2-Nitrophenol	U		0.0119	0.333
4-Nitrophenol	U		0.0104	0.333
Pentachlorophenol	U		0.00896	0.333
Phenol	U		0.0134	0.333
2,4,5-Trichlorophenol	U		0.0113	0.333
2,4,6-Trichlorophenol	U		0.0107	0.333
(S) 2-Fluorophenol	*43.7*			*12.0-120*
(S) Phenol-d5	*36.5*			*10.0-120*
(S) Nitrobenzene-d5	*39.9*			*10.0-122*
(S) 2-Fluorobiphenyl	*39.0*			*15.0-120*
(S) 2,4,6-Tribromophenol	*41.3*			*10.0-127*
(S) p-Terphenyl-d14	*55.6*			*10.0-120*

Laboratory Control Sample (LCS)

(LCS) R3910327-1 04/05/23 23:48

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.666	0.618	92.8	38.0-120	
Acenaphthylene	0.666	0.686	103	40.0-120	

Laboratory Control Sample (LCS)

(LCS) R3910327-1 04/05/23 23:48

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.666	0.763	115	42.0-120	
Benzo(a)anthracene	0.666	0.801	120	44.0-120	
Benzo(b)fluoranthene	0.666	0.747	112	43.0-120	
Benzo(k)fluoranthene	0.666	0.853	128	44.0-120	J4
Benzo(g,h,i)perylene	0.666	0.846	127	43.0-120	J4
Benzo(a)pyrene	0.666	0.928	139	45.0-120	J4
Benzoic Acid	1.33	0.537	40.4	10.0-120	
Benzyl Alcohol	0.666	0.605	90.8	10.0-120	
Bis(2-chlorethoxy)methane	0.666	0.440	66.1	20.0-120	
Bis(2-chloroethyl)ether	0.666	0.553	83.0	16.0-120	
2,2-Oxybis(1-Chloropropane)	0.666	0.536	80.5	23.0-120	
4-Bromophenyl-phenylether	0.666	0.730	110	40.0-120	
Carbazole	0.666	0.767	115	48.0-120	
2-Chloronaphthalene	0.666	0.638	95.8	35.0-120	
4-Chloroaniline	0.666	0.390	58.6	18.0-120	
4-Chlorophenyl-phenylether	0.666	0.690	104	40.0-120	
Chrysene	0.666	0.756	114	43.0-120	
Dibenz(a,h)anthracene	0.666	0.854	128	44.0-120	J4
Dibenzofuran	0.666	0.652	97.9	44.0-120	
3,3-Dichlorobenzidine	1.33	1.78	134	28.0-120	E J4
2,4-Dinitrotoluene	0.666	0.798	120	45.0-120	
2,6-Dinitrotoluene	0.666	0.685	103	42.0-120	
Fluoranthene	0.666	0.760	114	44.0-120	
Fluorene	0.666	0.652	97.9	41.0-120	
Hexachlorobenzene	0.666	0.721	108	39.0-120	
Hexachloro-1,3-butadiene	0.666	0.555	83.3	15.0-120	
Hexachlorocyclopentadiene	0.666	0.669	100	15.0-120	
Hexachloroethane	0.666	0.569	85.4	17.0-120	
Indeno(1,2,3-cd)pyrene	0.666	0.787	118	45.0-120	
Isophorone	0.666	0.480	72.1	23.0-120	
2-Methylnaphthalene	0.666	0.475	71.3	34.0-120	
Naphthalene	0.666	0.444	66.7	18.0-120	
2-Nitroaniline	0.666	0.704	106	46.0-120	
3-Nitroaniline	0.666	0.713	107	36.0-120	
4-Nitroaniline	0.666	1.11	167	36.0-120	J4
Nitrobenzene	0.666	0.463	69.5	17.0-120	
n-Nitrosodimethylamine	0.666	0.448	67.3	10.0-125	
n-Nitrosodiphenylamine	0.666	0.689	103	40.0-120	
n-Nitrosodi-n-propylamine	0.666	0.581	87.2	26.0-120	
Phenanthrene	0.666	0.667	100	42.0-120	

Laboratory Control Sample (LCS)

(LCS) R3910327-1 04/05/23 23:48

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzylbutyl phthalate	0.666	0.745	112	40.0-120	
Bis(2-ethylhexyl)phthalate	0.666	0.716	108	41.0-120	
Di-n-butyl phthalate	0.666	0.762	114	43.0-120	
Diethyl phthalate	0.666	0.754	113	43.0-120	
Dimethyl phthalate	0.666	0.727	109	43.0-120	
Di-n-octyl phthalate	0.666	0.717	108	40.0-120	
Pyrene	0.666	0.701	105	41.0-120	
Pyridine	0.666	0.363	54.5	10.0-120	
1,2,4-Trichlorobenzene	0.666	0.523	78.5	17.0-120	
4-Chloro-3-methylphenol	0.666	0.568	85.3	28.0-120	
2-Chlorophenol	0.666	0.602	90.4	28.0-120	
2,4-Dichlorophenol	0.666	0.560	84.1	25.0-120	
2,4-Dimethylphenol	0.666	0.519	77.9	15.0-120	
4,6-Dinitro-2-methylphenol	0.666	0.703	106	16.0-120	
2,4-Dinitrophenol	0.666	0.411	61.7	10.0-120	
2-Methylphenol	0.666	0.602	90.4	35.0-120	
3&4-Methyl Phenol	0.666	0.707	106	42.0-120	
2-Nitrophenol	0.666	0.530	79.6	20.0-120	
4-Nitrophenol	0.666	0.734	110	27.0-120	
Pentachlorophenol	0.666	0.781	117	29.0-120	
Phenol	0.666	0.644	96.7	28.0-120	
2,4,5-Trichlorophenol	0.666	0.767	115	38.0-120	
2,4,6-Trichlorophenol	0.666	0.694	104	37.0-120	
(S) 2-Fluorophenol			*50.0*	*12.0-120*	
(S) Phenol-d5			*45.8*	*10.0-120*	
(S) Nitrobenzene-d5			*35.1*	*10.0-122*	
(S) 2-Fluorobiphenyl			*46.2*	*15.0-120*	
(S) 2,4,6-Tribromophenol			*59.8*	*10.0-127*	
(S) p-Terphenyl-d14			*57.1*	*10.0-120*	

L1601511-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1601511-01 04/06/23 01:02 • (MS) R3910327-3 04/06/23 01:26 • (MSD) R3910327-4 04/06/23 01:51

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.688	U	0.531	0.552	77.2	80.2	1	18.0-120			3.82	32
Acenaphthylene	0.688	U	0.586	0.612	85.1	88.9	1	25.0-120			4.31	32
Anthracene	0.688	U	0.704	0.756	102	110	1	22.0-120			7.22	29
Benzo(a)anthracene	0.688	U	0.764	0.809	111	118	1	25.0-120			5.78	29

L1601511-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1601511-01 04/06/23 01:02 • (MS) R3910327-3 04/06/23 01:26 • (MSD) R3910327-4 04/06/23 01:51

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzo(b)fluoranthene	0.688	U	0.707	0.751	103	109	1	19.0-122			6.09	31
Benzo(k)fluoranthene	0.688	U	0.797	0.853	116	124	1	23.0-120		J5	6.89	30
Benzo(g,h,i)perylene	0.688	U	0.787	0.841	114	122	1	10.0-120		J5	6.60	33
Benzo(a)pyrene	0.688	U	0.876	0.937	127	136	1	24.0-120	J5	J5	6.72	30
Benzoic Acid	1.37	U	1.65	1.42	120	103	1	10.0-152			15.5	40
Benzyl Alcohol	0.688	U	0.502	0.532	73.0	77.3	1	10.0-136			5.79	40
Bis(2-chlorethoxy)methane	0.688	U	0.371	0.370	53.9	53.8	1	10.0-120			0.279	34
Bis(2-chloroethyl)ether	0.688	U	0.484	0.454	70.3	65.9	1	10.0-120			6.39	40
2,2-Oxybis(1-Chloropropane)	0.688	U	0.427	0.426	62.0	61.9	1	10.0-120			0.242	40
4-Bromophenyl-phenylether	0.688	U	0.643	0.706	93.4	103	1	27.0-120			9.35	30
Carbazole	0.688	U	0.724	0.775	105	113	1	31.0-120			6.75	24
2-Chloronaphthalene	0.688	U	0.530	0.548	77.0	79.6	1	20.0-120			3.26	32
4-Chloroaniline	0.688	U	0.345	0.345	50.2	50.2	1	10.0-120			0.000	36
4-Chlorophenyl-phenylether	0.688	U	0.611	0.646	88.7	93.8	1	24.0-120			5.59	29
Chrysene	0.688	U	0.711	0.752	103	109	1	21.0-120			5.65	29
Dibenz(a,h)anthracene	0.688	U	0.809	0.862	118	125	1	10.0-120		J5	6.31	32
Dibenzofuran	0.688	U	0.555	0.588	80.6	85.4	1	24.0-120			5.79	30
3,3-Dichlorobenzidine	1.37	U	1.73	1.81	126	132	1	10.0-120	E J5	E J5	4.68	34
2,4-Dinitrotoluene	0.688	U	0.760	0.801	111	116	1	30.0-120			5.16	31
2,6-Dinitrotoluene	0.688	U	0.649	0.671	94.3	97.4	1	25.0-120			3.29	31
Fluoranthene	0.688	U	0.715	0.760	104	111	1	18.0-126			6.16	32
Fluorene	0.688	U	0.590	0.620	85.7	90.1	1	25.0-120			4.95	30
Hexachlorobenzene	0.688	U	0.668	0.721	97.1	105	1	27.0-120			7.58	28
Hexachloro-1,3-butadiene	0.688	U	0.456	0.446	66.2	64.9	1	10.0-120			2.06	38
Hexachlorocyclopentadiene	0.688	U	0.493	0.496	71.6	72.1	1	10.0-120			0.627	40
Hexachloroethane	0.688	U	0.444	0.419	64.6	61.0	1	10.0-120			5.74	40
Indeno(1,2,3-cd)pyrene	0.688	U	0.748	0.801	109	116	1	10.0-120			6.80	32
Isophorone	0.688	U	0.405	0.405	58.9	58.9	1	13.0-120			0.000	34
2-Methylnaphthalene	0.688	U	0.399	0.403	58.0	58.6	1	10.0-120			1.03	37
Naphthalene	0.688	U	0.363	0.354	52.7	51.5	1	10.0-120			2.31	35
2-Nitroaniline	0.688	U	0.647	0.684	94.0	99.4	1	24.0-120			5.59	30
3-Nitroaniline	0.688	U	0.671	0.712	97.4	103	1	11.0-120			5.98	32
4-Nitroaniline	0.688	U	1.10	1.13	159	164	1	15.0-120	J5	J5	2.79	31
Nitrobenzene	0.688	U	0.375	0.361	54.5	52.4	1	10.0-120			3.93	36
n-Nitrosodimethylamine	0.688	U	0.377	0.357	54.8	52.0	1	10.0-127			5.34	40
n-Nitrosodiphenylamine	0.688	U	0.624	0.675	90.7	98.0	1	17.0-120			7.80	29
n-Nitrosodi-n-propylamine	0.688	U	0.480	0.474	69.8	68.9	1	10.0-120			1.30	37
Phenanthrene	0.688	U	0.602	0.652	87.5	94.7	1	17.0-120			7.91	31
Benzylbutyl phthalate	0.688	U	0.709	0.744	103	108	1	23.0-120			4.84	30

L1601511-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1601511-01 04/06/23 01:02 • (MS) R3910327-3 04/06/23 01:26 • (MSD) R3910327-4 04/06/23 01:51

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bis(2-ethylhexyl)phthalate	0.688	U	0.688	0.729	100	106	1	17.0-126			5.83	30
Di-n-butyl phthalate	0.688	U	0.722	0.767	105	111	1	30.0-120			5.97	29
Diethyl phthalate	0.688	U	0.720	0.750	105	109	1	26.0-120			4.08	28
Dimethyl phthalate	0.688	U	0.658	0.694	95.6	101	1	25.0-120			5.35	29
Di-n-octyl phthalate	0.688	U	0.690	0.728	100	106	1	21.0-123			5.39	29
Pyrene	0.688	U	0.665	0.709	96.7	103	1	16.0-121			6.32	32
Pyridine	0.688	U	0.373	0.353	54.2	51.4	1	10.0-120			5.41	40
1,2,4-Trichlorobenzene	0.688	U	0.425	0.423	61.7	61.4	1	12.0-120			0.488	37
4-Chloro-3-methylphenol	0.688	U	0.505	0.538	73.4	78.2	1	15.0-120			6.34	30
2-Chlorophenol	0.688	U	0.486	0.493	70.6	71.6	1	15.0-120			1.48	37
2,4-Dichlorophenol	0.688	U	0.479	0.490	69.7	71.2	1	20.0-120			2.13	31
2,4-Dimethylphenol	0.688	U	0.450	0.463	65.5	67.3	1	10.0-120			2.71	33
4,6-Dinitro-2-methylphenol	0.688	U	0.567	0.495	82.4	71.9	1	10.0-120			13.6	39
2,4-Dinitrophenol	0.688	U	0.379	0.304	55.1	44.1	1	10.0-121			22.1	40
2-Methylphenol	0.688	U	0.505	0.523	73.4	76.0	1	11.0-120			3.42	40
3&4-Methyl Phenol	0.688	U	0.584	0.625	84.8	90.8	1	12.0-123			6.84	38
2-Nitrophenol	0.688	U	0.464	0.459	67.4	66.7	1	12.0-120			1.12	39
4-Nitrophenol	0.688	U	0.725	0.781	105	114	1	10.0-137			7.41	32
Pentachlorophenol	0.688	U	0.740	0.761	108	111	1	10.0-160			2.89	31
Phenol	0.688	U	0.542	0.556	78.8	80.8	1	12.0-120			2.45	38
2,4,5-Trichlorophenol	0.688	U	0.684	0.724	99.4	105	1	20.0-120			5.72	30
2,4,6-Trichlorophenol	0.688	U	0.563	0.599	81.8	87.1	1	19.0-120			6.22	32
(S) 2-Fluorophenol					*40.7*	*39.8*		*12.0-120*				
(S) Phenol-d5					*36.6*	*38.3*		*10.0-120*				
(S) Nitrobenzene-d5					*28.6*	*28.2*		*10.0-122*				
(S) 2-Fluorobiphenyl					*37.8*	*39.3*		*15.0-120*				
(S) 2,4,6-Tribromophenol					*52.4*	*57.7*		*10.0-127*				
(S) p-Terphenyl-d14					*52.9*	*57.1*		*10.0-120*				

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3909754-2 04/05/23 15:22

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) p-Terphenyl-d14	*104*			*23.0-120*
(S) Nitrobenzene-d5	*80.9*			*14.0-149*
(S) 2-Fluorobiphenyl	*93.4*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3909754-1 04/05/23 15:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0674	84.3	50.0-126	
Acenaphthene	0.0800	0.0724	90.5	50.0-120	
Acenaphthylene	0.0800	0.0681	85.1	50.0-120	
Benzo(a)anthracene	0.0800	0.0682	85.3	45.0-120	
Benzo(a)pyrene	0.0800	0.0635	79.4	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0752	94.0	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0748	93.5	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0744	93.0	49.0-125	
Chrysene	0.0800	0.0772	96.5	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0732	91.5	47.0-125	
Fluoranthene	0.0800	0.0703	87.9	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3909754-1 04/05/23 15:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0717	89.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0734	91.8	46.0-125	
Naphthalene	0.0800	0.0702	87.8	50.0-120	
Phenanthrene	0.0800	0.0705	88.1	47.0-120	
Pyrene	0.0800	0.0785	98.1	43.0-123	
1-Methylnaphthalene	0.0800	0.0696	87.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0720	90.0	50.0-120	
2-Chloronaphthalene	0.0800	0.0727	90.9	50.0-120	
(S) p-Terphenyl-d14			*107*	*23.0-120*	
(S) Nitrobenzene-d5			*93.8*	*14.0-149*	
(S) 2-Fluorobiphenyl			*103*	*34.0-125*	

L1601511-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1601511-01 04/06/23 18:59 • (MS) R3910598-1 04/06/23 19:18 • (MSD) R3910598-2 04/06/23 19:38

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0781	U	0.0573	0.0570	73.4	71.5	1	10.0-145			0.542	30
Acenaphthene	0.0781	U	0.0674	0.0689	86.2	86.4	1	14.0-127			2.27	27
Acenaphthylene	0.0781	U	0.0598	0.0606	76.6	76.0	1	21.0-124			1.37	25
Benzo(a)anthracene	0.0781	U	0.0580	0.0590	74.2	74.0	1	10.0-139			1.77	30
Benzo(a)pyrene	0.0781	U	0.0673	0.0688	86.1	86.3	1	10.0-141			2.28	31
Benzo(b)fluoranthene	0.0781	U	0.0687	0.0709	88.0	88.9	1	10.0-140			3.11	36
Benzo(g,h,i)perylene	0.0781	U	0.0694	0.0709	88.9	88.9	1	10.0-140			2.06	33
Benzo(k)fluoranthene	0.0781	U	0.0675	0.0686	86.4	86.0	1	10.0-137			1.67	31
Chrysene	0.0781	U	0.0696	0.0704	89.2	88.2	1	10.0-145			1.03	30
Dibenz(a,h)anthracene	0.0781	U	0.0634	0.0639	81.2	80.1	1	10.0-132			0.649	31
Fluoranthene	0.0781	U	0.0637	0.0648	81.6	81.2	1	10.0-153			1.61	33
Fluorene	0.0781	U	0.0658	0.0670	84.3	83.9	1	11.0-130			1.71	29
Indeno(1,2,3-cd)pyrene	0.0781	U	0.0630	0.0640	80.7	80.2	1	10.0-137			1.46	32
Naphthalene	0.0781	U	0.0651	0.0676	83.3	84.7	1	10.0-135			3.74	27
Phenanthrene	0.0781	U	0.0646	0.0661	82.7	82.9	1	10.0-144			2.37	31
Pyrene	0.0781	U	0.0743	0.0751	95.1	94.2	1	10.0-148			1.11	35
1-Methylnaphthalene	0.0781	U	0.0653	0.0668	83.6	83.8	1	10.0-142			2.35	28
2-Methylnaphthalene	0.0781	U	0.0660	0.0676	84.5	84.7	1	10.0-137			2.32	28
2-Chloronaphthalene	0.0781	U	0.0668	0.0682	85.6	85.5	1	29.0-120			1.99	24
(S) p-Terphenyl-d14					*98.6*	*97.4*		*23.0-120*				
(S) Nitrobenzene-d5					*84.1*	*82.2*		*14.0-149*				
(S) 2-Fluorobiphenyl					*95.9*	*94.3*		*34.0-125*				

L1599049-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1599049-01 04/06/23 19:57 • (MS) R3910598-3 04/06/23 20:17 • (MSD) R3910598-4 04/06/23 20:37

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0948	U	0.0775	0.0422	81.7	45.1	1	10.0-145		J3	59.1	30
Acenaphthene	0.0948	U	0.0675	0.0728	71.2	77.9	1	14.0-127			7.51	27
Acenaphthylene	0.0948	U	0.0632	0.0771	66.7	82.6	1	21.0-124			19.8	25
Benzo(a)anthracene	0.0948	U	0.0719	0.0873	75.8	93.5	1	10.0-139			19.4	30
Benzo(a)pyrene	0.0948	U	0.0626	0.0770	66.0	82.4	1	10.0-141			20.6	31
Benzo(b)fluoranthene	0.0948	U	0.0590	0.0727	62.2	77.8	1	10.0-140			20.7	36
Benzo(g,h,i)perylene	0.0948	0.00446	0.0566	0.0686	55.0	68.7	1	10.0-140			19.1	33
Benzo(k)fluoranthene	0.0948	U	0.0590	0.0697	62.2	74.6	1	10.0-137			16.6	31
Chrysene	0.0948	U	0.0650	0.0811	68.6	86.8	1	10.0-145			22.0	30
Dibenz(a,h)anthracene	0.0948	U	0.0509	0.0631	53.7	67.6	1	10.0-132			21.4	31
Fluoranthene	0.0948	U	0.0580	0.0728	61.1	77.9	1	10.0-153			22.7	33
Fluorene	0.0948	U	0.109	0.0939	115	101	1	11.0-130			15.3	29
Indeno(1,2,3-cd)pyrene	0.0948	U	0.0559	0.0689	59.0	73.7	1	10.0-137			20.7	32
Naphthalene	0.0948	0.0820	0.139	0.218	60.0	146	1	10.0-135		J3 J5	44.3	27
Phenanthrene	0.0948	0.147	0.111	0.168	0.000	21.8	1	10.0-144	J6	J3	40.9	31
Pyrene	0.0948	0.412	0.575	0.648	172	253	1	10.0-148	V	V	11.9	35
1-Methylnaphthalene	0.0948	0.340	0.382	0.666	44.2	349	1	10.0-142		J3 J5	54.2	28
2-Methylnaphthalene	0.0948	0.225	0.226	0.413	1.26	201	1	10.0-137	J6	J3 J5	58.4	28
2-Chloronaphthalene	0.0948	U	0.0438	0.0495	46.2	52.9	1	29.0-120			12.1	24
(S) p-Terphenyl-d14					*95.8*	*93.7*		*23.0-120*				
(S) Nitrobenzene-d5					*0.000*	*0.000*		*14.0-149*	J2	J2		
(S) 2-Fluorobiphenyl					*41.9*	*39.1*		*34.0-125*				

Sample Narrative:

OS: Surrogate failure due to matrix interference

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To: tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: PT MT CT ET

Phone: 425-833-0777

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
Ansel Chesney

Site/Facility ID #
IMPORTED BACKFILL SOIL AND

P.O. #

Collected by (signature):
Ansel Chesney

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
X Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Metals 8ozClr-NoPres	NWTPHDXNOSGT 8ozClr-NoPres	NWTPHGX 40mlAmb/MeOH10ml/Syr	SV8270 8ozClr-NoPres	SV8270PAHSIM 8ozClr-NoPres	Remarks	Sample # (lab only)
BF3-2494-06-040323	G	SS	—	04/03/23	1315	3	X	X	X	X	X		-01
BF3-2494-06-040323-MS/MSD	G	SS	—	04/03/23	1315	1	X						-01
TB-2494-4 040323	—	SS	—	04/03/23	1500	1							-02
		SS											
		SS											
		SS											
		SS											
		SS											
		SS											
		SS											

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1601511

Table # G104

Acctnum: UPRRGOLD
Template: T222982
Prelogin: P975097
PM: 134 - Mark W. Beasley
PB:

Shipped Via: FedEX Ground

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: *metals = Al, As, Ba, Cu, Cr, ~~Hg~~ 6Y 6020
Hg 6Y7471

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier _____

Tracking # 6193 3532 0383

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Ansel Chesney	04/03/23	1525	FedEx
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No HCl / MeOH TBR

Temp: 4.5 to 4.5 °C Bottles Received: 4

Date: 4.4.23 Time: 1000

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

(6)

ANALYTICAL REPORT

April 10, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1602304
Samples Received:	04/05/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Zachary Schuehle 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

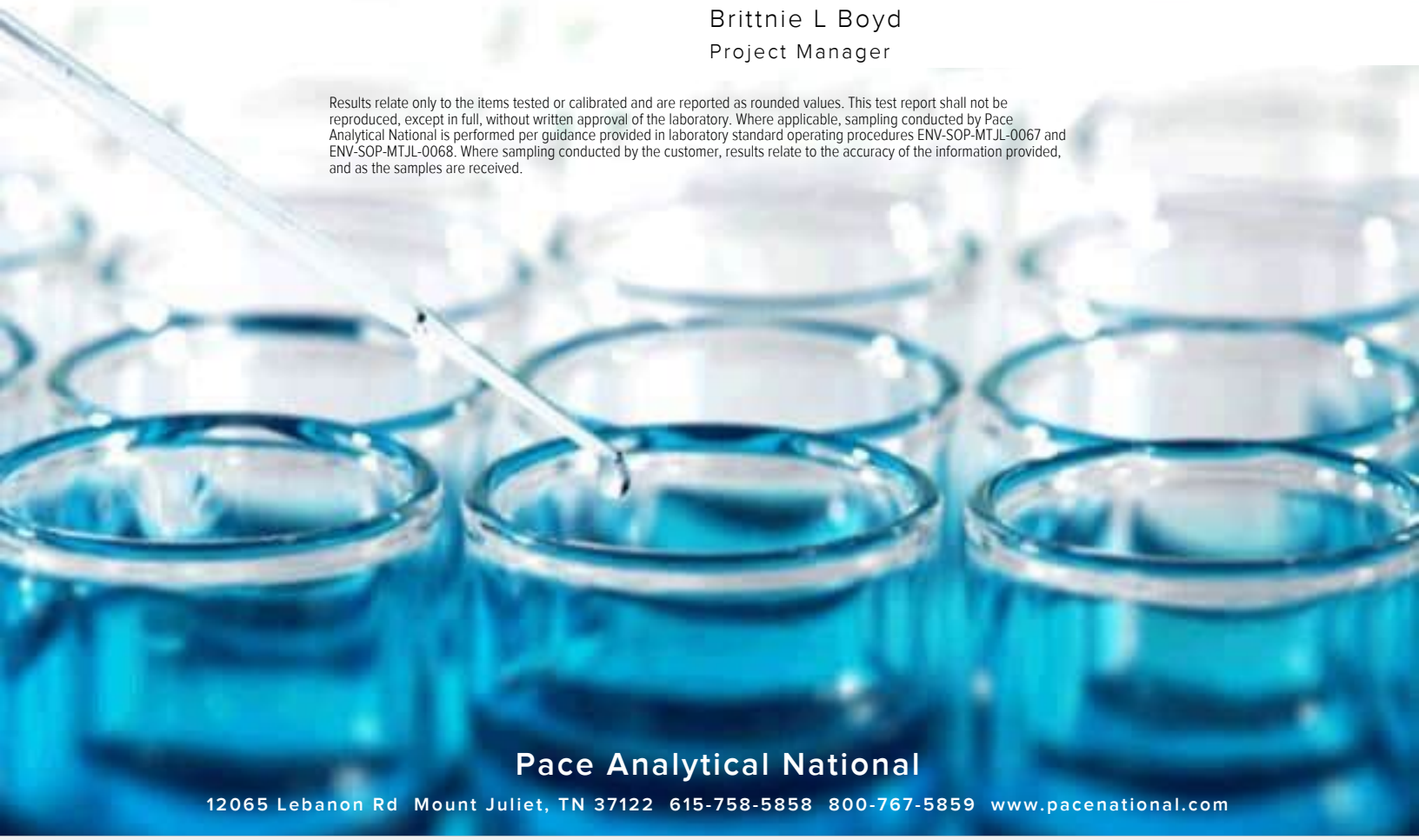


TABLE OF CONTENTS

SAMPLE SUMMARY

SO-2494-EX-2-19S-4.0-040423 L1602304-01 Solid

Collected by: Ansel C.
Collected date/time: 04/04/23 12:45
Received date/time: 04/05/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2037686	1	04/07/23 09:20	04/07/23 09:50	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG2037665	1	04/07/23 12:27	04/08/23 14:56	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2037637	10	04/07/23 07:33	04/07/23 18:28	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2037637	5	04/07/23 07:33	04/07/23 17:02	JPD	Mt. Juliet, TN

SO-2494-EX-2-20B-6.0-040423 L1602304-02 Solid

Collected by: Ansel C.
Collected date/time: 04/04/23 13:00
Received date/time: 04/05/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2037686	1	04/07/23 09:20	04/07/23 09:50	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG2037665	1	04/07/23 12:27	04/08/23 14:59	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2037637	10	04/07/23 07:33	04/07/23 18:31	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2037637	5	04/07/23 07:33	04/07/23 17:05	JPD	Mt. Juliet, TN

SO-2494-FD-14-040423 L1602304-03 Solid

Collected by: Ansel C.
Collected date/time: 04/04/23 00:00
Received date/time: 04/05/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2037686	1	04/07/23 09:20	04/07/23 09:50	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG2037665	1	04/07/23 12:27	04/08/23 15:06	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2037637	10	04/07/23 07:33	04/07/23 18:34	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2037637	5	04/07/23 07:33	04/07/23 17:15	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.8		1	04/07/2023 09:50	WG2037686

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0215	0.0477	1	04/08/2023 14:56	WG2037665

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	19800		8.24	59.7	5	04/07/2023 17:02	WG2037637
Arsenic	13.5		0.119	1.19	5	04/07/2023 17:02	WG2037637
Barium	77.3		0.181	2.98	5	04/07/2023 17:02	WG2037637
Chromium	14.6		0.353	5.97	5	04/07/2023 17:02	WG2037637
Copper	137		0.316	11.9	10	04/07/2023 18:28	WG2037637

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.0		1	04/07/2023 09:50	WG2037686

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0184	0.0408	1	04/08/2023 14:59	WG2037665

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	24700		7.04	51.0	5	04/07/2023 17:05	WG2037637
Arsenic	16.2		0.102	1.02	5	04/07/2023 17:05	WG2037637
Barium	62.3		0.155	2.55	5	04/07/2023 17:05	WG2037637
Chromium	15.4		0.302	5.10	5	04/07/2023 17:05	WG2037637
Copper	135		0.270	10.2	10	04/07/2023 18:31	WG2037637

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.6		1	04/07/2023 09:50	WG2037686

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0406	1	04/08/2023 15:06	WG2037665

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	25400		7.00	50.7	5	04/07/2023 17:15	WG2037637
Arsenic	11.2		0.101	1.01	5	04/07/2023 17:15	WG2037637
Barium	63.0		0.154	2.53	5	04/07/2023 17:15	WG2037637
Chromium	17.9		0.300	5.07	5	04/07/2023 17:15	WG2037637
Copper	145		0.269	10.1	10	04/07/2023 18:34	WG2037637

Method Blank (MB)

(MB) R3910868-1 04/07/23 09:50

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1602305-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1602305-02 04/07/23 09:50 • (DUP) R3910868-3 04/07/23 09:50

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	68.2	65.5	1	4.04		10

Laboratory Control Sample (LCS)

(LCS) R3910868-2 04/07/23 09:50

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

Method Blank (MB)

(MB) R3910996-1 04/08/23 14:38

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3910996-2 04/08/23 14:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.499	99.7	80.0-120	

L1602108-18 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1602108-18 04/08/23 14:43 • (MS) R3910996-3 04/08/23 14:46 • (MSD) R3910996-4 04/08/23 14:48

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	0.0409	0.515	0.547	94.8	101	1	75.0-125			6.04	20

Method Blank (MB)

(MB) R3910810-1 04/07/23 16:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3910810-7 04/07/23 17:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	843	84.3	80.0-120	
Arsenic	100	84.6	84.6	80.0-120	
Barium	100	84.1	84.1	80.0-120	
Chromium	100	86.9	86.9	80.0-120	
Copper	100	85.6	85.6	80.0-120	

L1602612-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1602612-03 04/07/23 16:42 • (MS) R3910810-5 04/07/23 16:52 • (MSD) R3910810-6 04/07/23 16:55

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	19700	23700	24800	399	501	5	75.0-125	V	V	4.21	20
Arsenic	100	4.88	91.3	86.0	86.4	81.1	5	75.0-125			5.93	20
Barium	100	221	249	247	28.0	25.2	5	75.0-125	J6	J6	1.14	20
Chromium	100	17.5	106	102	88.8	84.7	5	75.0-125			3.85	20
Copper	100	7.55	89.0	88.0	81.4	80.5	5	75.0-125			1.06	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to: **Ted Norton**

Email To: tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description: **Trentwood WA-Aluminum Dross II**

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project # **2494**

Lab Project # **UPRRGOLD-2494**

Collected by (print): Ansel Chesney

Site/Facility ID # **DROSS STOCKPILE**

P.O. #

Collected by (signature): Ansel Chesney

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Analysis / Container / Preservative: Al,As,Ba,Cr,Cu,Hg-4oz Clr-NoPres 802 Clear
SO-2494-EX-2-[illegible]-04-04/23	G	SS	4.0	04/04/23	1245	1	X
SO-2494-EX-2-20B-6.0-04/04/23	G	SS	6.0	04/04/23	1300	1	X
SO-2494-FD-14-04/04/23	G	SS	—	04/04/23	—	1	X

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 160230
1248

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P972606**
PM: **134 - Mark W. Beasley**
PB: 04/04/23

Shipped Via: **FedEX Ground**

Remarks	Sample # (lab only)
	-01
	-02
	-03

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu 6Y 6020
Hg 6Y 7471

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR	If preservation required by Login: Date/Time
Ansel Chesney	04/04/23	1505	FedEx		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.6 °C Bottles Received: 3	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) IS	Date: 4/5/23 Time: 0900	Hold: Condition: NCF / OK

ANALYTICAL REPORT

April 13, 2023

UPRR - Golder Associates

Sample Delivery Group:	L1604229
Samples Received:	04/12/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Zachary Schuehle 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

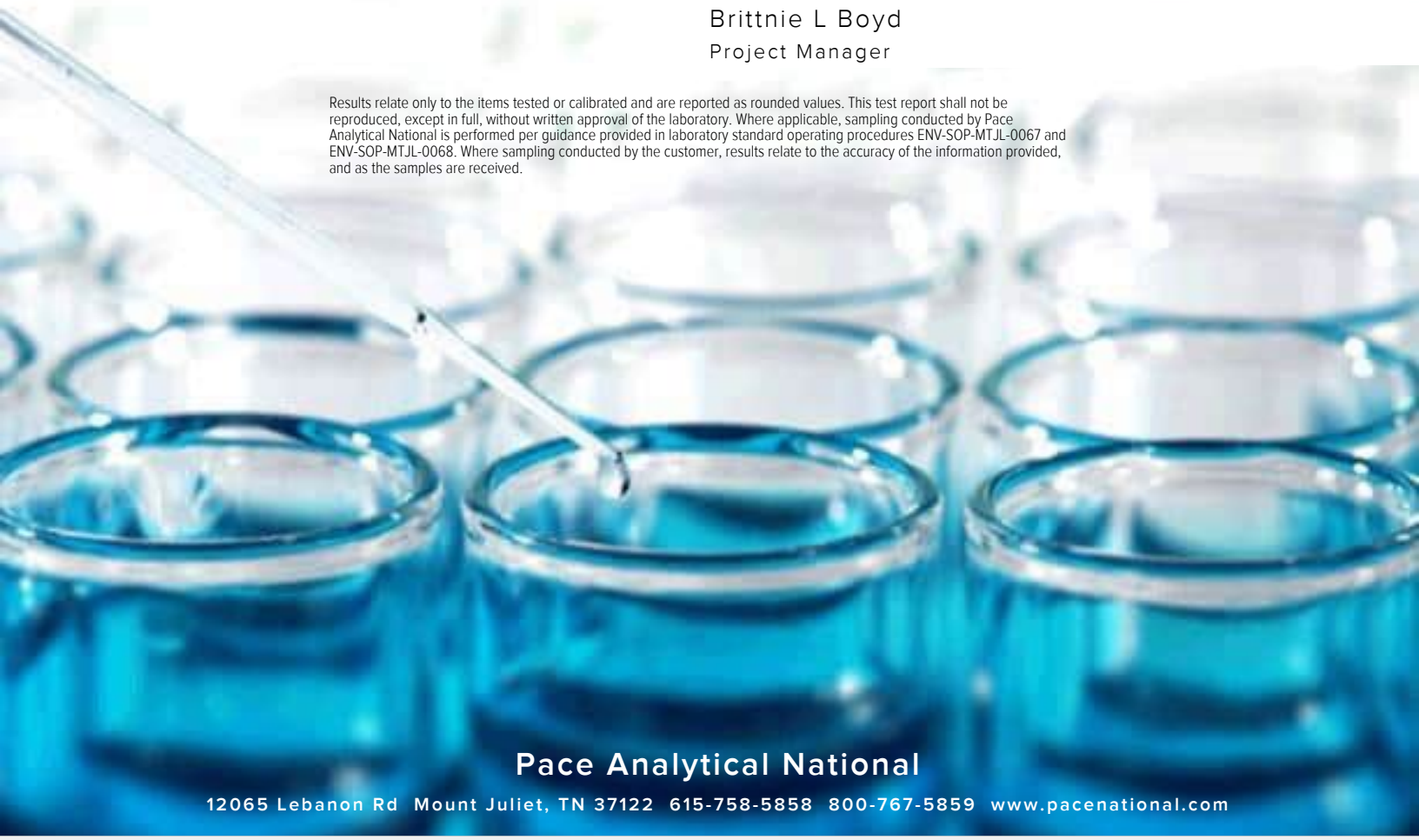


TABLE OF CONTENTS

SO-2494-P1-08-041023 L1604229-01 Solid

Collected by: James Roman | Collected date/time: 04/10/23 09:25 | Received date/time: 04/12/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2041100	1	04/13/23 07:00	04/13/23 07:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2041154	1	04/13/23 07:48	04/13/23 10:54	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2041078	5	04/13/23 06:36	04/13/23 10:56	SJM	Mt. Juliet, TN

SO-2494-P1-31-041023 L1604229-02 Solid

Collected by: James Roman | Collected date/time: 04/10/23 08:50 | Received date/time: 04/12/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2041100	1	04/13/23 07:00	04/13/23 07:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2041154	1	04/13/23 07:48	04/13/23 10:42	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2041078	20	04/13/23 06:36	04/13/23 11:45	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2041078	5	04/13/23 06:36	04/13/23 10:18	SJM	Mt. Juliet, TN

SO-2494-P1-4.0-01B-041023 L1604229-03 Solid

Collected by: James Roman | Collected date/time: 04/10/23 15:10 | Received date/time: 04/12/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2041100	1	04/13/23 07:00	04/13/23 07:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2041154	1	04/13/23 07:48	04/13/23 10:57	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2041078	5	04/13/23 06:36	04/13/23 10:59	SJM	Mt. Juliet, TN

SO-2494-P1-6.0-02B-041023 L1604229-04 Solid

Collected by: James Roman | Collected date/time: 04/10/23 15:15 | Received date/time: 04/12/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2041100	1	04/13/23 07:00	04/13/23 07:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2041154	1	04/13/23 07:48	04/13/23 10:59	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2041078	5	04/13/23 06:36	04/13/23 11:03	SJM	Mt. Juliet, TN

SO-2494-P1-4.0-03B-041023 L1604229-05 Solid

Collected by: James Roman | Collected date/time: 04/10/23 15:20 | Received date/time: 04/12/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2041100	1	04/13/23 07:00	04/13/23 07:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2041154	1	04/13/23 07:48	04/13/23 11:02	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2041078	5	04/13/23 06:36	04/13/23 11:14	SJM	Mt. Juliet, TN

SO-2494-P1-6.0-04B-041023 L1604229-06 Solid

Collected by: James Roman | Collected date/time: 04/10/23 15:25 | Received date/time: 04/12/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2041100	1	04/13/23 07:00	04/13/23 07:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2041154	1	04/13/23 07:48	04/13/23 11:04	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2041078	5	04/13/23 06:36	04/13/23 11:18	SJM	Mt. Juliet, TN

SAMPLE SUMMARY

SO-2494-P1-4.0-07B-041023 L1604229-09 Solid

Collected by: James Roman
Collected date/time: 04/10/23 15:40
Received date/time: 04/12/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2041100	1	04/13/23 07:00	04/13/23 07:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2041154	1	04/13/23 07:48	04/13/23 11:07	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2041078	10	04/13/23 06:36	04/13/23 11:48	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2041078	5	04/13/23 06:36	04/13/23 11:21	SJM	Mt. Juliet, TN

SO-2494-P1-6.0-08B-041023 L1604229-10 Solid

Collected by: James Roman
Collected date/time: 04/10/23 15:45
Received date/time: 04/12/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2041100	1	04/13/23 07:00	04/13/23 07:06	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2041154	1	04/13/23 07:48	04/13/23 11:09	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2041078	5	04/13/23 06:36	04/13/23 11:24	SJM	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.9		1	04/13/2023 07:06	WG2041100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0236	J	0.0184	0.0408	1	04/13/2023 10:54	WG2041154

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12300		7.05	51.1	5	04/13/2023 10:56	WG2041078
Arsenic	5.37		0.102	1.02	5	04/13/2023 10:56	WG2041078
Barium	94.1		0.155	2.55	5	04/13/2023 10:56	WG2041078
Chromium	11.3		0.302	5.11	5	04/13/2023 10:56	WG2041078
Copper	33.7		0.135	5.11	5	04/13/2023 10:56	WG2041078

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.5		1	04/13/2023 07:06	WG2041100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.213		0.0185	0.0410	1	04/13/2023 10:42	WG2041154

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	20800	O1 V	7.08	51.3	5	04/13/2023 10:18	WG2041078
Arsenic	9.15	J6	0.103	1.03	5	04/13/2023 10:18	WG2041078
Barium	149	J6	0.156	2.57	5	04/13/2023 10:18	WG2041078
Chromium	20.9	J6	0.304	5.13	5	04/13/2023 10:18	WG2041078
Copper	145		0.544	20.5	20	04/13/2023 11:45	WG2041078

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.0		1	04/13/2023 07:06	WG2041100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0404	1	04/13/2023 10:57	WG2041154

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9030		6.97	50.5	5	04/13/2023 10:59	WG2041078
Arsenic	6.57		0.101	1.01	5	04/13/2023 10:59	WG2041078
Barium	45.0		0.153	2.52	5	04/13/2023 10:59	WG2041078
Chromium	7.57		0.299	5.05	5	04/13/2023 10:59	WG2041078
Copper	24.9		0.133	5.05	5	04/13/2023 10:59	WG2041078

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.0		1	04/13/2023 07:06	WG2041100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0404	1	04/13/2023 10:59	WG2041154

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11700		6.97	50.5	5	04/13/2023 11:03	WG2041078
Arsenic	6.94		0.101	1.01	5	04/13/2023 11:03	WG2041078
Barium	84.9		0.153	2.52	5	04/13/2023 11:03	WG2041078
Chromium	12.4		0.299	5.05	5	04/13/2023 11:03	WG2041078
Copper	25.0		0.133	5.05	5	04/13/2023 11:03	WG2041078

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.0		1	04/13/2023 07:06	WG2041100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0404	1	04/13/2023 11:02	WG2041154

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12300		6.97	50.5	5	04/13/2023 11:14	WG2041078
Arsenic	6.35		0.101	1.01	5	04/13/2023 11:14	WG2041078
Barium	48.2		0.154	2.53	5	04/13/2023 11:14	WG2041078
Chromium	7.19		0.299	5.05	5	04/13/2023 11:14	WG2041078
Copper	97.4		0.133	5.05	5	04/13/2023 11:14	WG2041078

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.7		1	04/13/2023 07:06	WG2041100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0401	1	04/13/2023 11:04	WG2041154

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	4400		6.92	50.1	5	04/13/2023 11:18	WG2041078
Arsenic	7.58		0.100	1.00	5	04/13/2023 11:18	WG2041078
Barium	29.9		0.152	2.51	5	04/13/2023 11:18	WG2041078
Chromium	4.55	J	0.297	5.01	5	04/13/2023 11:18	WG2041078
Copper	20.6		0.132	5.01	5	04/13/2023 11:18	WG2041078

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.5		1	04/13/2023 07:06	WG2041100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0183	0.0406	1	04/13/2023 11:07	WG2041154

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10400		7.01	50.8	5	04/13/2023 11:21	WG2041078
Arsenic	9.87		0.102	1.02	5	04/13/2023 11:21	WG2041078
Barium	43.7		0.154	2.54	5	04/13/2023 11:21	WG2041078
Chromium	9.55		0.301	5.08	5	04/13/2023 11:21	WG2041078
Copper	106		0.269	10.2	10	04/13/2023 11:48	WG2041078

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.4		1	04/13/2023 07:06	WG2041100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0183	0.0407	1	04/13/2023 11:09	WG2041154

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	2910		7.01	50.8	5	04/13/2023 11:24	WG2041078
Arsenic	3.63		0.102	1.02	5	04/13/2023 11:24	WG2041078
Barium	9.02		0.155	2.54	5	04/13/2023 11:24	WG2041078
Chromium	2.02	J	0.301	5.08	5	04/13/2023 11:24	WG2041078
Copper	53.7		0.134	5.08	5	04/13/2023 11:24	WG2041078

Method Blank (MB)

(MB) R3912854-1 04/13/23 07:06

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1604229-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1604229-02 04/13/23 07:06 • (DUP) R3912854-3 04/13/23 07:06

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	97.5	97.5	1	0.00380		10

Laboratory Control Sample (LCS)

(LCS) R3912854-2 04/13/23 07:06

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

Method Blank (MB)

(MB) R3912794-1 04/13/23 10:37

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3912794-2 04/13/23 10:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.494	98.8	80.0-120	

L1604229-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1604229-02 04/13/23 10:42 • (MS) R3912794-3 04/13/23 10:44 • (MSD) R3912794-4 04/13/23 10:47

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.513	0.213	0.700	0.618	95.0	79.0	1	75.0-125			12.4	20

Method Blank (MB)

(MB) R3912804-1 04/13/23 10:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3912804-2 04/13/23 10:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	864	86.4	80.0-120	
Arsenic	100	85.6	85.6	80.0-120	
Barium	100	85.7	85.7	80.0-120	
Chromium	100	86.3	86.3	80.0-120	
Copper	100	86.6	86.6	80.0-120	

L1604229-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1604229-02 04/13/23 10:18 • (MS) R3912804-5 04/13/23 10:50 • (MSD) R3912804-6 04/13/23 10:53

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1030	20800	16500	15900	0.000	0.000	5	75.0-125	V	V	4.07	20
Arsenic	103	9.15	90.9	83.4	79.6	72.4	5	75.0-125		J6	8.51	20
Barium	103	149	201	182	50.5	31.9	5	75.0-125	J6	J6	9.93	20
Chromium	103	20.9	99.9	90.1	77.0	67.4	5	75.0-125		J6	10.4	20
Copper	103	143	212	174	67.2	31.0	5	75.0-125	J6	J6	19.3	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to: **Ted Norton**

Email To: tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description: **Trentwood WA-Aluminum Dross II**

City/State Collected: Trentwood WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project # **2494**

Lab Project # **UPRRGOLD-2494**

Collected by (print): James Roman

Site/Facility ID # **DROSS STOCKPILE**

P.O. #

Collected by (signature): J Roman

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: HOLD

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1604229 B175

Table #

Acctnum: UPRRGOLD

Template: T222123

Prelogin: P972605

PM: 134 - Mark W. Beasley

PB:

Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg 8ozClr-NoPres										Remarks	Sample # (lab only)
SO-2494-P1-08-041023	G	SS	1	4-10-2023	0925	1	X	SR										-01
~~SO-2494-P1-15-041023~~	~~G~~		~~1~~		~~1000~~	~~1~~	~~X~~	~~SR~~										
SO-2494-P1-38-041023-MS/MSD	G		1		0850	1	X											-02
SO-2494-P1-31-041023	G		1		0850	1	X											-02
SO-2494-P1-4.0-02B-041023		SS	4.0	4-10-2023	1510	1	X											-03
SO-2494-P1-6.0-02B-041023			6.0		1515	1	X											-04
SO-2494-P1-4.0-03B-041023			4.0		1520	1	X											-05
SO-2494-P1-6.0-04B-041023			6.0		1525	1	X											-06
SO-2494-P1-4.0-05B-041023			4.0		1530	1	X											-07
SO-2494-P1-6.0-06B-041023			6.0		1535	1	X											-08

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu by 6020
Hg by 7471

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6193 3532 0523

Sample Receipt Checklist
COC Seal Present/Intact: NP (Y) N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: (Y) N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR	
J Roman	4-10-2023	1615			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: NA °C Bottles Received: 2.0-0-2.0 1	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 4.12.23 Time: 9:30	Hold: / Condition: NCF / OK

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To:
tnorton@golder.com;andrew.guglielmo@wsp.c

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project #
2494

Lab Project #
UPRRGOLD-2494

Collected by (print):
James Roman

Site/Facility ID #
DROSS STOCKPILE

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
X Same Day ___ Five Day
Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed
HOLD

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg-602Clr-NoPres (602)									Remarks	Sample # (lab only)
SO-2494-P1-4.0-040723	G	SS	4.0	4-10-2023	1540	1	X										-09
SO-2494-P1-6.0-040823	1	SS	6.0	1	1545	1	X										-10
		SS															
		SS															
		SS															
		SS															
		SS															
		SS															
		SS															
		SS															

Analysis / Container / Preservative

Chain of Custody Page 2 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # UL004229

Table #

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P972605**
PM: **134 - Mark W. Beasley**
PB:

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP X Y __N
COC Signed/Accurate: X Y __N
Bottles arrive intact: X Y __N
Correct bottles used: X Y __N
Sufficient volume sent: X Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: X Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
	4-11-2023	1615			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 4.12.23 Time: 9:30	Hold: Condition: NCF / OK
			2 10		

ANALYTICAL REPORT

April 14, 2023

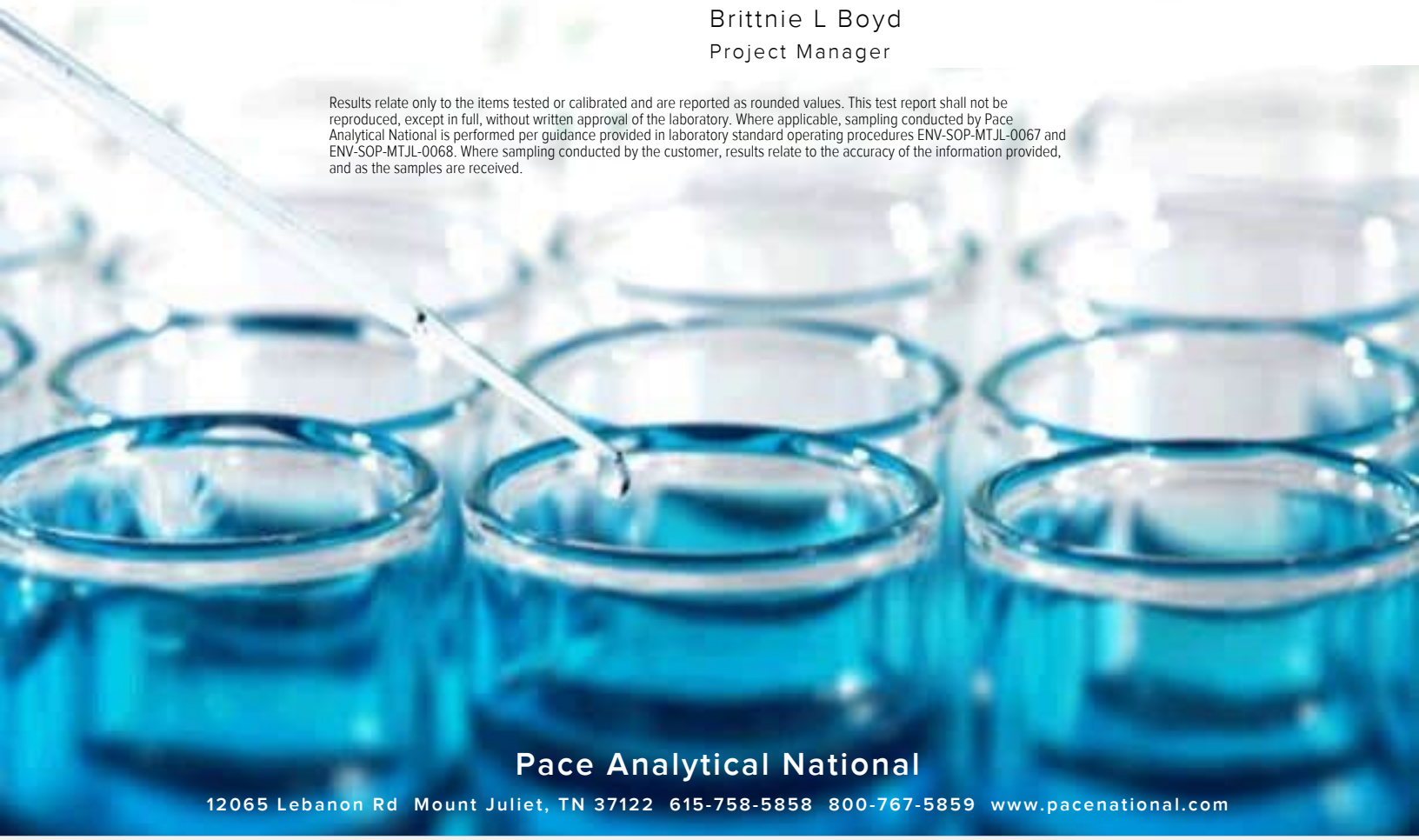
UPRR - Golder Associates

Sample Delivery Group:	L1605229
Samples Received:	04/14/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Zachary Schuehle 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SO-2494-P1-4.0-10B-041123 L1605229-01 Solid

Collected by | Collected date/time 04/11/23 13:40 | Received date/time 04/14/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2042154	1	04/14/23 13:18	04/14/23 13:23	MT	Mt. Juliet, TN
Mercury by Method 7471B	WG2042175	1	04/14/23 13:27	04/14/23 15:57	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2042198	100	04/14/23 13:34	04/14/23 16:18	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2042198	5	04/14/23 13:34	04/14/23 15:38	JPD	Mt. Juliet, TN

SO-2494-P1-4.0-11B-041123 L1605229-02 Solid

Collected by | Collected date/time 04/11/23 13:45 | Received date/time 04/14/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2042154	1	04/14/23 13:18	04/14/23 13:23	MT	Mt. Juliet, TN
Mercury by Method 7471B	WG2042175	1	04/14/23 13:27	04/14/23 15:59	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2042198	100	04/14/23 13:34	04/14/23 16:21	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2042198	5	04/14/23 13:34	04/14/23 15:42	JPD	Mt. Juliet, TN

SO-2494-P1-4.0-12B-041123 L1605229-03 Solid

Collected by | Collected date/time 04/11/23 13:50 | Received date/time 04/14/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2042154	1	04/14/23 13:18	04/14/23 13:23	MT	Mt. Juliet, TN
Mercury by Method 7471B	WG2042175	1	04/14/23 13:27	04/14/23 16:02	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2042198	100	04/14/23 13:34	04/14/23 16:25	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2042198	5	04/14/23 13:34	04/14/23 15:55	JPD	Mt. Juliet, TN

SO-2494-P1-6.0-13B-041123 L1605229-04 Solid

Collected by | Collected date/time 04/11/23 15:20 | Received date/time 04/14/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2042154	1	04/14/23 13:18	04/14/23 13:23	MT	Mt. Juliet, TN
Mercury by Method 7471B	WG2042175	1	04/14/23 13:27	04/14/23 16:04	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2042198	100	04/14/23 13:34	04/14/23 16:28	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2042198	5	04/14/23 13:34	04/14/23 15:58	JPD	Mt. Juliet, TN

SO-2494-P1-6.0-14B-041123 L1605229-05 Solid

Collected by | Collected date/time 04/11/23 15:25 | Received date/time 04/14/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2042154	1	04/14/23 13:18	04/14/23 13:23	MT	Mt. Juliet, TN
Mercury by Method 7471B	WG2042175	1	04/14/23 13:27	04/14/23 16:07	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2042198	100	04/14/23 13:34	04/14/23 16:31	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2042198	5	04/14/23 13:34	04/14/23 16:01	JPD	Mt. Juliet, TN

SO-2494-P1-6.0-15B-041123 L1605229-06 Solid

Collected by | Collected date/time 04/11/23 15:30 | Received date/time 04/14/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2042154	1	04/14/23 13:18	04/14/23 13:23	MT	Mt. Juliet, TN
Mercury by Method 7471B	WG2042175	1	04/14/23 13:27	04/14/23 15:32	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2042198	100	04/14/23 13:34	04/14/23 16:15	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2042198	5	04/14/23 13:34	04/14/23 15:22	JPD	Mt. Juliet, TN

SAMPLE SUMMARY

SO-2494-FD-15-041123 L1605229-07 Solid

Collected by	Collected date/time	Received date/time
	04/11/23 00:00	04/14/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2042154	1	04/14/23 13:18	04/14/23 13:23	MT	Mt. Juliet, TN
Mercury by Method 7471B	WG2042175	1	04/14/23 13:27	04/14/23 16:09	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2042198	100	04/14/23 13:34	04/14/23 16:35	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2042198	5	04/14/23 13:34	04/14/23 16:05	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.1		1	04/14/2023 13:23	WG2042154

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0218	J	0.0182	0.0404	1	04/14/2023 15:57	WG2042175

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9630		139	1010	100	04/14/2023 16:18	WG2042198
Arsenic	5.06		0.101	1.01	5	04/14/2023 15:38	WG2042198
Barium	36.2		0.153	2.52	5	04/14/2023 15:38	WG2042198
Chromium	11.8		0.299	5.05	5	04/14/2023 15:38	WG2042198
Copper	352		2.67	101	100	04/14/2023 16:18	WG2042198

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.7		1	04/14/2023 13:23	WG2042154

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0202	J	0.0182	0.0405	1	04/14/2023 15:59	WG2042175

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	16700		140	1010	100	04/14/2023 16:21	WG2042198
Arsenic	5.66		0.101	1.01	5	04/14/2023 15:42	WG2042198
Barium	46.7		0.154	2.53	5	04/14/2023 15:42	WG2042198
Chromium	11.6		0.300	5.06	5	04/14/2023 15:42	WG2042198
Copper	151		2.68	101	100	04/14/2023 16:21	WG2042198

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.2		1	04/14/2023 13:23	WG2042154

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0403	1	04/14/2023 16:02	WG2042175

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9180		139	1010	100	04/14/2023 16:25	WG2042198
Arsenic	6.74		0.101	1.01	5	04/14/2023 15:55	WG2042198
Barium	29.1		0.153	2.52	5	04/14/2023 15:55	WG2042198
Chromium	5.36		0.298	5.04	5	04/14/2023 15:55	WG2042198
Copper	158		2.67	101	100	04/14/2023 16:25	WG2042198

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.3		1	04/14/2023 13:23	WG2042154

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0368	J	0.0181	0.0403	1	04/14/2023 16:04	WG2042175

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	13700		139	1010	100	04/14/2023 16:28	WG2042198
Arsenic	10.4		0.101	1.01	5	04/14/2023 15:58	WG2042198
Barium	59.4		0.153	2.52	5	04/14/2023 15:58	WG2042198
Chromium	11.9		0.298	5.03	5	04/14/2023 15:58	WG2042198
Copper	148		2.67	101	100	04/14/2023 16:28	WG2042198

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.6		1	04/14/2023 13:23	WG2042154

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0402	1	04/14/2023 16:07	WG2042175

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9260		139	1000	100	04/14/2023 16:31	WG2042198
Arsenic	5.91		0.100	1.00	5	04/14/2023 16:01	WG2042198
Barium	36.2		0.153	2.51	5	04/14/2023 16:01	WG2042198
Chromium	6.60		0.297	5.02	5	04/14/2023 16:01	WG2042198
Copper	44.7		0.133	5.02	5	04/14/2023 16:01	WG2042198

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.2		1	04/14/2023 13:23	WG2042154

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0403	1	04/14/2023 15:32	WG2042175

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	14600		139	1010	100	04/14/2023 16:15	WG2042198
Arsenic	10.2		0.101	1.01	5	04/14/2023 15:22	WG2042198
Barium	51.5		0.153	2.52	5	04/14/2023 15:22	WG2042198
Chromium	12.7		0.298	5.04	5	04/14/2023 15:22	WG2042198
Copper	115		2.67	101	100	04/14/2023 16:15	WG2042198

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.3		1	04/14/2023 13:23	WG2042154

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0181	0.0403	1	04/14/2023 16:09	WG2042175

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10700		139	1010	100	04/14/2023 16:35	WG2042198
Arsenic	9.58		0.101	1.01	5	04/14/2023 16:05	WG2042198
Barium	33.5		0.153	2.52	5	04/14/2023 16:05	WG2042198
Chromium	7.45		0.298	5.04	5	04/14/2023 16:05	WG2042198
Copper	163		2.67	101	100	04/14/2023 16:35	WG2042198

Method Blank (MB)

(MB) R3913522-1 04/14/23 13:23

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1605229-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1605229-06 04/14/23 13:23 • (DUP) R3913522-3 04/14/23 13:23

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	99.2	99.4	1	0.162		10

Laboratory Control Sample (LCS)

(LCS) R3913522-2 04/14/23 13:23

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

Method Blank (MB)

(MB) R3913489-1 04/14/23 15:27

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3913489-2 04/14/23 15:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.475	95.1	80.0-120	

L1605229-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1605229-06 04/14/23 15:32 • (MS) R3913489-3 04/14/23 15:34 • (MSD) R3913489-4 04/14/23 15:37

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.504	U	0.552	0.554	110	110	1	75.0-125			0.382	20

Method Blank (MB)

(MB) R3913459-1 04/14/23 15:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.90	50.0
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Chromium	U		0.297	5.00
Copper	U		0.133	5.00

Laboratory Control Sample (LCS)

(LCS) R3913459-2 04/14/23 15:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	931	93.1	80.0-120	
Arsenic	100	98.3	98.3	80.0-120	
Barium	100	96.0	96.0	80.0-120	
Chromium	100	99.7	99.7	80.0-120	
Copper	100	96.1	96.1	80.0-120	

L1605229-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1605229-06 04/14/23 15:22 • (MS) R3913459-5 04/14/23 15:32 • (MSD) R3913459-6 04/14/23 15:35

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1010	13700	15900	14700	216	93.3	5	75.0-125	V		8.10	20
Arsenic	101	10.2	90.1	94.4	79.2	83.5	5	75.0-125			4.67	20
Barium	101	51.5	147	142	95.1	89.3	5	75.0-125			4.06	20
Chromium	101	12.7	97.9	100	84.6	86.9	5	75.0-125			2.37	20
Copper	101	100	177	177	76.3	75.8	5	75.0-125			0.277	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
Kevin Peterburs
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to: **Ted Norton**

Email To: **tnorton@golder.com;andrew.guglielmo@wsp.c**

Project Description: **Trentwood WA-Aluminum Dross II**

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project # **2494**

Lab Project # **UPRRGOLD-2494**

Collected by (print): James Roman

Site/Facility ID # **DROSS STOCKPILE**

P.O. #

Collected by (signature): J Roman

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Al,As,Ba,Cr,Cu,Hg,Sb,Zn-NoPres									Remarks	Sample # (lab only)
SO-2494-P1-4.0-10B-041123	G	SS	4.0	4-11-2023	1340	1	X										-01
SO-2494-P1-4.0-11B-041123	"	SS	4.0	"	1345	1	X										-02
SO-2494-P1-4.0-12B-041123	"	SS	4.0	"	1350	1	X										-03
SO-2494-P1-6.0-13B-041123	"	SS	6.0	"	1520	1	X										-04
SO-2494-P1-6.0-14B-041123	"	SS	6.0	"	1525	1	X										-05
SO-2494-P1-6.0-15B-041123	"	SS	6.0	"	1530	1	X										-06
SO-2494-FD-15-041123	G	SS	-	4-11-2023	-	1	X										-07
SO-2494-P1-6.0-15B-041123-MS/MSD	G	SS	-	1	1530	1	X										
		SS															
		SS															

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1605229

C199

Acctnum: **UPRRGOLD**
Template: **T222123**
Prelogin: **P972605**
PM: **134 - Mark W. Beasley**
PB:

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Al, As, Ba, Cr, Cu by 6020
Hg by 7471

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __UPS __FedEx __Courier _____

Tracking # 5528 5951 9165

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
J Roman	4-13-2023	1430		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: NSLV °C Bottles Received: 4.7+0=4.7 8
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 4.14.23 Time: 0915

Sample Receipt Checklist
COC Seal Present/Intact: __NP X Y __N
COC Signed/Accurate: X Y __N
Bottles arrive intact: X Y __N
Correct bottles used: X Y __N
Sufficient volume sent: X Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: X Y __N
RAD Screen <0.5 mR/hr: X Y __N

If preservation required by Login: Date/Time

Hold:

Condition: NCF (OK)

ATTACHMENT F

Ecology Communications

From: Treccani, Sandra (ECY) <SATR461@ECY.WA.GOV>
Sent: Wednesday, January 18, 2023 10:14 AM
To: Norton, Ted; John DeJong
Cc: Schmidt, Jeremy (ECY)
Subject: FW: Trentwood
Attachments: Trentwood As Stats.xlsx

Hi Ted and John,
We consulted with Arthur Buchan, our resource for statistical analysis and ecological assessments. In summary, the "three part" statistics rule (95% UCL, 10% exceedance, and no 2x the CUL) doesn't apply to contaminants with CULs set using table 749-3, which we did for arsenic. You only have to meet the 95% UCL. He reran the statistics, and the analysis is attached. I've also included a section of his analysis below. Therefore, if the 95% UCL is less than the CUL, you're good. Which means you have met the CUL for arsenic in the upper 6 feet. Please note his note at the bottom – below 6' down to 15', the standard approach is still valid. I hope this answers your questions; let me know if you want to have any further discussions. Thanks,

Sandra Treccani | Site Manager
Toxics Cleanup Program | WA Department of Ecology
NEW NUMBER (509) 724-1205
sandra.treccani@ecy.wa.gov

When conducting a Site-Specific Terrestrial Ecological Evaluation, the person conducting the evaluation may eliminate hazardous substances from further consideration where the maximum or the upper ninety-five percent confidence limit soil concentration found at the site does not exceed ecological indicator concentrations described in Table 749-3. As a result, the values in Table 749-3 may be used for either stated purpose (as either screening levels or cleanup levels) to end the evaluation process at any stage in the process.

When using the values included in Table 749-3, the 95 UCL on the mean is the only requirement when setting screening/cleanup levels for the specific contaminants included. This is because the values in Table 749-3 are considered very conservative and Ecology will accept them [using the 95 UCL] as safe without further evaluation of terrestrial risks. However, this only applies to the Table Values under Table 749-3. Other Site-Specific Methods (like literature or bioassays), and/or if using the Simplified Method, you would still need to comply with the 3-part rule.

I have attached the statistics for the Trentwood Site (calculations completed using the new MTCA Statistics Application and ProUCL).

Both statistical applications indicate a LogNormal Distribution and a 95 UCL of 9.44 mg/kg. The driving protective value for Arsenic in Table 749-3 is 10 mg/kg (based on protection of plants). My interpretation is that since the calculated 95 UCL (9.44 mg/kg) is less than the most restrictive screening value (10 mg/kg), Arsenic may therefore be considered to be in compliance for the upland ecological pathway.

Please note: You will still need to meet the 3-part statistics rule for Human Health.

Data

6.47
2.75
7.65
3.64
6.87
6.37
8.25
8.95
8.18
2.82
8.96
6.2
4.14
8.19
14.4
11.5
10.1
8.03
6.65
8.23
6.99
11.1
14.2
12.1
6.73
8.42
13.6
9.16
10.8
13.8
7.8
9.72
4.2

Non-Detects input as <12.24

Statistics Parameters

Preferred Distribution: (•) Auto ( ) LogNormal ( ) Normal ( ) Nonparametric

Scaling factor for non-detects: 0.5

Background Calculations Percentile: (•) Auto ( ) Custom

PIHS (Preliminary Indicator Hazardous Substances) Function
Temporarily Deactivated

Criteria Value (measurement basis and unit of measure same as data): 1.0

Threshold Frequency Of Detection: 5 %

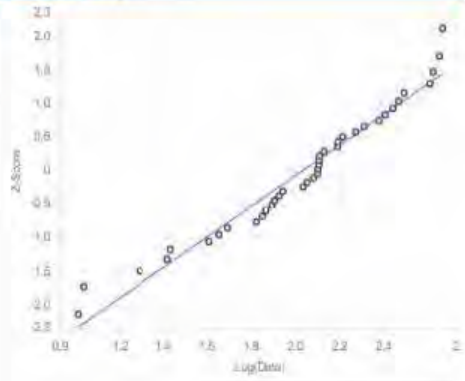
Threshold Non-Detect Exceedance Frequency: 5 %

Calculate

MTCA Results

Num of Samples	38
Num of Detects	38
Min Detect Conc	2.75
Max Detect Conc	14.4
Mean	8.23
Median	8.18
Mode	8.23
StdDev	3.1
Variance	9.58
CoeffOfVar	37.61
Skewness	0.29
Kurtosis	-0.42
Normal R^2	0.98
LogNormal R^2	0.96
Test	WTest
TestValueN	0.96
TestValueLN	0.95
TableValue	0.938
UCL Value	**9.44**
UCL Exceedance	9.44
ANOVA PValue	5.3e-26
90th Percentile	**13.34**
4x50th Percentile	30.45
50th Percentile	7.61
IHS Potential	Deactivated
Method Comments	Probability: LogNormal

Distribution Plot



From: Treccani, Sandra (ECY) <SATR461@ECY.WA.GOV>
Sent: Wednesday, November 16, 2022 2:43 PM
To: Norton, Ted
Cc: Schmidt, Jeremy (ECY)
Subject: RE: Trentwood import backfill test results

EXTERNAL EMAIL

No problem. Glad you included all the parameters. We're good!

Sandy

From: Norton, Ted <Ted_Norton@golder.com>
Sent: Wednesday, November 16, 2022 2:39 PM
To: Treccani, Sandra (ECY) <SATR461@ECY.WA.GOV>
Cc: Schmidt, Jeremy (ECY) <JESC461@ECY.WA.GOV>
Subject: RE: Trentwood import backfill test results

Hi Sandy, I noted the same thing as you and had the lab re-run the samples for aluminum and mercury. I inadvertently grabbed the first lab report when I sent my first email. The attached report includes aluminum and mercury results, which you can see both aluminum and mercury meet the unrestricted CUL criteria.

I apologizes for any inconvenience I may have caused by not sending the correct version in the first place.

Best regards,

Ted Norton
Sr. Lead Consultant, Environmental Scientist

T: +1 425 833 0777
C: +1 206 755 4970

GOLDER

From: Treccani, Sandra (ECY) <SATR461@ECY.WA.GOV>
Sent: Wednesday, November 16, 2022 10:24 AM
To: Norton, Ted <ted.norton@wsp.com>
Cc: Schmidt, Jeremy (ECY) <JESC461@ECY.WA.GOV>
Subject: RE: Trentwood import backfill test results

EXTERNAL EMAIL

Hi Ted,
I've looked at the data, and it looks like the five samples have barium results of 48.7, 96.6, 74.3, 113, and 75.9. The best approach to evaluate this data could be the "dispersed sampling" approach provided in our sampling guidance. We don't meet the criteria that less than 10% of the samples exceed the site-specific CUL, but the one sample barely exceeds and the barium average is less that the CUL. Therefore, barium should not be a concern.

Please note that aluminum and mercury are both indicator hazardous substances at the site, but there don't appear to be sample results for these contaminants. We would recommend you include them to ensure your fill isn't causing further exceedances at the site.

Sandy

From: Norton, Ted <Ted_Norton@golder.com>
Sent: Tuesday, November 15, 2022 1:44 PM
To: Treccani, Sandra (ECY) <SATR461@ECY.WA.GOV>; Schmidt, Jeremy (ECY) <JESC461@ECY.WA.GOV>

Subject: Trentwood import backfill test results

Hello Sandy, attached are test results from five samples of the backfill material proposed for import from across the street from Trentwood. The backfill is first use materials and was excavated and stockpiled on the supplier's site. Is this suitable to Ecology for UPRR to use on WSDOT and Pentzer properties? Note barium result on page 12 of the pdf.

Thank you,

Ted Norton
Sr. Lead Consultant, Environmental Scientist

T: +1 425 833 0777
C: +1 206 755 4970

WSP GOLDER

Ted

ANALYTICAL REPORT

November 08, 2022

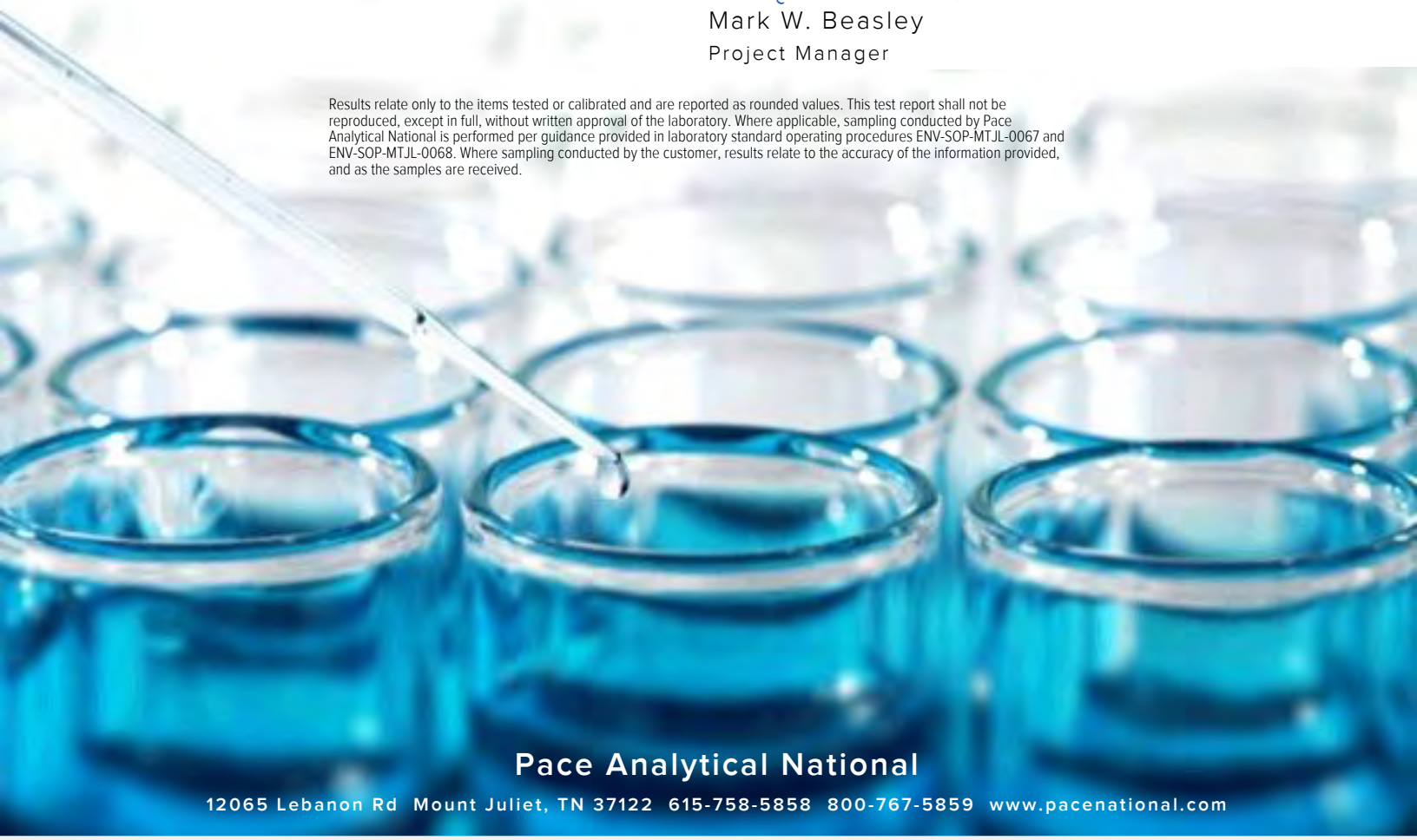
Revised Report

UPRR - Golder Associates

Sample Delivery Group:	L1547731
Samples Received:	10/18/2022
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	DROSS STOCKPILE EXCAVATION AND
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.6		1	10/21/2022 09:47	WG1946100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0184	0.0410	1	10/24/2022 13:45	WG1945897

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	6190		6.23	10.2	1	10/28/2022 14:21	WG1949312
Arsenic	4.00		0.531	2.05	1	10/28/2022 14:21	WG1949312
Barium	48.7		0.0873	0.512	1	10/28/2022 14:21	WG1949312
Cadmium	0.0825	J	0.0482	0.512	1	10/28/2022 14:21	WG1949312
Chromium	12.0		0.136	1.02	1	10/28/2022 14:21	WG1949312
Copper	7.19		0.410	2.05	1	10/28/2022 14:21	WG1949312
Lead	4.46		0.213	0.512	1	10/28/2022 14:21	WG1949312
Selenium	U		0.783	2.05	1	10/28/2022 14:21	WG1949312
Silver	U		0.130	1.02	1	10/28/2022 14:21	WG1949312

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		0.958	2.83	27	10/26/2022 12:10	WG1948913
(S) a,a,a-Trifluorotoluene(FID)	*100*			*77.0-120*		*10/26/2022 12:10*	WG1948913

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.36	4.10	1	10/25/2022 09:02	WG1947872
Residual Range Organics (RRO)	U		3.41	10.2	1	10/25/2022 09:02	WG1947872
(S) o-Terphenyl	*65.2*			*18.0-148*		*10/25/2022 09:02*	WG1947872

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00552	0.0341	1	10/22/2022 17:21	WG1946831
Acenaphthylene	U		0.00480	0.0341	1	10/22/2022 17:21	WG1946831
Anthracene	U		0.00607	0.0341	1	10/22/2022 17:21	WG1946831
Benzo(a)anthracene	U		0.00601	0.0341	1	10/22/2022 17:21	WG1946831
Benzo(b)fluoranthene	U		0.00636	0.0341	1	10/22/2022 17:21	WG1946831
Benzo(k)fluoranthene	U		0.00606	0.0341	1	10/22/2022 17:21	WG1946831
Benzo(g,h,i)perylene	U		0.00624	0.0341	1	10/22/2022 17:21	WG1946831
Benzo(a)pyrene	U		0.00634	0.0341	1	10/22/2022 17:21	WG1946831
Benzoic acid	U		0.121	1.71	1	10/22/2022 17:21	WG1946831
Benzyl alcohol	U		0.0126	0.341	1	10/22/2022 17:21	WG1946831
Bis(2-chlorethoxy)methane	U		0.0102	0.341	1	10/22/2022 17:21	WG1946831
Bis(2-chloroethyl)ether	U		0.0113	0.341	1	10/22/2022 17:21	WG1946831
2,2-Oxybis(1-Chloropropane)	U		0.0148	0.341	1	10/22/2022 17:21	WG1946831
4-Bromophenyl-phenylether	U		0.0120	0.341	1	10/22/2022 17:21	WG1946831
Carbazole	U		0.0106	0.341	1	10/22/2022 17:21	WG1946831
2-Chloronaphthalene	U		0.00599	0.0341	1	10/22/2022 17:21	WG1946831

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0123	0.341	1	10/22/2022 17:21	WG1946831
4-Chlorophenyl-phenylether	U		0.0119	0.341	1	10/22/2022 17:21	WG1946831
Chrysene	U		0.00678	0.0341	1	10/22/2022 17:21	WG1946831
Dibenz(a,h)anthracene	U		0.00945	0.0341	1	10/22/2022 17:21	WG1946831
Dibenzofuran	U		0.0112	0.341	1	10/22/2022 17:21	WG1946831
3,3-Dichlorobenzidine	U		0.0126	0.341	1	10/22/2022 17:21	WG1946831
2,4-Dinitrotoluene	U		0.00978	0.341	1	10/22/2022 17:21	WG1946831
2,6-Dinitrotoluene	U		0.0112	0.341	1	10/22/2022 17:21	WG1946831
Fluoranthene	U		0.00616	0.0341	1	10/22/2022 17:21	WG1946831
Fluorene	U		0.00555	0.0341	1	10/22/2022 17:21	WG1946831
Hexachlorobenzene	U		0.0121	0.341	1	10/22/2022 17:21	WG1946831
Hexachloro-1,3-butadiene	U		0.0115	0.341	1	10/22/2022 17:21	WG1946831
Hexachlorocyclopentadiene	U		0.0179	0.341	1	10/22/2022 17:21	WG1946831
Hexachloroethane	U		0.0134	0.341	1	10/22/2022 17:21	WG1946831
Indeno(1,2,3-cd)pyrene	U		0.00964	0.0341	1	10/22/2022 17:21	WG1946831
Isophorone	U		0.0104	0.341	1	10/22/2022 17:21	WG1946831
2-Methylnaphthalene	U		0.00443	0.0341	1	10/22/2022 17:21	WG1946831
Naphthalene	U		0.00856	0.0341	1	10/22/2022 17:21	WG1946831
2-Nitroaniline	U		0.0110	0.341	1	10/22/2022 17:21	WG1946831
3-Nitroaniline	U		0.0109	0.341	1	10/22/2022 17:21	WG1946831
4-Nitroaniline	U		0.00995	0.341	1	10/22/2022 17:21	WG1946831
Nitrobenzene	U		0.0119	0.341	1	10/22/2022 17:21	WG1946831
n-Nitrosodimethylamine	U		0.0506	0.341	1	10/22/2022 17:21	WG1946831
n-Nitrosodiphenylamine	U		0.0258	0.341	1	10/22/2022 17:21	WG1946831
n-Nitrosodi-n-propylamine	U		0.0114	0.341	1	10/22/2022 17:21	WG1946831
Phenanthrene	U		0.00677	0.0341	1	10/22/2022 17:21	WG1946831
Benzylbutyl phthalate	U		0.0107	0.341	1	10/22/2022 17:21	WG1946831
Bis(2-ethylhexyl)phthalate	U		0.0432	0.341	1	10/22/2022 17:21	WG1946831
Di-n-butyl phthalate	U		0.0117	0.341	1	10/22/2022 17:21	WG1946831
Diethyl phthalate	U		0.0113	0.341	1	10/22/2022 17:21	WG1946831
Dimethyl phthalate	U		0.0723	0.341	1	10/22/2022 17:21	WG1946831
Di-n-octyl phthalate	U		0.0230	0.341	1	10/22/2022 17:21	WG1946831
Pyrene	U		0.00664	0.0341	1	10/22/2022 17:21	WG1946831
Pyridine	U		0.0225	0.341	1	10/22/2022 17:21	WG1946831
1,2,4-Trichlorobenzene	U		0.0107	0.341	1	10/22/2022 17:21	WG1946831
4-Chloro-3-methylphenol	U		0.0111	0.341	1	10/22/2022 17:21	WG1946831
2-Chlorophenol	U		0.0113	0.341	1	10/22/2022 17:21	WG1946831
2,4-Dichlorophenol	U		0.00994	0.341	1	10/22/2022 17:21	WG1946831
2,4-Dimethylphenol	U		0.00891	0.341	1	10/22/2022 17:21	WG1946831
4,6-Dinitro-2-methylphenol	U		0.0773	0.341	1	10/22/2022 17:21	WG1946831
2,4-Dinitrophenol	U		0.0798	0.341	1	10/22/2022 17:21	WG1946831
2-Methylphenol	U		0.0102	0.341	1	10/22/2022 17:21	WG1946831
3&4-Methyl Phenol	U		0.0107	0.341	1	10/22/2022 17:21	WG1946831
2-Nitrophenol	U		0.0122	0.341	1	10/22/2022 17:21	WG1946831
4-Nitrophenol	U		0.0107	0.341	1	10/22/2022 17:21	WG1946831
Pentachlorophenol	U		0.00918	0.341	1	10/22/2022 17:21	WG1946831
Phenol	U		0.0137	0.341	1	10/22/2022 17:21	WG1946831
2,4,5-Trichlorophenol	U		0.0116	0.341	1	10/22/2022 17:21	WG1946831
2,4,6-Trichlorophenol	U		0.0110	0.341	1	10/22/2022 17:21	WG1946831
(S) 2-Fluorophenol	*80.1*			*12.0-120*		*10/22/2022 17:21*	WG1946831
(S) Phenol-d5	*69.4*			*10.0-120*		*10/22/2022 17:21*	WG1946831
(S) Nitrobenzene-d5	*80.3*			*10.0-122*		*10/22/2022 17:21*	WG1946831
(S) 2-Fluorobiphenyl	*71.7*			*15.0-120*		*10/22/2022 17:21*	WG1946831
(S) 2,4,6-Tribromophenol	*83.9*			*10.0-127*		*10/22/2022 17:21*	WG1946831
(S) p-Terphenyl-d14	*88.5*			*10.0-120*		*10/22/2022 17:21*	WG1946831

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00236	0.00615	1	10/22/2022 16:22	WG1947266
Acenaphthene	U		0.00214	0.00615	1	10/22/2022 16:22	WG1947266
Acenaphthylene	U		0.00221	0.00615	1	10/22/2022 16:22	WG1947266
Benzo(a)anthracene	U		0.00177	0.00615	1	10/22/2022 16:22	WG1947266
Benzo(a)pyrene	U		0.00183	0.00615	1	10/22/2022 16:22	WG1947266
Benzo(b)fluoranthene	U		0.00157	0.00615	1	10/22/2022 16:22	WG1947266
Benzo(g,h,i)perylene	U		0.00181	0.00615	1	10/22/2022 16:22	WG1947266
Benzo(k)fluoranthene	U		0.00220	0.00615	1	10/22/2022 16:22	WG1947266
Chrysene	U		0.00238	0.00615	1	10/22/2022 16:22	WG1947266
Dibenz(a,h)anthracene	U		0.00176	0.00615	1	10/22/2022 16:22	WG1947266
Dibenzofuran	U		0.00218	0.00615	1	10/22/2022 16:22	WG1947266
Fluoranthene	U		0.00233	0.00615	1	10/22/2022 16:22	WG1947266
Fluorene	U		0.00210	0.00615	1	10/22/2022 16:22	WG1947266
Indeno(1,2,3-cd)pyrene	U		0.00185	0.00615	1	10/22/2022 16:22	WG1947266
Naphthalene	U		0.00418	0.0205	1	10/22/2022 16:22	WG1947266
Phenanthrene	U		0.00237	0.00615	1	10/22/2022 16:22	WG1947266
Pyrene	U		0.00205	0.00615	1	10/22/2022 16:22	WG1947266
1-Methylnaphthalene	U		0.00460	0.0205	1	10/22/2022 16:22	WG1947266
2-Methylnaphthalene	U		0.00437	0.0205	1	10/22/2022 16:22	WG1947266
2-Chloronaphthalene	U		0.00477	0.0205	1	10/22/2022 16:22	WG1947266
(S) Nitrobenzene-d5	*85.0*			*14.0-149*		*10/22/2022 16:22*	WG1947266
(S) 2-Fluorobiphenyl	*86.6*			*34.0-125*		*10/22/2022 16:22*	WG1947266
(S) p-Terphenyl-d14	*93.8*			*23.0-120*		*10/22/2022 16:22*	WG1947266

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	98.8		1	10/21/2022 09:47	WG1946100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0182	0.0405	1	10/24/2022 13:47	WG1945897

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8910		6.15	10.1	1	10/28/2022 14:24	WG1949312
Arsenic	4.72		0.524	2.02	1	10/28/2022 14:24	WG1949312
Barium	96.6		0.0862	0.506	1	10/28/2022 14:24	WG1949312
Cadmium	0.117	J	0.0477	0.506	1	10/28/2022 14:24	WG1949312
Chromium	13.4		0.135	1.01	1	10/28/2022 14:24	WG1949312
Copper	10.2		0.405	2.02	1	10/28/2022 14:24	WG1949312
Lead	9.65		0.210	0.506	1	10/28/2022 14:24	WG1949312
Selenium	U		0.773	2.02	1	10/28/2022 14:24	WG1949312
Silver	U		0.128	1.01	1	10/28/2022 14:24	WG1949312

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		0.868	2.56	25	10/26/2022 12:33	WG1948913
(S) a,a,a-Trifluorotoluene(FID)	*100*			*77.0-120*		*10/26/2022 12:33*	WG1948913

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.35	4.05	1	10/25/2022 09:17	WG1947872
Residual Range Organics (RRO)	U		3.37	10.1	1	10/25/2022 09:17	WG1947872
(S) o-Terphenyl	*69.1*			*18.0-148*		*10/25/2022 09:17*	WG1947872

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00545	0.0337	1	10/22/2022 18:22	WG1946831
Acenaphthylene	U		0.00474	0.0337	1	10/22/2022 18:22	WG1946831
Anthracene	U		0.00600	0.0337	1	10/22/2022 18:22	WG1946831
Benzo(a)anthracene	U		0.00594	0.0337	1	10/22/2022 18:22	WG1946831
Benzo(b)fluoranthene	U		0.00628	0.0337	1	10/22/2022 18:22	WG1946831
Benzo(k)fluoranthene	U		0.00599	0.0337	1	10/22/2022 18:22	WG1946831
Benzo(g,h,i)perylene	U		0.00616	0.0337	1	10/22/2022 18:22	WG1946831
Benzo(a)pyrene	U		0.00626	0.0337	1	10/22/2022 18:22	WG1946831
Benzoic acid	U		0.119	1.69	1	10/22/2022 18:22	WG1946831
Benzyl alcohol	U		0.0124	0.337	1	10/22/2022 18:22	WG1946831
Bis(2-chlorethoxy)methane	U		0.0101	0.337	1	10/22/2022 18:22	WG1946831
Bis(2-chloroethyl)ether	U		0.0111	0.337	1	10/22/2022 18:22	WG1946831
2,2-Oxybis(1-Chloropropane)	U		0.0146	0.337	1	10/22/2022 18:22	WG1946831
4-Bromophenyl-phenylether	U		0.0118	0.337	1	10/22/2022 18:22	WG1946831
Carbazole	U		0.0104	0.337	1	10/22/2022 18:22	WG1946831
2-Chloronaphthalene	U		0.00592	0.0337	1	10/22/2022 18:22	WG1946831

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0121	0.337	1	10/22/2022 18:22	WG1946831
4-Chlorophenyl-phenylether	U		0.0117	0.337	1	10/22/2022 18:22	WG1946831
Chrysene	U		0.00670	0.0337	1	10/22/2022 18:22	WG1946831
Dibenz(a,h)anthracene	U		0.00934	0.0337	1	10/22/2022 18:22	WG1946831
Dibenzofuran	U		0.0110	0.337	1	10/22/2022 18:22	WG1946831
3,3-Dichlorobenzidine	U		0.0124	0.337	1	10/22/2022 18:22	WG1946831
2,4-Dinitrotoluene	U		0.00966	0.337	1	10/22/2022 18:22	WG1946831
2,6-Dinitrotoluene	U		0.0110	0.337	1	10/22/2022 18:22	WG1946831
Fluoranthene	U		0.00608	0.0337	1	10/22/2022 18:22	WG1946831
Fluorene	U		0.00548	0.0337	1	10/22/2022 18:22	WG1946831
Hexachlorobenzene	U		0.0119	0.337	1	10/22/2022 18:22	WG1946831
Hexachloro-1,3-butadiene	U		0.0113	0.337	1	10/22/2022 18:22	WG1946831
Hexachlorocyclopentadiene	U		0.0177	0.337	1	10/22/2022 18:22	WG1946831
Hexachloroethane	U		0.0133	0.337	1	10/22/2022 18:22	WG1946831
Indeno(1,2,3-cd)pyrene	U		0.00952	0.0337	1	10/22/2022 18:22	WG1946831
Isophorone	U		0.0103	0.337	1	10/22/2022 18:22	WG1946831
2-Methylnaphthalene	U		0.00437	0.0337	1	10/22/2022 18:22	WG1946831
Naphthalene	U		0.00846	0.0337	1	10/22/2022 18:22	WG1946831
2-Nitroaniline	U		0.0108	0.337	1	10/22/2022 18:22	WG1946831
3-Nitroaniline	U		0.0107	0.337	1	10/22/2022 18:22	WG1946831
4-Nitroaniline	U		0.00982	0.337	1	10/22/2022 18:22	WG1946831
Nitrobenzene	U		0.0117	0.337	1	10/22/2022 18:22	WG1946831
n-Nitrosodimethylamine	U		0.0500	0.337	1	10/22/2022 18:22	WG1946831
n-Nitrosodiphenylamine	U		0.0255	0.337	1	10/22/2022 18:22	WG1946831
n-Nitrosodi-n-propylamine	U		0.0112	0.337	1	10/22/2022 18:22	WG1946831
Phenanthrene	U		0.00669	0.0337	1	10/22/2022 18:22	WG1946831
Benzylbutyl phthalate	U		0.0105	0.337	1	10/22/2022 18:22	WG1946831
Bis(2-ethylhexyl)phthalate	U		0.0427	0.337	1	10/22/2022 18:22	WG1946831
Di-n-butyl phthalate	U		0.0115	0.337	1	10/22/2022 18:22	WG1946831
Diethyl phthalate	U		0.0111	0.337	1	10/22/2022 18:22	WG1946831
Dimethyl phthalate	U		0.0714	0.337	1	10/22/2022 18:22	WG1946831
Di-n-octyl phthalate	U		0.0228	0.337	1	10/22/2022 18:22	WG1946831
Pyrene	U		0.00656	0.0337	1	10/22/2022 18:22	WG1946831
Pyridine	U		0.0223	0.337	1	10/22/2022 18:22	WG1946831
1,2,4-Trichlorobenzene	U		0.0105	0.337	1	10/22/2022 18:22	WG1946831
4-Chloro-3-methylphenol	U		0.0109	0.337	1	10/22/2022 18:22	WG1946831
2-Chlorophenol	U		0.0111	0.337	1	10/22/2022 18:22	WG1946831
2,4-Dichlorophenol	U		0.00981	0.337	1	10/22/2022 18:22	WG1946831
2,4-Dimethylphenol	U		0.00880	0.337	1	10/22/2022 18:22	WG1946831
4,6-Dinitro-2-methylphenol	U		0.0764	0.337	1	10/22/2022 18:22	WG1946831
2,4-Dinitrophenol	U		0.0788	0.337	1	10/22/2022 18:22	WG1946831
2-Methylphenol	U		0.0101	0.337	1	10/22/2022 18:22	WG1946831
3&4-Methyl Phenol	U		0.0105	0.337	1	10/22/2022 18:22	WG1946831
2-Nitrophenol	U		0.0120	0.337	1	10/22/2022 18:22	WG1946831
4-Nitrophenol	U		0.0105	0.337	1	10/22/2022 18:22	WG1946831
Pentachlorophenol	U		0.00906	0.337	1	10/22/2022 18:22	WG1946831
Phenol	U		0.0136	0.337	1	10/22/2022 18:22	WG1946831
2,4,5-Trichlorophenol	U		0.0114	0.337	1	10/22/2022 18:22	WG1946831
2,4,6-Trichlorophenol	U		0.0108	0.337	1	10/22/2022 18:22	WG1946831
(S) 2-Fluorophenol	*82.2*			*12.0-120*		*10/22/2022 18:22*	WG1946831
(S) Phenol-d5	*71.1*			*10.0-120*		*10/22/2022 18:22*	WG1946831
(S) Nitrobenzene-d5	*79.9*			*10.0-122*		*10/22/2022 18:22*	WG1946831
(S) 2-Fluorobiphenyl	*68.2*			*15.0-120*		*10/22/2022 18:22*	WG1946831
(S) 2,4,6-Tribromophenol	*83.6*			*10.0-127*		*10/22/2022 18:22*	WG1946831
(S) p-Terphenyl-d14	*89.9*			*10.0-120*		*10/22/2022 18:22*	WG1946831

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00233	0.00607	1	10/22/2022 16:40	WG1947266
Acenaphthene	U		0.00211	0.00607	1	10/22/2022 16:40	WG1947266
Acenaphthylene	U		0.00219	0.00607	1	10/22/2022 16:40	WG1947266
Benzo(a)anthracene	U		0.00175	0.00607	1	10/22/2022 16:40	WG1947266
Benzo(a)pyrene	U		0.00181	0.00607	1	10/22/2022 16:40	WG1947266
Benzo(b)fluoranthene	U		0.00155	0.00607	1	10/22/2022 16:40	WG1947266
Benzo(g,h,i)perylene	U		0.00179	0.00607	1	10/22/2022 16:40	WG1947266
Benzo(k)fluoranthene	U		0.00218	0.00607	1	10/22/2022 16:40	WG1947266
Chrysene	U		0.00235	0.00607	1	10/22/2022 16:40	WG1947266
Dibenz(a,h)anthracene	U		0.00174	0.00607	1	10/22/2022 16:40	WG1947266
Dibenzofuran	U		0.00215	0.00607	1	10/22/2022 16:40	WG1947266
Fluoranthene	U		0.00230	0.00607	1	10/22/2022 16:40	WG1947266
Fluorene	U		0.00207	0.00607	1	10/22/2022 16:40	WG1947266
Indeno(1,2,3-cd)pyrene	U		0.00183	0.00607	1	10/22/2022 16:40	WG1947266
Naphthalene	U		0.00413	0.0202	1	10/22/2022 16:40	WG1947266
Phenanthrene	U		0.00234	0.00607	1	10/22/2022 16:40	WG1947266
Pyrene	U		0.00202	0.00607	1	10/22/2022 16:40	WG1947266
1-Methylnaphthalene	U		0.00454	0.0202	1	10/22/2022 16:40	WG1947266
2-Methylnaphthalene	U		0.00432	0.0202	1	10/22/2022 16:40	WG1947266
2-Chloronaphthalene	U		0.00471	0.0202	1	10/22/2022 16:40	WG1947266
(S) Nitrobenzene-d5	*93.2*			*14.0-149*		*10/22/2022 16:40*	WG1947266
(S) 2-Fluorobiphenyl	*93.7*			*34.0-125*		*10/22/2022 16:40*	WG1947266
(S) p-Terphenyl-d14	*99.8*			*23.0-120*		*10/22/2022 16:40*	WG1947266

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.3		1	10/21/2022 09:47	WG1946100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0185	0.0411	1	10/24/2022 13:49	WG1945897

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9420		6.25	10.3	1	10/28/2022 14:27	WG1949312
Arsenic	4.87		0.532	2.06	1	10/28/2022 14:27	WG1949312
Barium	74.3		0.0876	0.514	1	10/28/2022 14:27	WG1949312
Cadmium	0.116	J	0.0484	0.514	1	10/28/2022 14:27	WG1949312
Chromium	11.3		0.137	1.03	1	10/28/2022 14:27	WG1949312
Copper	10.3		0.411	2.06	1	10/28/2022 14:27	WG1949312
Lead	7.69		0.214	0.514	1	10/28/2022 14:27	WG1949312
Selenium	U		0.785	2.06	1	10/28/2022 14:27	WG1949312
Silver	U		0.131	1.03	1	10/28/2022 14:27	WG1949312

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.02	3.02	28.7	10/25/2022 13:08	WG1947632
(S) a,a,a-Trifluorotoluene(FID)	*91.4*			*77.0-120*		*10/25/2022 13:08*	WG1947632

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.37	4.11	1	10/25/2022 09:31	WG1947872
Residual Range Organics (RRO)	U		3.42	10.3	1	10/25/2022 09:31	WG1947872
(S) o-Terphenyl	*70.5*			*18.0-148*		*10/25/2022 09:31*	WG1947872

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00554	0.0342	1	10/22/2022 17:01	WG1946831
Acenaphthylene	U		0.00482	0.0342	1	10/22/2022 17:01	WG1946831
Anthracene	U		0.00609	0.0342	1	10/22/2022 17:01	WG1946831
Benzo(a)anthracene	U		0.00603	0.0342	1	10/22/2022 17:01	WG1946831
Benzo(b)fluoranthene	U		0.00638	0.0342	1	10/22/2022 17:01	WG1946831
Benzo(k)fluoranthene	U		0.00608	0.0342	1	10/22/2022 17:01	WG1946831
Benzo(g,h,i)perylene	U		0.00626	0.0342	1	10/22/2022 17:01	WG1946831
Benzo(a)pyrene	U		0.00636	0.0342	1	10/22/2022 17:01	WG1946831
Benzoic acid	U		0.121	1.72	1	10/22/2022 17:01	WG1946831
Benzyl alcohol	U		0.0126	0.342	1	10/22/2022 17:01	WG1946831
Bis(2-chlorethoxy)methane	U		0.0103	0.342	1	10/22/2022 17:01	WG1946831
Bis(2-chloroethyl)ether	U		0.0113	0.342	1	10/22/2022 17:01	WG1946831
2,2-Oxybis(1-Chloropropane)	U		0.0148	0.342	1	10/22/2022 17:01	WG1946831
4-Bromophenyl-phenylether	U		0.0120	0.342	1	10/22/2022 17:01	WG1946831
Carbazole	U		0.0106	0.342	1	10/22/2022 17:01	WG1946831
2-Chloronaphthalene	U		0.00601	0.0342	1	10/22/2022 17:01	WG1946831

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0123	0.342	1	10/22/2022 17:01	WG1946831
4-Chlorophenyl-phenylether	U		0.0119	0.342	1	10/22/2022 17:01	WG1946831
Chrysene	U		0.00680	0.0342	1	10/22/2022 17:01	WG1946831
Dibenz(a,h)anthracene	U		0.00948	0.0342	1	10/22/2022 17:01	WG1946831
Dibenzofuran	U		0.0112	0.342	1	10/22/2022 17:01	WG1946831
3,3-Dichlorobenzidine	U		0.0126	0.342	1	10/22/2022 17:01	WG1946831
2,4-Dinitrotoluene	U		0.00981	0.342	1	10/22/2022 17:01	WG1946831
2,6-Dinitrotoluene	U		0.0112	0.342	1	10/22/2022 17:01	WG1946831
Fluoranthene	U		0.00618	0.0342	1	10/22/2022 17:01	WG1946831
Fluorene	U		0.00557	0.0342	1	10/22/2022 17:01	WG1946831
Hexachlorobenzene	U		0.0121	0.342	1	10/22/2022 17:01	WG1946831
Hexachloro-1,3-butadiene	U		0.0115	0.342	1	10/22/2022 17:01	WG1946831
Hexachlorocyclopentadiene	U		0.0180	0.342	1	10/22/2022 17:01	WG1946831
Hexachloroethane	U		0.0135	0.342	1	10/22/2022 17:01	WG1946831
Indeno(1,2,3-cd)pyrene	U		0.00967	0.0342	1	10/22/2022 17:01	WG1946831
Isophorone	U		0.0105	0.342	1	10/22/2022 17:01	WG1946831
2-Methylnaphthalene	U		0.00444	0.0342	1	10/22/2022 17:01	WG1946831
Naphthalene	U		0.00859	0.0342	1	10/22/2022 17:01	WG1946831
2-Nitroaniline	U		0.0110	0.342	1	10/22/2022 17:01	WG1946831
3-Nitroaniline	U		0.0109	0.342	1	10/22/2022 17:01	WG1946831
4-Nitroaniline	U		0.00998	0.342	1	10/22/2022 17:01	WG1946831
Nitrobenzene	U		0.0119	0.342	1	10/22/2022 17:01	WG1946831
n-Nitrosodimethylamine	U		0.0508	0.342	1	10/22/2022 17:01	WG1946831
n-Nitrosodiphenylamine	U		0.0259	0.342	1	10/22/2022 17:01	WG1946831
n-Nitrosodi-n-propylamine	U		0.0114	0.342	1	10/22/2022 17:01	WG1946831
Phenanthrene	U		0.00679	0.0342	1	10/22/2022 17:01	WG1946831
Benzylbutyl phthalate	U		0.0107	0.342	1	10/22/2022 17:01	WG1946831
Bis(2-ethylhexyl)phthalate	U		0.0434	0.342	1	10/22/2022 17:01	WG1946831
Di-n-butyl phthalate	U		0.0117	0.342	1	10/22/2022 17:01	WG1946831
Diethyl phthalate	U		0.0113	0.342	1	10/22/2022 17:01	WG1946831
Dimethyl phthalate	U		0.0725	0.342	1	10/22/2022 17:01	WG1946831
Di-n-octyl phthalate	U		0.0231	0.342	1	10/22/2022 17:01	WG1946831
Pyrene	U		0.00666	0.0342	1	10/22/2022 17:01	WG1946831
Pyridine	U		0.0226	0.342	1	10/22/2022 17:01	WG1946831
1,2,4-Trichlorobenzene	U		0.0107	0.342	1	10/22/2022 17:01	WG1946831
4-Chloro-3-methylphenol	U		0.0111	0.342	1	10/22/2022 17:01	WG1946831
2-Chlorophenol	U		0.0113	0.342	1	10/22/2022 17:01	WG1946831
2,4-Dichlorophenol	U		0.00997	0.342	1	10/22/2022 17:01	WG1946831
2,4-Dimethylphenol	U		0.00894	0.342	1	10/22/2022 17:01	WG1946831
4,6-Dinitro-2-methylphenol	U		0.0776	0.342	1	10/22/2022 17:01	WG1946831
2,4-Dinitrophenol	U		0.0801	0.342	1	10/22/2022 17:01	WG1946831
2-Methylphenol	U		0.0103	0.342	1	10/22/2022 17:01	WG1946831
3&4-Methyl Phenol	U		0.0107	0.342	1	10/22/2022 17:01	WG1946831
2-Nitrophenol	U		0.0122	0.342	1	10/22/2022 17:01	WG1946831
4-Nitrophenol	U		0.0107	0.342	1	10/22/2022 17:01	WG1946831
Pentachlorophenol	U		0.00921	0.342	1	10/22/2022 17:01	WG1946831
Phenol	U		0.0138	0.342	1	10/22/2022 17:01	WG1946831
2,4,5-Trichlorophenol	U		0.0116	0.342	1	10/22/2022 17:01	WG1946831
2,4,6-Trichlorophenol	U		0.0110	0.342	1	10/22/2022 17:01	WG1946831
(S) 2-Fluorophenol	*77.6*			*12.0-120*		*10/22/2022 17:01*	WG1946831
(S) Phenol-d5	*66.7*			*10.0-120*		*10/22/2022 17:01*	WG1946831
(S) Nitrobenzene-d5	*74.1*			*10.0-122*		*10/22/2022 17:01*	WG1946831
(S) 2-Fluorobiphenyl	*66.0*			*15.0-120*		*10/22/2022 17:01*	WG1946831
(S) 2,4,6-Tribromophenol	*76.1*			*10.0-127*		*10/22/2022 17:01*	WG1946831
(S) p-Terphenyl-d14	*82.7*			*10.0-120*		*10/22/2022 17:01*	WG1946831

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00236	0.00617	1	10/23/2022 16:52	WG1947267
Acenaphthene	U		0.00215	0.00617	1	10/23/2022 16:52	WG1947267
Acenaphthylene	U		0.00222	0.00617	1	10/23/2022 16:52	WG1947267
Benzo(a)anthracene	U		0.00178	0.00617	1	10/23/2022 16:52	WG1947267
Benzo(a)pyrene	U		0.00184	0.00617	1	10/23/2022 16:52	WG1947267
Benzo(b)fluoranthene	U		0.00157	0.00617	1	10/23/2022 16:52	WG1947267
Benzo(g,h,i)perylene	U		0.00182	0.00617	1	10/23/2022 16:52	WG1947267
Benzo(k)fluoranthene	U		0.00221	0.00617	1	10/23/2022 16:52	WG1947267
Chrysene	U		0.00238	0.00617	1	10/23/2022 16:52	WG1947267
Dibenz(a,h)anthracene	U		0.00177	0.00617	1	10/23/2022 16:52	WG1947267
Dibenzofuran	U		0.00219	0.00617	1	10/23/2022 16:52	WG1947267
Fluoranthene	U		0.00233	0.00617	1	10/23/2022 16:52	WG1947267
Fluorene	U		0.00211	0.00617	1	10/23/2022 16:52	WG1947267
Indeno(1,2,3-cd)pyrene	U		0.00186	0.00617	1	10/23/2022 16:52	WG1947267
Naphthalene	U		0.00419	0.0206	1	10/23/2022 16:52	WG1947267
Phenanthrene	U		0.00237	0.00617	1	10/23/2022 16:52	WG1947267
Pyrene	U		0.00206	0.00617	1	10/23/2022 16:52	WG1947267
1-Methylnaphthalene	U		0.00461	0.0206	1	10/23/2022 16:52	WG1947267
2-Methylnaphthalene	U		0.00439	0.0206	1	10/23/2022 16:52	WG1947267
2-Chloronaphthalene	U		0.00479	0.0206	1	10/23/2022 16:52	WG1947267
(S) Nitrobenzene-d5	*88.9*			*14.0-149*		*10/23/2022 16:52*	WG1947267
(S) 2-Fluorobiphenyl	*90.1*			*34.0-125*		*10/23/2022 16:52*	WG1947267
(S) p-Terphenyl-d14	*96.5*			*23.0-120*		*10/23/2022 16:52*	WG1947267

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	93.4		1	10/21/2022 09:47	WG1946100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0193	0.0428	1	10/24/2022 13:52	WG1945897

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10200		6.51	10.7	1	10/28/2022 14:35	WG1949312
Arsenic	5.11		0.555	2.14	1	10/28/2022 14:35	WG1949312
Barium	113		0.0912	0.535	1	10/28/2022 14:35	WG1949312
Cadmium	0.101	J	0.0504	0.535	1	10/28/2022 14:35	WG1949312
Chromium	11.7		0.142	1.07	1	10/28/2022 14:35	WG1949312
Copper	17.8		0.428	2.14	1	10/28/2022 14:35	WG1949312
Lead	6.23		0.223	0.535	1	10/28/2022 14:35	WG1949312
Selenium	U		0.818	2.14	1	10/28/2022 14:35	WG1949312
Silver	U		0.136	1.07	1	10/28/2022 14:35	WG1949312

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.07	3.15	27.8	10/25/2022 16:10	WG1947632
(S) a,a,a-Trifluorotoluene(FID)	*92.0*			*77.0-120*		*10/25/2022 16:10*	WG1947632

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.42	4.28	1	10/25/2022 09:59	WG1947872
Residual Range Organics (RRO)	U		3.57	10.7	1	10/25/2022 09:59	WG1947872
(S) o-Terphenyl	*68.1*			*18.0-148*		*10/25/2022 09:59*	WG1947872

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00577	0.0357	1	10/22/2022 19:03	WG1946831
Acenaphthylene	U		0.00502	0.0357	1	10/22/2022 19:03	WG1946831
Anthracene	U		0.00635	0.0357	1	10/22/2022 19:03	WG1946831
Benzo(a)anthracene	U		0.00629	0.0357	1	10/22/2022 19:03	WG1946831
Benzo(b)fluoranthene	U		0.00665	0.0357	1	10/22/2022 19:03	WG1946831
Benzo(k)fluoranthene	U		0.00634	0.0357	1	10/22/2022 19:03	WG1946831
Benzo(g,h,i)perylene	U		0.00652	0.0357	1	10/22/2022 19:03	WG1946831
Benzo(a)pyrene	U		0.00663	0.0357	1	10/22/2022 19:03	WG1946831
Benzoic acid	U		0.126	1.79	1	10/22/2022 19:03	WG1946831
Benzyl alcohol	U		0.0132	0.357	1	10/22/2022 19:03	WG1946831
Bis(2-chlorethoxy)methane	U		0.0107	0.357	1	10/22/2022 19:03	WG1946831
Bis(2-chloroethyl)ether	U		0.0118	0.357	1	10/22/2022 19:03	WG1946831
2,2-Oxybis(1-Chloropropane)	U		0.0154	0.357	1	10/22/2022 19:03	WG1946831
4-Bromophenyl-phenylether	U		0.0125	0.357	1	10/22/2022 19:03	WG1946831
Carbazole	U		0.0110	0.357	1	10/22/2022 19:03	WG1946831
2-Chloronaphthalene	U		0.00626	0.0357	1	10/22/2022 19:03	WG1946831

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0129	0.357	1	10/22/2022 19:03	WG1946831
4-Chlorophenyl-phenylether	U		0.0124	0.357	1	10/22/2022 19:03	WG1946831
Chrysene	U		0.00709	0.0357	1	10/22/2022 19:03	WG1946831
Dibenz(a,h)anthracene	U		0.00988	0.0357	1	10/22/2022 19:03	WG1946831
Dibenzofuran	U		0.0117	0.357	1	10/22/2022 19:03	WG1946831
3,3-Dichlorobenzidine	U		0.0132	0.357	1	10/22/2022 19:03	WG1946831
2,4-Dinitrotoluene	U		0.0102	0.357	1	10/22/2022 19:03	WG1946831
2,6-Dinitrotoluene	U		0.0117	0.357	1	10/22/2022 19:03	WG1946831
Fluoranthene	U		0.00644	0.0357	1	10/22/2022 19:03	WG1946831
Fluorene	U		0.00580	0.0357	1	10/22/2022 19:03	WG1946831
Hexachlorobenzene	U		0.0126	0.357	1	10/22/2022 19:03	WG1946831
Hexachloro-1,3-butadiene	U		0.0120	0.357	1	10/22/2022 19:03	WG1946831
Hexachlorocyclopentadiene	U		0.0187	0.357	1	10/22/2022 19:03	WG1946831
Hexachloroethane	U		0.0140	0.357	1	10/22/2022 19:03	WG1946831
Indeno(1,2,3-cd)pyrene	U		0.0101	0.0357	1	10/22/2022 19:03	WG1946831
Isophorone	U		0.0109	0.357	1	10/22/2022 19:03	WG1946831
2-Methylnaphthalene	U		0.00463	0.0357	1	10/22/2022 19:03	WG1946831
Naphthalene	U		0.00895	0.0357	1	10/22/2022 19:03	WG1946831
2-Nitroaniline	U		0.0115	0.357	1	10/22/2022 19:03	WG1946831
3-Nitroaniline	U		0.0114	0.357	1	10/22/2022 19:03	WG1946831
4-Nitroaniline	U		0.0104	0.357	1	10/22/2022 19:03	WG1946831
Nitrobenzene	U		0.0124	0.357	1	10/22/2022 19:03	WG1946831
n-Nitrosodimethylamine	U		0.0529	0.357	1	10/22/2022 19:03	WG1946831
n-Nitrosodiphenylamine	U		0.0270	0.357	1	10/22/2022 19:03	WG1946831
n-Nitrosodi-n-propylamine	U		0.0119	0.357	1	10/22/2022 19:03	WG1946831
Phenanthrene	U		0.00708	0.0357	1	10/22/2022 19:03	WG1946831
Benzylbutyl phthalate	U		0.0111	0.357	1	10/22/2022 19:03	WG1946831
Bis(2-ethylhexyl)phthalate	U		0.0452	0.357	1	10/22/2022 19:03	WG1946831
Di-n-butyl phthalate	U		0.0122	0.357	1	10/22/2022 19:03	WG1946831
Diethyl phthalate	U		0.0118	0.357	1	10/22/2022 19:03	WG1946831
Dimethyl phthalate	U		0.0756	0.357	1	10/22/2022 19:03	WG1946831
Di-n-octyl phthalate	U		0.0241	0.357	1	10/22/2022 19:03	WG1946831
Pyrene	U		0.00694	0.0357	1	10/22/2022 19:03	WG1946831
Pyridine	U		0.0236	0.357	1	10/22/2022 19:03	WG1946831
1,2,4-Trichlorobenzene	U		0.0111	0.357	1	10/22/2022 19:03	WG1946831
4-Chloro-3-methylphenol	U		0.0116	0.357	1	10/22/2022 19:03	WG1946831
2-Chlorophenol	U		0.0118	0.357	1	10/22/2022 19:03	WG1946831
2,4-Dichlorophenol	U		0.0104	0.357	1	10/22/2022 19:03	WG1946831
2,4-Dimethylphenol	U		0.00932	0.357	1	10/22/2022 19:03	WG1946831
4,6-Dinitro-2-methylphenol	U		0.0809	0.357	1	10/22/2022 19:03	WG1946831
2,4-Dinitrophenol	U		0.0834	0.357	1	10/22/2022 19:03	WG1946831
2-Methylphenol	U		0.0107	0.357	1	10/22/2022 19:03	WG1946831
3&4-Methyl Phenol	U		0.0111	0.357	1	10/22/2022 19:03	WG1946831
2-Nitrophenol	U		0.0127	0.357	1	10/22/2022 19:03	WG1946831
4-Nitrophenol	U		0.0111	0.357	1	10/22/2022 19:03	WG1946831
Pentachlorophenol	U		0.00960	0.357	1	10/22/2022 19:03	WG1946831
Phenol	U		0.0144	0.357	1	10/22/2022 19:03	WG1946831
2,4,5-Trichlorophenol	U		0.0121	0.357	1	10/22/2022 19:03	WG1946831
2,4,6-Trichlorophenol	U		0.0115	0.357	1	10/22/2022 19:03	WG1946831
(S) 2-Fluorophenol	*72.6*			*12.0-120*		*10/22/2022 19:03*	WG1946831
(S) Phenol-d5	*68.7*			*10.0-120*		*10/22/2022 19:03*	WG1946831
(S) Nitrobenzene-d5	*77.5*			*10.0-122*		*10/22/2022 19:03*	WG1946831
(S) 2-Fluorobiphenyl	*68.7*			*15.0-120*		*10/22/2022 19:03*	WG1946831
(S) 2,4,6-Tribromophenol	*73.9*			*10.0-127*		*10/22/2022 19:03*	WG1946831
(S) p-Terphenyl-d14	*89.1*			*10.0-120*		*10/22/2022 19:03*	WG1946831

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00246	0.00643	1	10/23/2022 17:10	WG1947267
Acenaphthene	U		0.00224	0.00643	1	10/23/2022 17:10	WG1947267
Acenaphthylene	U		0.00231	0.00643	1	10/23/2022 17:10	WG1947267
Benzo(a)anthracene	U		0.00185	0.00643	1	10/23/2022 17:10	WG1947267
Benzo(a)pyrene	U		0.00192	0.00643	1	10/23/2022 17:10	WG1947267
Benzo(b)fluoranthene	U		0.00164	0.00643	1	10/23/2022 17:10	WG1947267
Benzo(g,h,i)perylene	U		0.00190	0.00643	1	10/23/2022 17:10	WG1947267
Benzo(k)fluoranthene	U		0.00230	0.00643	1	10/23/2022 17:10	WG1947267
Chrysene	U		0.00248	0.00643	1	10/23/2022 17:10	WG1947267
Dibenz(a,h)anthracene	U		0.00184	0.00643	1	10/23/2022 17:10	WG1947267
Dibenzofuran	U		0.00228	0.00643	1	10/23/2022 17:10	WG1947267
Fluoranthene	U		0.00243	0.00643	1	10/23/2022 17:10	WG1947267
Fluorene	U		0.00220	0.00643	1	10/23/2022 17:10	WG1947267
Indeno(1,2,3-cd)pyrene	U		0.00194	0.00643	1	10/23/2022 17:10	WG1947267
Naphthalene	U		0.00437	0.0214	1	10/23/2022 17:10	WG1947267
Phenanthrene	U		0.00247	0.00643	1	10/23/2022 17:10	WG1947267
Pyrene	U		0.00214	0.00643	1	10/23/2022 17:10	WG1947267
1-Methylnaphthalene	U		0.00481	0.0214	1	10/23/2022 17:10	WG1947267
2-Methylnaphthalene	U		0.00457	0.0214	1	10/23/2022 17:10	WG1947267
2-Chloronaphthalene	U		0.00499	0.0214	1	10/23/2022 17:10	WG1947267
(S) Nitrobenzene-d5	*92.7*			*14.0-149*		*10/23/2022 17:10*	WG1947267
(S) 2-Fluorobiphenyl	*93.9*			*34.0-125*		*10/23/2022 17:10*	WG1947267
(S) p-Terphenyl-d14	*104*			*23.0-120*		*10/23/2022 17:10*	WG1947267

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	97.5		1	10/21/2022 09:47	WG1946100

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0185	0.0410	1	10/24/2022 13:54	WG1945897

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	8360		6.24	10.3	1	10/28/2022 14:37	WG1949312
Arsenic	4.73		0.532	2.05	1	10/28/2022 14:37	WG1949312
Barium	75.9		0.0874	0.513	1	10/28/2022 14:37	WG1949312
Cadmium	0.120	J	0.0483	0.513	1	10/28/2022 14:37	WG1949312
Chromium	11.4		0.136	1.03	1	10/28/2022 14:37	WG1949312
Copper	11.0		0.410	2.05	1	10/28/2022 14:37	WG1949312
Lead	6.38		0.213	0.513	1	10/28/2022 14:37	WG1949312
Selenium	U		0.784	2.05	1	10/28/2022 14:37	WG1949312
Silver	U		0.130	1.03	1	10/28/2022 14:37	WG1949312

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		0.978	2.89	27.5	10/25/2022 16:30	WG1947632
(S) a,a,a-Trifluorotoluene(FID)	*92.2*			*77.0-120*		*10/25/2022 16:30*	WG1947632

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.36	4.10	1	10/25/2022 09:45	WG1947872
Residual Range Organics (RRO)	U		3.42	10.3	1	10/25/2022 09:45	WG1947872
(S) o-Terphenyl	*62.8*			*18.0-148*		*10/25/2022 09:45*	WG1947872

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00553	0.0342	1	10/22/2022 18:42	WG1946831
Acenaphthylene	U		0.00481	0.0342	1	10/22/2022 18:42	WG1946831
Anthracene	U		0.00608	0.0342	1	10/22/2022 18:42	WG1946831
Benzo(a)anthracene	U		0.00602	0.0342	1	10/22/2022 18:42	WG1946831
Benzo(b)fluoranthene	U		0.00637	0.0342	1	10/22/2022 18:42	WG1946831
Benzo(k)fluoranthene	U		0.00607	0.0342	1	10/22/2022 18:42	WG1946831
Benzo(g,h,i)perylene	U		0.00625	0.0342	1	10/22/2022 18:42	WG1946831
Benzo(a)pyrene	U		0.00635	0.0342	1	10/22/2022 18:42	WG1946831
Benzoic acid	U		0.121	1.71	1	10/22/2022 18:42	WG1946831
Benzyl alcohol	U		0.0126	0.342	1	10/22/2022 18:42	WG1946831
Bis(2-chlorethoxy)methane	U		0.0103	0.342	1	10/22/2022 18:42	WG1946831
Bis(2-chloroethyl)ether	U		0.0113	0.342	1	10/22/2022 18:42	WG1946831
2,2-Oxybis(1-Chloropropane)	U		0.0148	0.342	1	10/22/2022 18:42	WG1946831
4-Bromophenyl-phenylether	U		0.0120	0.342	1	10/22/2022 18:42	WG1946831
Carbazole	U		0.0106	0.342	1	10/22/2022 18:42	WG1946831
2-Chloronaphthalene	U		0.00600	0.0342	1	10/22/2022 18:42	WG1946831

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0123	0.342	1	10/22/2022 18:42	WG1946831
4-Chlorophenyl-phenylether	U		0.0119	0.342	1	10/22/2022 18:42	WG1946831
Chrysene	U		0.00679	0.0342	1	10/22/2022 18:42	WG1946831
Dibenz(a,h)anthracene	U		0.00947	0.0342	1	10/22/2022 18:42	WG1946831
Dibenzofuran	U		0.0112	0.342	1	10/22/2022 18:42	WG1946831
3,3-Dichlorobenzidine	U		0.0126	0.342	1	10/22/2022 18:42	WG1946831
2,4-Dinitrotoluene	U		0.00980	0.342	1	10/22/2022 18:42	WG1946831
2,6-Dinitrotoluene	U		0.0112	0.342	1	10/22/2022 18:42	WG1946831
Fluoranthene	U		0.00617	0.0342	1	10/22/2022 18:42	WG1946831
Fluorene	U		0.00556	0.0342	1	10/22/2022 18:42	WG1946831
Hexachlorobenzene	U		0.0121	0.342	1	10/22/2022 18:42	WG1946831
Hexachloro-1,3-butadiene	U		0.0115	0.342	1	10/22/2022 18:42	WG1946831
Hexachlorocyclopentadiene	U		0.0180	0.342	1	10/22/2022 18:42	WG1946831
Hexachloroethane	U		0.0134	0.342	1	10/22/2022 18:42	WG1946831
Indeno(1,2,3-cd)pyrene	U		0.00966	0.0342	1	10/22/2022 18:42	WG1946831
Isophorone	U		0.0105	0.342	1	10/22/2022 18:42	WG1946831
2-Methylnaphthalene	U		0.00443	0.0342	1	10/22/2022 18:42	WG1946831
Naphthalene	U		0.00858	0.0342	1	10/22/2022 18:42	WG1946831
2-Nitroaniline	U		0.0110	0.342	1	10/22/2022 18:42	WG1946831
3-Nitroaniline	U		0.0109	0.342	1	10/22/2022 18:42	WG1946831
4-Nitroaniline	U		0.00996	0.342	1	10/22/2022 18:42	WG1946831
Nitrobenzene	U		0.0119	0.342	1	10/22/2022 18:42	WG1946831
n-Nitrosodimethylamine	U		0.0507	0.342	1	10/22/2022 18:42	WG1946831
n-Nitrosodiphenylamine	U		0.0259	0.342	1	10/22/2022 18:42	WG1946831
n-Nitrosodi-n-propylamine	U		0.0114	0.342	1	10/22/2022 18:42	WG1946831
Phenanthrene	U		0.00678	0.0342	1	10/22/2022 18:42	WG1946831
Benzylbutyl phthalate	U		0.0107	0.342	1	10/22/2022 18:42	WG1946831
Bis(2-ethylhexyl)phthalate	U		0.0433	0.342	1	10/22/2022 18:42	WG1946831
Di-n-butyl phthalate	U		0.0117	0.342	1	10/22/2022 18:42	WG1946831
Diethyl phthalate	U		0.0113	0.342	1	10/22/2022 18:42	WG1946831
Dimethyl phthalate	U		0.0724	0.342	1	10/22/2022 18:42	WG1946831
Di-n-octyl phthalate	U		0.0231	0.342	1	10/22/2022 18:42	WG1946831
Pyrene	U		0.00665	0.0342	1	10/22/2022 18:42	WG1946831
Pyridine	U		0.0226	0.342	1	10/22/2022 18:42	WG1946831
1,2,4-Trichlorobenzene	U		0.0107	0.342	1	10/22/2022 18:42	WG1946831
4-Chloro-3-methylphenol	U		0.0111	0.342	1	10/22/2022 18:42	WG1946831
2-Chlorophenol	U		0.0113	0.342	1	10/22/2022 18:42	WG1946831
2,4-Dichlorophenol	U		0.00995	0.342	1	10/22/2022 18:42	WG1946831
2,4-Dimethylphenol	U		0.00893	0.342	1	10/22/2022 18:42	WG1946831
4,6-Dinitro-2-methylphenol	U		0.0775	0.342	1	10/22/2022 18:42	WG1946831
2,4-Dinitrophenol	U		0.0799	0.342	1	10/22/2022 18:42	WG1946831
2-Methylphenol	U		0.0103	0.342	1	10/22/2022 18:42	WG1946831
3&4-Methyl Phenol	U		0.0107	0.342	1	10/22/2022 18:42	WG1946831
2-Nitrophenol	U		0.0122	0.342	1	10/22/2022 18:42	WG1946831
4-Nitrophenol	U		0.0107	0.342	1	10/22/2022 18:42	WG1946831
Pentachlorophenol	U		0.00919	0.342	1	10/22/2022 18:42	WG1946831
Phenol	U		0.0137	0.342	1	10/22/2022 18:42	WG1946831
2,4,5-Trichlorophenol	U		0.0116	0.342	1	10/22/2022 18:42	WG1946831
2,4,6-Trichlorophenol	U		0.0110	0.342	1	10/22/2022 18:42	WG1946831
(S) 2-Fluorophenol	*73.9*			*12.0-120*		*10/22/2022 18:42*	WG1946831
(S) Phenol-d5	*65.1*			*10.0-120*		*10/22/2022 18:42*	WG1946831
(S) Nitrobenzene-d5	*77.7*			*10.0-122*		*10/22/2022 18:42*	WG1946831
(S) 2-Fluorobiphenyl	*65.7*			*15.0-120*		*10/22/2022 18:42*	WG1946831
(S) 2,4,6-Tribromophenol	*66.1*			*10.0-127*		*10/22/2022 18:42*	WG1946831
(S) p-Terphenyl-d14	*82.3*			*10.0-120*		*10/22/2022 18:42*	WG1946831

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00236	0.00616	1	10/23/2022 17:27	WG1947267
Acenaphthene	U		0.00214	0.00616	1	10/23/2022 17:27	WG1947267
Acenaphthylene	U		0.00222	0.00616	1	10/23/2022 17:27	WG1947267
Benzo(a)anthracene	U		0.00178	0.00616	1	10/23/2022 17:27	WG1947267
Benzo(a)pyrene	U		0.00184	0.00616	1	10/23/2022 17:27	WG1947267
Benzo(b)fluoranthene	U		0.00157	0.00616	1	10/23/2022 17:27	WG1947267
Benzo(g,h,i)perylene	U		0.00182	0.00616	1	10/23/2022 17:27	WG1947267
Benzo(k)fluoranthene	U		0.00221	0.00616	1	10/23/2022 17:27	WG1947267
Chrysene	U		0.00238	0.00616	1	10/23/2022 17:27	WG1947267
Dibenz(a,h)anthracene	U		0.00176	0.00616	1	10/23/2022 17:27	WG1947267
Dibenzofuran	U		0.00219	0.00616	1	10/23/2022 17:27	WG1947267
Fluoranthene	U		0.00233	0.00616	1	10/23/2022 17:27	WG1947267
Fluorene	U		0.00210	0.00616	1	10/23/2022 17:27	WG1947267
Indeno(1,2,3-cd)pyrene	U		0.00186	0.00616	1	10/23/2022 17:27	WG1947267
Naphthalene	U		0.00419	0.0205	1	10/23/2022 17:27	WG1947267
Phenanthrene	U		0.00237	0.00616	1	10/23/2022 17:27	WG1947267
Pyrene	U		0.00205	0.00616	1	10/23/2022 17:27	WG1947267
1-Methylnaphthalene	U		0.00461	0.0205	1	10/23/2022 17:27	WG1947267
2-Methylnaphthalene	U		0.00438	0.0205	1	10/23/2022 17:27	WG1947267
2-Chloronaphthalene	U		0.00478	0.0205	1	10/23/2022 17:27	WG1947267
(S) Nitrobenzene-d5	*97.6*			*14.0-149*		*10/23/2022 17:27*	WG1947267
(S) 2-Fluorobiphenyl	*98.4*			*34.0-125*		*10/23/2022 17:27*	WG1947267
(S) p-Terphenyl-d14	*112*			*23.0-120*		*10/23/2022 17:27*	WG1947267

From: Treccani, Sandra (ECY) <SATR461@ECY.WA.GOV>
Sent: Monday, March 6, 2023 11:07 AM
To: Norton, Ted
Cc: John DeJong; Schmidt, Jeremy (ECY)
Subject: RE: Aluminum Recycling Trentwood Site - Imported Materials Approval 2

Hi Ted,
Yes, I can approve your use of backfill #3 and #5. I'll have to take more time with the topsoil samples and have a discussion with others. This may be a situation where we'll have to look at generating a natural background value. Thanks,

Sandy

From: Norton, Ted <ted.norton@wsp.com>
Sent: Friday, March 3, 2023 5:12 PM
To: Treccani, Sandra (ECY) <SATR461@ECY.WA.GOV>
Cc: John DeJong <john.dejong@up.com>
Subject: Aluminum Recycling Trentwood Site - Imported Materials Approval

Hello Sandy, The Trentwood project is moving along, and we are looking at finishing at the end of March or first part of April. I will address the schedule in further detail in the February monthly progress report to be submitted to the Washington State Department of Ecology (Ecology) next week.

The original backfill (Backfill #1) approved by Ecology, had a reported concentration of barium (113 mg/kg) that slightly exceeded the Site barium cleanup level (102 mg/kg) has been used to partially backfill Site excavations on the WSDOT property. The Backfill #1 material needs a supplement to meet the specifications for a firm surface to be achieved. The contractor is having some difficulty locating a source for an alternate backfill material (and a topsoil material) that completely meet the Site CULs (or MTCA criteria for unrestricted use for other constituents, i.e., benzo[a]pyrene toxicity equivalency factor [BAP TEF] for cPAHs).

Four alternative backfill materials and two topsoil materials have been sampled from stockpiled sources at the suppliers and submitted for chemical analysis per the *Engineering Design Report, Union Pacific Railroad, Aluminum Recycling Trentwood Site* (EDR) Appendix B, Attachment A table. Between four and five grab samples were collected from each source stockpile. A thin layer (1- to 2-inches) of material on the surface of each stockpile sample location was removed, then the underlying material (no more than six inches deep into the stockpile) was placed in laboratory provided sample containers for submittal to the analytical laboratory under standard shipping and chain of custody procedures.

Table 1 (attached) lists the various backfill and topsoil materials that have been sampled, analyzed and evaluated for use as backfill or topsoil on Site with respect to Site CULs and MTCA unrestricted use criteria. Figure 1 (attached) provides the locations of these source stockpiles of backfill and topsoil. Backfill sources are all reported to be first use and generated at the locations presented on Table 1 and Figure 1. Table 2 presents results for the Site metal COCs and samples that exceeded the MTCA TEF for cPAHs based on benzo[a]pyrene. The two samples from Backfill #4 that exceed for TEF – BAP are based on 8270E analyses, these two samples did not exceed based on 8270E SIM analysis for cPAHs (see Table 3).

All of the sources are located within the Spokane River basin area (Figure 1). Review of the backfill results presented on Table 2 show the following:

Backfill #1 - One (Fill-4) of five samples slightly exceeded (113.0 mg/kg) the CUL (102 mg/kg) for barium.

Ecology approved use of this material for backfill, but alternative backfill sources are needed.

Backfill #2 - Material was procured for another project by a different contractor while sample analysis was being conducted.

Backfill #3 - One (BF3-01) of five samples slightly exceeded (11.7 mg/kg) the CUL (10.0 mg/kg) for arsenic. The average arsenic concentration of these five samples equals 6.90 mg/Kg, which is below the arsenic CUL. These results present a situation analogous to that of Backfill #1 where a single barium concentration slightly exceeded the barium CUL. Ecology approved Backfill #1 for use on Site. Additionally, the Backfill #3 chemistry closely resembles the non-dross impacted soil being left in place on the WSDOT property.

Backfill #4 - The source material appears to be impacted by low levels of total petroleum hydrocarbons. cPAHs exceeded the MTCA Method A TEF for BAP for unrestricted use in two of the four Backfill #4 samples.

Backfill #5 – Three (BF5-01, BF5-02 and BF5-04) of five samples slight exceeded (103 to 110 mg/kg) the CUL (102 mg/kg) for barium. The average barium concentration of these five samples equals 98.98 mg/kg, which is below the barium CUL. These results present a situation analogous to that of Backfill #1 where the average barium concentration of the material is below the CUL. Additionally, the Backfill #5 chemistry resembles the non-dross impacted, dark brown, shallow soil being encountered on the Pentzer property and target excavation 5 on WSDOT but at lower barium concentrations.

Review of the topsoil results presented on Table 2 show the following:

Topsoil (1) – All five samples (TS1-01 through TS1-05) exceeded (117 to 145 mg/kg) the CUL (102 mg/Kg) for barium and exceeded (33.2 mg/Kg) the arsenic CUL (10.0 mg/kg) in sample TS1-02. With the exception of arsenic in sample TS1-04, the Topsoil (1) chemistry resembles that of non-dross impacted dark brown shallow soil being encountered on the Pentzer property at similar concentrations of barium.

Topsoil (2) - All five samples (TS2-01 through TS2-05) exceeded (103 to 168 mg/kg) the CUL (102 mg/Kg) for barium. The average for barium for the Topsoil (2) samples is 125.8 mg/kg. The chemistry of Topsoil (2) resembles the non-dross impacted dark brown shallow

soil being encountered on the Pentzer property at similar concentrations of barium. The excavation plan to date for the Pentzer property based on current sample data (16 data points) has left in place barium concentrations ranging from 25.3 to 176 mg/Kg and the 95% UCL (98.94 mg/Kg) is below the CUL. The average barium concentration for Topsoil (2) is below concentrations of barium currently being left in place.

Based on the discussion and data presented in this email UPRR would like to request approval to be able to use Backfill #3 and Backfill #5 to complete excavation backfilling. UPRR would also request approval to use of Topsoil #2 and Topsoil #1, if needed, as barium results appear to be consistent with the topsoil above the Site CUL within the Spokane River valley. The amount of material we need for this project is high and multiple sources are needed.

If you have any questions regarding this request, please contact John DeJong or me at your earliest convenience and we can have a brief discussion or setup a teams conference call.

Thank you,

Ted Norton
Sr. Lead Consultant, Environmental Scientist

T: +1 425 833 0777
C: +1 206 755 4970

WSP GOLDER

-LAEmHhHzdJzBITWfa4Hgs7pbKI

From: Treccani, Sandra (ECY) <SATR461@ECY.WA.GOV>
Sent: Monday, March 20, 2023 11:22 AM
To: Norton, Ted
Cc: John DeJong; Schmidt, Jeremy (ECY); Buchan, Arthur (ECY)
Subject: RE: Aluminum Recycling Trentwood Site - Imported Materials Approval

Ted and John,

I've found some data that will work. They aren't data we would normally use, because the data set is statewide and not very geographically specific to Spokane. This is why we wouldn't use this to establish a site background for CUL development. But our ecological toxicologist feels that since the samples do not represent soils impacted with site contaminants and our natural background document doesn't include barium, this data set may be appropriate to use.

This data was generated by the USGS (link to full report and data sets here) and is organized by soil horizon. Since we are looking at topsoil, the Zone A data set is appropriate. I have filtered that data set by locations that are in areas of Eastern Washington, removing NE Washington because of the highly mineralized nature of the area.

You can clearly see with this data that a background number would be well above our site CUL. If we use a 95 UCL on the mean with these 21 data points, it should be appropriate to screen for topsoil.

Sandy

From: Norton, Ted <ted.norton@wsp.com>
Sent: Thursday, March 16, 2023 4:07 PM
To: Treccani, Sandra (ECY) <SATR461@ECY.WA.GOV>
Cc: John DeJong <john.dejong@up.com>; Schmidt, Jeremy (ECY) <JESC461@ECY.WA.GOV>
Subject: RE: Aluminum Recycling Trentwood Site - Imported Materials Approval

Hello Sandy, I have consulted with our eco-toxicologist and he conducted a preliminary literature search. Subsequent to his search, he has indicated that to go further would not likely lead us to a better value for the bio-accumulation factor. Have you been able to identify a source that could be used to establish a local background barium number?

Thank you,

Ted Norton
Sr. Lead Consultant, Environmental Scientist

T: +1 425 833 0777
C: +1 206 755 4970

WSP GOLDER

From: Treccani, Sandra (ECY) <SATR461@ECY.WA.GOV>
Sent: Wednesday, March 8, 2023 3:57 PM
To: Norton, Ted <ted.norton@wsp.com>
Cc: John DeJong <john.dejong@up.com>; Schmidt, Jeremy (ECY) <JESC461@ECY.WA.GOV>
Subject: RE: Aluminum Recycling Trentwood Site - Imported Materials Approval

Hi Ted and John,
I've had a few conversations, and there are two options that may work for the topsoil situation. The first was deemed to be perhaps the easiest and/or most straightforward, and the second is work that I would do.

1. Do a literature search for alternative bioaccumulation factors for mammalian herbivores. This "Kplant" value is set default to 1.01, which yields the value of 102 ppm for barium to protect wildlife receptors. Since the site underwent a site-specific TEE, you're allowed to use a different bioaccumulation factor in literature that would result in a lower CUL for barium.
2. I can do research for additional soil background values for the area. Barium was not included in Ecology's Natural Soil Background publication, but there may be other sources for that information. I can begin working on this while you do a literature search.

If you need any additional information on the above approaches, please let me know. I'm leaning on Ecology staff that are more familiar with the rules around ecological criteria and protection and can reach out to them. Thanks,

Sandy

From: Treccani, Sandra (ECY)

Sent: Monday, March 6, 2023 11:07 AM
To: Norton, Ted <ted.norton@wsp.com>
Cc: John DeJong <john.dejong@up.com>; Schmidt, Jeremy (ECY) <JESC461@ECY.WA.GOV>
Subject: RE: Aluminum Recycling Trentwood Site - Imported Materials Approval

Hi Ted,
Yes, I can approve your use of backfill #3 and #5. I'll have to take more time with the topsoil samples and have a discussion with others. This may be a situation where we'll have to look at generating a natural background value. Thanks,

Sandy

From: Norton, Ted <ted.norton@wsp.com>
Sent: Friday, March 3, 2023 5:12 PM
To: Treccani, Sandra (ECY) <SATR461@ECY.WA.GOV>
Cc: John DeJong <john.dejong@up.com>
Subject: Aluminum Recycling Trentwood Site - Imported Materials Approval

Hello Sandy, The Trentwood project is moving along, and we are looking at finishing at the end of March or first part of April. I will address the schedule in further detail in the February monthly progress report to be submitted to the Washington State Department of Ecology (Ecology) next week.

The original backfill (Backfill #1) approved by Ecology, had a reported concentration of barium (113 mg/kg) that slightly exceeded the Site barium cleanup level (102 mg/kg) has been used to partially backfill Site excavations on the WSDOT property. The Backfill #1 material needs a supplement to meet the specifications for a firm surface to be achieved. The contractor is having some difficulty locating a source for an alternate backfill material (and a topsoil material) that completely meet the Site CULs (or MTCA criteria for unrestricted use for other constituents, i.e., benzo[a]pyrene toxicity equivalency factor [BAP TEF] for cPAHs).

Four alternative backfill materials and two topsoil materials have been sampled from stockpiled sources at the suppliers and submitted for chemical analysis per the *Engineering Design Report, Union Pacific Railroad, Aluminum Recycling Trentwood Site* (EDR) Appendix B, Attachment A table. Between four and five grab samples were collected from each source stockpile. A thin layer (1- to 2-inches) of material on the surface of each stockpile sample location was removed, then the underlying material (no more than six inches deep into the stockpile) was placed in laboratory provided sample containers for submittal to the analytical laboratory under standard shipping and chain of custody procedures.

Table 1 (attached) lists the various backfill and topsoil materials that have been sampled, analyzed and evaluated for use as backfill or topsoil on Site with respect to Site CULs and MTCA unrestricted use criteria. Figure 1 (attached) provides the locations of these source stockpiles of backfill and topsoil. Backfill sources are all reported to be first use and generated at the locations presented on Table 1 and Figure 1. Table 2 presents results for the Site metal COCs and samples that exceeded the MTCA TEF for cPAHs based on benzo[a]pyrene. The two samples from Backfill #4 that exceed for TEF – BAP are based on 8270E analyses, these two samples did not exceed based on 8270E SIM analysis for cPAHs (see Table 3).

All of the sources are located within the Spokane River basin area (Figure 1). Review of the backfill results presented on Table 2 show the following:

Backfill #1 - One (Fill-4) of five samples slightly exceeded (113.0 mg/kg) the CUL (102 mg/kg) for barium.

Ecology approved use of this material for backfill, but alternative backfill sources are needed.

Backfill #2 - Material was procured for another project by a different contractor while sample analysis was being conducted.

Backfill #3 - One (BF3-01) of five samples slightly exceeded (11.7 mg/kg) the CUL (10.0 mg/kg) for arsenic. The average arsenic concentration of these five samples equals 6.90 mg/Kg, which is below the arsenic CUL. These results present a situation analogous to that of Backfill #1 where a single barium concentration slightly exceeded the barium CUL. Ecology approved Backfill #1 for use on Site. Additionally, the Backfill #3 chemistry closely resembles the non-dross impacted soil being left in place on the WSDOT property.

Backfill #4 - The source material appears to be impacted by low levels of total petroleum hydrocarbons. cPAHs exceeded the MTCA Method A TEF for BAP for unrestricted use in two of the four Backfill #4 samples.

Backfill #5 – Three (BF5-01, BF5-02 and BF5-04) of five samples slight exceeded (103 to 110 mg/kg) the CUL (102 mg/kg) for barium. The average barium concentration of these five samples equals 98.98 mg/kg, which is below the barium CUL. These results present a situation analogous to that of Backfill #1 where the average barium concentration of the material is below the CUL. Additionally, the Backfill #5 chemistry resembles the non-dross impacted, dark brown, shallow soil being encountered on the Pentzer property and target excavation 5 on WSDOT but at lower barium concentrations.

Review of the topsoil results presented on Table 2 show the following:

Topsoil (1) – All five samples (TS1-01 through TS1-05) exceeded (117 to 145 mg/kg) the CUL (102 mg/Kg) for barium and exceeded (33.2 mg/Kg) the arsenic CUL (10.0 mg/kg) in sample TS1-02. With the exception of arsenic in sample TS1-04, the Topsoil (1) chemistry resembles that of non-dross impacted dark brown shallow soil being encountered on the Pentzer property at similar concentrations of barium.

Topsoil (2) - All five samples (TS2-01 through TS2-05) exceeded (103 to 168 mg/kg) the CUL (102 mg/Kg) for barium. The average for barium for the Topsoil (2) samples is 125.8 mg/kg. The chemistry of Topsoil (2) resembles the non-dross impacted dark brown shallow soil being encountered on the Pentzer property at similar concentrations of barium. The excavation plan to date for the Pentzer

property based on current sample data (16 data points) has left in place barium concentrations ranging from 25.3 to 176 mg/Kg and the 95% UCL (98.94 mg/Kg) is below the CUL. The average barium concentration for Topsoil (2) is below concentrations of barium currently being left in place.

Based on the discussion and data presented in this email UPRR would like to request approval to be able to use Backfill #3 and Backfill #5 to complete excavation backfilling. UPRR would also request approval to use of Topsoil #2 and Topsoil #1, if needed, as barium results appear to be consistent with the topsoil above the Site CUL within the Spokane River valley. The amount of material we need for this project is high and multiple sources are needed.

If you have any questions regarding this request, please contact John DeJong or me at your earliest convenience and we can have a brief discussion or setup a teams conference call.

Thank you,

Ted Norton
Sr. Lead Consultant, Environmental Scientist

T: +1 425 833 0777
C: +1 206 755 4970

GOLDER

-LAEmHhHzdJzBITWfa4Hgs7pbKI

From: Treccani, Sandra (ECY) <SATR461@ECY.WA.GOV>
Sent: Tuesday, March 28, 2023 10:43 AM
To: Norton, Ted
Cc: John DeJong; Schmidt, Jeremy (ECY)
Subject: RE: Trentwood Barium Background Concentrtion

Thanks, Ted. Ecology approves the calculated barium screening level of 810 mg/kg for the evaluation of topsoil for import and use at the site. The barium site CUL remains at 102 mg/kg and is still the number that will be used to evaluate the effectiveness of site cleanup, where soils are potentially impacted by site related waste materials. In my site visit last week, it appears as though most of those materials have already been addressed, either by off site disposal or consolidation on the UP property. Please let me know if there are further questions,

Sandra Treccani | Site Manager
Toxics Cleanup Program | WA Department of Ecology
(509) 724-1205
sandra.treccani@ecy.wa.gov

From: Norton, Ted <ted.norton@wsp.com>
Sent: Monday, March 27, 2023 3:14 PM
To: Treccani, Sandra (ECY) <SATR461@ECY.WA.GOV>
Cc: John DeJong <john.dejong@up.com>; Schmidt, Jeremy (ECY) <JESC461@ECY.WA.GOV>
Subject: RE: Trentwood Barium Background Concentrtion

Hello Sandy, attached is a revised letter that responds to your March 24 email comments (below). We have used ProUCL to calculate the UTL for barium based on the USGS reference barium data and the UCL for the proposed topsoil source (Topsoil (2)) barium sample results.

Again, thank you for your help.

Ted Norton
Sr. Lead Consultant, Environmental Scientist

T: +1 425 833 0777
C: +1 206 755 4970

WSP GOLDER

From: Treccani, Sandra (ECY) <SATR461@ECY.WA.GOV>
Sent: Friday, March 24, 2023 3:22 PM
To: Norton, Ted <ted.norton@wsp.com>
Cc: John DeJong <john.dejong@up.com>; Schmidt, Jeremy (ECY) <JESC461@ECY.WA.GOV>
Subject: RE: Trentwood Barium Background Concentrtion

Hi Ted,
The calculation of the barium number (using the 20 sample data set that you used) needs to be:

- a 90/90 UTL using ProUCL; or
- a 90^{th} or 4 x 50^{th} (whichever is lower) using MTCAStat.

Your topsoil samples would then be compared to the 95 UCL on the mean to determine if they are ok.

We're close, I promise! But yes, given the values on this new data set, I agree that we likely will meet them with the topsoil that you've already screened.

Sandy

From: Norton, Ted <ted.norton@wsp.com>
Sent: Friday, March 24, 2023 10:31 AM
To: Treccani, Sandra (ECY) <SATR461@ECY.WA.GOV>
Cc: John DeJong <john.dejong@up.com>
Subject: RE: Trentwood Barium Background Concentrtion

Hello Sandy, I am just trying to close the loop on the barium issue, so I am checking in to see if you have had an opportunity to review the barium background concentration letter. I understand from your site visit with John on Wednesday that your sense it should be

March 27, 2023 Project No. GLUPRR_2.022

Sandra Treccani
Washington State Department of Ecology
4601 Monroe Street
Spokane, WA 99205-1295

REVISED DETERMINATION OF LOCAL BACKGROUND CONCENTRATION FOR BARIUM ALUMINUM RECYCLING TRENTWOOD SITE

Dear Ms. Treccani,

Union Pacific Railroad (UPRR) and WSP USA Inc. (WSP; formerly Golder Associates USA Inc.) would like to thank the Washington State Department of Ecology (Ecology) for their cooperation and guidance in addressing the issue of background concentrations of barium encountered in topsoil at the Aluminum Recycling Trentwood Site in Spokane Valley, Washington, and local topsoil available for import. We reviewed the U.S. Geological Survey reference provided by Ecology "*Geochemical and Mineralogical Data Soils of the Conterminous United States Data Series 801*", (USGS 2013). We calculated the Upper Tolerance Limit (UTL) for 90% coverage with a 90% confidence coefficient for barium with version 5.1.002 ProUCL statistical software (ProUCL) based on a 21-point data set filtered for Central- and South-Eastern Washington as provided by Ecology.

ProUCL indicated the 21-point data set was non-parametric. The data set contains an outlier, 1,280.0 mg/kg barium, since the inclusion of outliers in the computation statistics tends to yield inflated values (EPA 2015), we removed that data point. Removal of the outlier resulted in a normally distributed data set. ProUCL calculated a UTL of 810.3 mg/kg for 90% coverage with a 90% confidence coefficient utilizing the 20-point barium data set.

UPRR provided Ecology with a summary of the analytical sample results for the Topsoil (2) source in a March 7, 2023 email titled "*Aluminum Recycling Trentwood Site – Imported Materials Approval*". UPRR sampled the topsoil source and had the samples analyzed in accordance with the Engineer Design Report, Union Pacific Railroad Aluminum Recycling Trentwood Site (EDR) (Golder 2022, Appendix B, Attachment A, Table 1). The Topsoil (2) data set included five samples collected from a stockpile source located on a construction site on the west side of the Spokane River less than a mile from the Site.

Sample results for five samples (TS2-01 through TS2-05) collected from the Topsoil (2) source meet the MTCA Method A or Method B criteria for unrestricted use for the analytes tested with the exception of barium. Barium concentrations range between (103 and 168 mg/kg) with an average of 125.8 mg/kg. The analytical data package is provided in Attachment 2. The 95% Student's-t UCL of the mean was calculated for the five-point data set associated with the Topsoil (2) source. The UCL calculated for barium in Topsoil (2) UCL was reported as

150.7 mg/kg, well below the background UTL value of 810.3 mg/kg. The ProUCL result summaries for UTL barium background value and UCL for the local Topsoil (2) source are provided in Attachment 1.

Based on the ProUCL results outlined above, UPRR requests Ecology recognize the calculated UTL (810.3 mg/kg) based on 90% coverage and a 90% confidence coefficient as representative of a topsoil background concentration for barium for the Site and consider the UTL value when evaluating the completeness of cleanup actions. In addition, UPRR request Ecology approves Topsoil (2) for import and use on Site.

Should you have any questions, please do not hesitate to contact the UPRR Project Coordinator John DeJong (john.dejong@up.com, (509) 866-8329) or Ted Norton (ted.norton@wsp.com, office (425) 883-0777, or cell (206) 755-4970).

Sincerely,

WSP USA Inc.

Ted Norton
Sr. Lead Consultant, Environmental Scientist

TN/ks

CC: John DeJong, UPRR
Tod Gold, Hillis Clark Martin & Peterson P.S.

Attachments: Attachment 1 - ProUCL Result Summaries
Attachment 2 - Analytical Data Package

ND: 20867.009 4886-7691-7840v1

ATTACHMENT 1

ProUCL Result Summaries

Normal Background Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.13/27/2023 11:52:14 AM
From File	BA background 20.xls
Full Precision	OFF
Confidence Coefficient	90%
Coverage	90%
New or Future K Observations	1

Ba mg/kg

General Statistics

Total Number of Observations	20	Number of Distinct Observations	20
Minimum	489	First Quartile	636.3
Second Largest	802	Median	675.5
Maximum	878	Third Quartile	697.3
Mean	671.3	SD	78.81
Coefficient of Variation	0.117	Skewness	0.477
Mean of logged Data	6.503	SD of logged Data	0.118

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.765	d2max (for USL)	2.385

Normal GOF Test

Shapiro Wilk Test Statistic	0.921	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.905	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.18	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.192	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

90% UTL with 90% Coverage	810.3	90% Percentile (z)	772.2
90% UPL (t)	778.5	95% Percentile (z)	800.9
90% USL	859.2	99% Percentile (z)	854.6

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

USGS - Ba mg/kg
697
696
698
653
637
489
679
678
650
586
634
627
802
596
645
878
677
706
674
723

Normal UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.13/27/2023 11:49:54 AM
From File	Topsoil 2 data.xls
Full Precision	OFF
Confidence Coefficient	95%

Topsoil (2) Ba (mg/kg)

General Statistics

				Topsoil (2) Ba (mg/kg)
Total Number of Observations	5	Number of Distinct Observations	5	132
		Number of Missing Observations	0	119
Minimum	103	Mean	125.8	168
Maximum	168	Median	119	107
SD	26.17	SD of logged Data	0.196	103
Coefficient of Variation	0.208	Skewness	1.316	

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest. For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012). Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.885	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.762	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.206	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.343	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	150.7	95% Adjusted-CLT UCL (Chen-1995)	152.4
		95% Modified-t UCL (Johnson-1978)	151.9

Suggested UCL to Use

95% Student's-t UCL	150.7		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ATTACHMENT 2

Analytical Data Package

ANALYTICAL REPORT

March 02, 2023

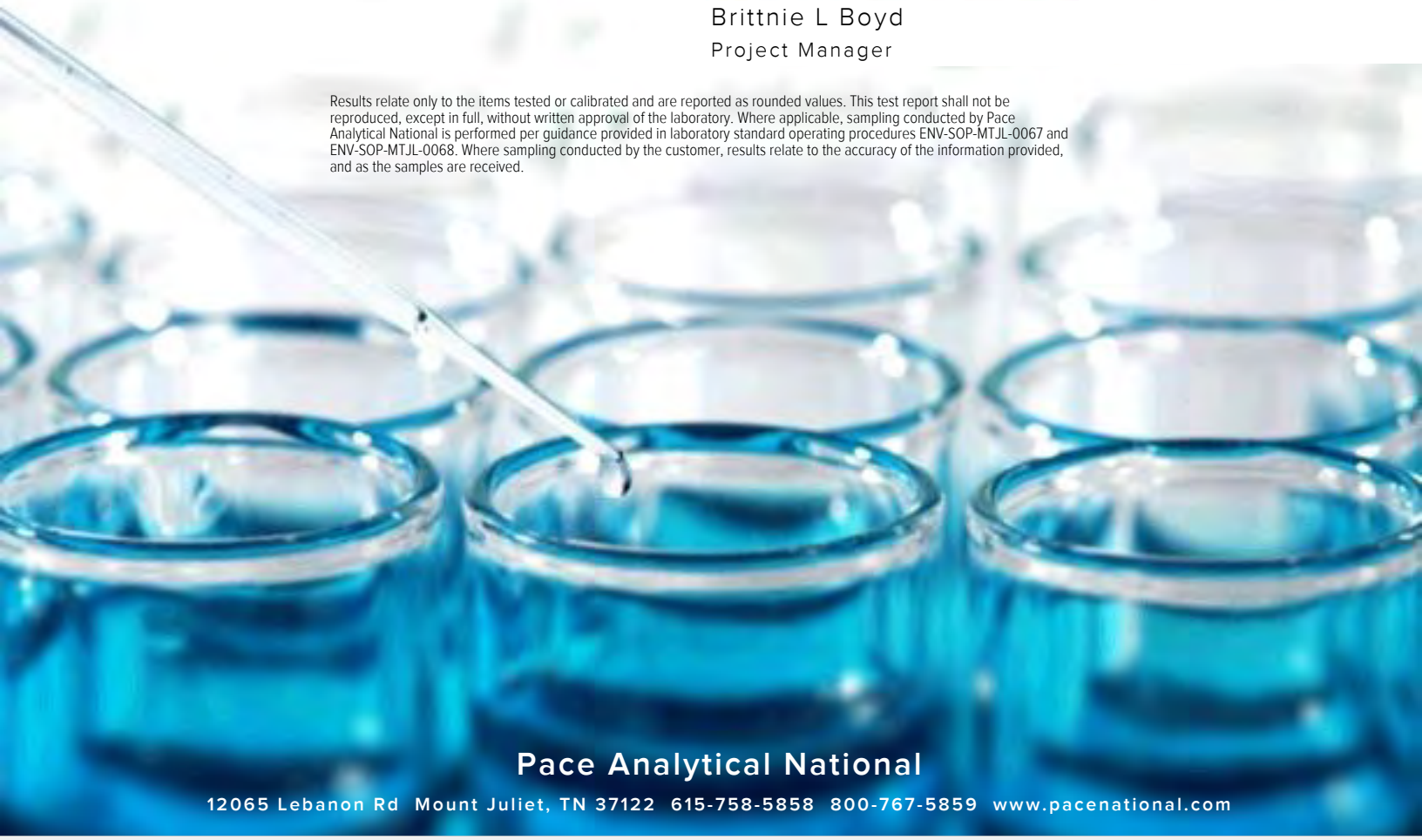
UPRR - Golder Associates

Sample Delivery Group:	L1589831
Samples Received:	02/28/2023
Project Number:	2494
Description:	Trentwood WA-Aluminum Dross II
Site:	IMPORTED BACKFILL SOIL AND GRA
Report To:	Ted Norton 18300 NE Union Hill Rd #200 Redmond, WA 98052

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

BF5-2494-01-022723 L1589831-01 Solid

Collected by: James Roman | Collected date/time: 02/27/23 11:00 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014160	1	02/28/23 12:44	02/28/23 12:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:34	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:27	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	25.3	02/27/23 11:00	02/28/23 21:45	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 20:11	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 00:46	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	02/28/23 22:59	AMG	Mt. Juliet, TN

BF5-2494-02-022723 L1589831-02 Solid

Collected by: James Roman | Collected date/time: 02/27/23 11:10 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014160	1	02/28/23 12:44	02/28/23 12:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:41	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:30	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	27.5	02/27/23 11:10	02/28/23 22:10	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 20:24	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 01:07	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	02/28/23 23:17	AMG	Mt. Juliet, TN

BF5-2494-03-022723 L1589831-03 Solid

Collected by: James Roman | Collected date/time: 02/27/23 11:20 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014160	1	02/28/23 12:44	02/28/23 12:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:44	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:33	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	25.3	02/27/23 11:20	02/28/23 22:35	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 20:37	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 01:27	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	02/28/23 23:35	AMG	Mt. Juliet, TN

BF5-2494-04-022723 L1589831-04 Solid

Collected by: James Roman | Collected date/time: 02/27/23 11:30 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014160	1	02/28/23 12:44	02/28/23 12:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:46	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:40	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	35.5	02/27/23 11:30	02/28/23 22:59	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 21:16	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 01:48	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	02/28/23 23:52	AMG	Mt. Juliet, TN

BF5-2494-05-022723 L1589831-05 Solid

Collected by: James Roman | Collected date/time: 02/27/23 11:40 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014160	1	02/28/23 12:44	02/28/23 12:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:49	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:43	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	25	02/27/23 11:40	02/28/23 23:24	KSD	Mt. Juliet, TN

BF5-2494-05-022723 L1589831-05 Solid

Collected by: James Roman | Collected date/time: 02/27/23 11:40 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 21:29	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 02:08	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	03/01/23 00:10	AMG	Mt. Juliet, TN

TS2-2494-01-022723 L1589831-06 Solid

Collected by: James Roman | Collected date/time: 02/27/23 12:15 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014160	1	02/28/23 12:44	02/28/23 12:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:51	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:46	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	25.5	02/27/23 12:15	02/28/23 23:49	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 21:43	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 02:49	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	03/01/23 00:28	AMG	Mt. Juliet, TN

TS2-2494-02-022723 L1589831-07 Solid

Collected by: James Roman | Collected date/time: 02/27/23 12:20 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014160	1	02/28/23 12:44	02/28/23 12:50	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:54	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:48	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	25	02/27/23 12:20	03/01/23 00:14	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 21:55	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 03:09	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	03/01/23 00:46	AMG	Mt. Juliet, TN

TS2-2494-03-022723 L1589831-08 Solid

Collected by: James Roman | Collected date/time: 02/27/23 12:30 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014161	1	02/28/23 12:51	02/28/23 12:56	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:56	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:51	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	29.3	02/27/23 12:30	03/01/23 00:38	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 22:08	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 03:30	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	03/01/23 01:03	AMG	Mt. Juliet, TN

TS2-2494-04-022723 L1589831-09 Solid

Collected by: James Roman | Collected date/time: 02/27/23 12:45 | Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014161	1	02/28/23 12:51	02/28/23 12:56	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 17:59	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:54	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014774	25	02/27/23 12:45	03/01/23 14:57	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 22:21	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 05:12	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	03/01/23 01:21	AMG	Mt. Juliet, TN

SAMPLE SUMMARY

TS2-2494-05-022723 L1589831-10 Solid

Collected by: James Roman
Collected date/time: 02/27/23 12:55
Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2014161	1	02/28/23 12:51	02/28/23 12:56	CMK	Mt. Juliet, TN
Mercury by Method 7471B	WG2014197	1	02/28/23 13:08	02/28/23 18:01	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2014195	1	02/28/23 13:01	02/28/23 15:14	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014258	25.8	02/27/23 12:55	03/01/23 01:03	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2014151	1	02/28/23 15:53	02/28/23 22:34	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2014199	1	02/28/23 19:34	03/01/23 03:50	AED	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2014146	1	02/28/23 18:25	03/01/23 01:40	AMG	Mt. Juliet, TN

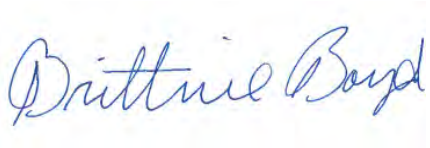
TB-2494-3-022723 L1589831-11 GW

Collected by: James Roman
Collected date/time: 02/27/23 12:00
Received date/time: 02/28/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2014576	1	03/01/23 00:51	03/01/23 00:51	ACG	Mt. Juliet, TN

CASE NARRATIVE

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



Brittnie L Boyd
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.2		1	02/28/2023 12:50	WG2014160

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0197	0.0439	1	02/28/2023 17:34	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	12000		6.67	11.0	1	02/28/2023 15:27	WG2014195
Arsenic	3.27		0.568	2.19	1	02/28/2023 15:27	WG2014195
Barium	109		0.0935	0.548	1	02/28/2023 15:27	WG2014195
Cadmium	0.0986	J	0.0517	0.548	1	02/28/2023 15:27	WG2014195
Chromium	11.9		0.146	1.10	1	02/28/2023 15:27	WG2014195
Copper	15.0		0.439	2.19	1	02/28/2023 15:27	WG2014195
Lead	16.2		0.228	0.548	1	02/28/2023 15:27	WG2014195
Selenium	U		0.838	2.19	1	02/28/2023 15:27	WG2014195
Silver	U		0.139	1.10	1	02/28/2023 15:27	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.02	3.02	25.3	02/28/2023 21:45	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*91.0*			*77.0-120*		*02/28/2023 21:45*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.46	4.39	1	02/28/2023 20:11	WG2014151
Residual Range Organics (RRO)	U		3.65	11.0	1	02/28/2023 20:11	WG2014151
(S) o-Terphenyl	*60.6*			*18.0-148*		*02/28/2023 20:11*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00591	0.0365	1	03/01/2023 00:46	WG2014199
Acenaphthylene	U		0.00514	0.0365	1	03/01/2023 00:46	WG2014199
Anthracene	U		0.00651	0.0365	1	03/01/2023 00:46	WG2014199
Benzo(a)anthracene	U		0.00644	0.0365	1	03/01/2023 00:46	WG2014199
Benzo(b)fluoranthene	U		0.00681	0.0365	1	03/01/2023 00:46	WG2014199
Benzo(k)fluoranthene	U		0.00649	0.0365	1	03/01/2023 00:46	WG2014199
Benzo(g,h,i)perylene	U		0.00668	0.0365	1	03/01/2023 00:46	WG2014199
Benzo(a)pyrene	U		0.00679	0.0365	1	03/01/2023 00:46	WG2014199
Benzoic acid	U		0.129	1.83	1	03/01/2023 00:46	WG2014199
Benzyl alcohol	U		0.0135	0.365	1	03/01/2023 00:46	WG2014199
Bis(2-chlorethoxy)methane	U		0.0110	0.365	1	03/01/2023 00:46	WG2014199
Bis(2-chloroethyl)ether	U		0.0121	0.365	1	03/01/2023 00:46	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0158	0.365	1	03/01/2023 00:46	WG2014199
4-Bromophenyl-phenylether	U		0.0128	0.365	1	03/01/2023 00:46	WG2014199
Carbazole	U		0.0113	0.365	1	03/01/2023 00:46	WG2014199
2-Chloronaphthalene	U		0.00642	0.0365	1	03/01/2023 00:46	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0132	0.365	1	03/01/2023 00:46	WG2014199
4-Chlorophenyl-phenylether	U		0.0127	0.365	1	03/01/2023 00:46	WG2014199
Chrysene	U		0.00726	0.0365	1	03/01/2023 00:46	WG2014199
Dibenz(a,h)anthracene	U		0.0101	0.0365	1	03/01/2023 00:46	WG2014199
Dibenzofuran	U		0.0120	0.365	1	03/01/2023 00:46	WG2014199
3,3-Dichlorobenzidine	U		0.0135	0.365	1	03/01/2023 00:46	WG2014199
2,4-Dinitrotoluene	U		0.0105	0.365	1	03/01/2023 00:46	WG2014199
2,6-Dinitrotoluene	U		0.0120	0.365	1	03/01/2023 00:46	WG2014199
Fluoranthene	U		0.00659	0.0365	1	03/01/2023 00:46	WG2014199
Fluorene	U		0.00595	0.0365	1	03/01/2023 00:46	WG2014199
Hexachlorobenzene	U		0.0129	0.365	1	03/01/2023 00:46	WG2014199
Hexachloro-1,3-butadiene	U		0.0123	0.365	1	03/01/2023 00:46	WG2014199
Hexachlorocyclopentadiene	U		0.0192	0.365	1	03/01/2023 00:46	WG2014199
Hexachloroethane	U		0.0144	0.365	1	03/01/2023 00:46	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0103	0.0365	1	03/01/2023 00:46	WG2014199
Isophorone	U		0.0112	0.365	1	03/01/2023 00:46	WG2014199
2-Methylnaphthalene	U		0.00474	0.0365	1	03/01/2023 00:46	WG2014199
Naphthalene	U		0.00917	0.0365	1	03/01/2023 00:46	WG2014199
2-Nitroaniline	U		0.0117	0.365	1	03/01/2023 00:46	WG2014199
3-Nitroaniline	U		0.0116	0.365	1	03/01/2023 00:46	WG2014199
4-Nitroaniline	U		0.0107	0.365	1	03/01/2023 00:46	WG2014199
Nitrobenzene	U		0.0127	0.365	1	03/01/2023 00:46	WG2014199
n-Nitrosodimethylamine	U		0.0542	0.365	1	03/01/2023 00:46	WG2014199
n-Nitrosodiphenylamine	U		0.0276	0.365	1	03/01/2023 00:46	WG2014199
n-Nitrosodi-n-propylamine	U		0.0122	0.365	1	03/01/2023 00:46	WG2014199
Phenanthrene	U		0.00725	0.0365	1	03/01/2023 00:46	WG2014199
Benzylbutyl phthalate	U		0.0114	0.365	1	03/01/2023 00:46	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0463	0.365	1	03/01/2023 00:46	WG2014199
Di-n-butyl phthalate	U		0.0125	0.365	1	03/01/2023 00:46	WG2014199
Diethyl phthalate	U		0.0121	0.365	1	03/01/2023 00:46	WG2014199
Dimethyl phthalate	U		0.0774	0.365	1	03/01/2023 00:46	WG2014199
Di-n-octyl phthalate	U		0.0247	0.365	1	03/01/2023 00:46	WG2014199
Pyrene	U		0.00711	0.0365	1	03/01/2023 00:46	WG2014199
Pyridine	U		0.0241	0.365	1	03/01/2023 00:46	WG2014199
1,2,4-Trichlorobenzene	U		0.0114	0.365	1	03/01/2023 00:46	WG2014199
4-Chloro-3-methylphenol	U		0.0118	0.365	1	03/01/2023 00:46	WG2014199
2-Chlorophenol	U		0.0121	0.365	1	03/01/2023 00:46	WG2014199
2,4-Dichlorophenol	U		0.0106	0.365	1	03/01/2023 00:46	WG2014199
2,4-Dimethylphenol	U		0.00954	0.365	1	03/01/2023 00:46	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0828	0.365	1	03/01/2023 00:46	WG2014199
2,4-Dinitrophenol	U		0.0855	0.365	1	03/01/2023 00:46	WG2014199
2-Methylphenol	U		0.0110	0.365	1	03/01/2023 00:46	WG2014199
3&4-Methyl Phenol	U		0.0114	0.365	1	03/01/2023 00:46	WG2014199
2-Nitrophenol	U		0.0131	0.365	1	03/01/2023 00:46	WG2014199
4-Nitrophenol	U		0.0114	0.365	1	03/01/2023 00:46	WG2014199
Pentachlorophenol	U		0.00983	0.365	1	03/01/2023 00:46	WG2014199
Phenol	U		0.0147	0.365	1	03/01/2023 00:46	WG2014199
2,4,5-Trichlorophenol	U		0.0124	0.365	1	03/01/2023 00:46	WG2014199
2,4,6-Trichlorophenol	U		0.0117	0.365	1	03/01/2023 00:46	WG2014199
(S) 2-Fluorophenol	*58.4*			*12.0-120*		*03/01/2023 00:46*	WG2014199
(S) Phenol-d5	*52.4*			*10.0-120*		*03/01/2023 00:46*	WG2014199
(S) Nitrobenzene-d5	*53.2*			*10.0-122*		*03/01/2023 00:46*	WG2014199
(S) 2-Fluorobiphenyl	*61.5*			*15.0-120*		*03/01/2023 00:46*	WG2014199
(S) 2,4,6-Tribromophenol	*78.6*			*10.0-127*		*03/01/2023 00:46*	WG2014199
(S) p-Terphenyl-d14	*66.4*			*10.0-120*		*03/01/2023 00:46*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00252	0.00658	1	02/28/2023 22:59	WG2014146
Acenaphthene	U		0.00229	0.00658	1	02/28/2023 22:59	WG2014146
Acenaphthylene	U		0.00237	0.00658	1	02/28/2023 22:59	WG2014146
Benzo(a)anthracene	U		0.00190	0.00658	1	02/28/2023 22:59	WG2014146
Benzo(a)pyrene	U		0.00196	0.00658	1	02/28/2023 22:59	WG2014146
Benzo(b)fluoranthene	U		0.00168	0.00658	1	02/28/2023 22:59	WG2014146
Benzo(g,h,i)perylene	U		0.00194	0.00658	1	02/28/2023 22:59	WG2014146
Benzo(k)fluoranthene	U		0.00236	0.00658	1	02/28/2023 22:59	WG2014146
Chrysene	U		0.00255	0.00658	1	02/28/2023 22:59	WG2014146
Dibenz(a,h)anthracene	U		0.00189	0.00658	1	02/28/2023 22:59	WG2014146
Fluoranthene	U		0.00249	0.00658	1	02/28/2023 22:59	WG2014146
Fluorene	U		0.00225	0.00658	1	02/28/2023 22:59	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00199	0.00658	1	02/28/2023 22:59	WG2014146
Naphthalene	U		0.00448	0.0219	1	02/28/2023 22:59	WG2014146
Phenanthrene	U		0.00253	0.00658	1	02/28/2023 22:59	WG2014146
Pyrene	U		0.00219	0.00658	1	02/28/2023 22:59	WG2014146
1-Methylnaphthalene	U		0.00493	0.0219	1	02/28/2023 22:59	WG2014146
2-Methylnaphthalene	U		0.00468	0.0219	1	02/28/2023 22:59	WG2014146
2-Chloronaphthalene	U		0.00511	0.0219	1	02/28/2023 22:59	WG2014146
(S) p-Terphenyl-d14	*76.5*			*23.0-120*		*02/28/2023 22:59*	WG2014146
(S) Nitrobenzene-d5	*81.9*			*14.0-149*		*02/28/2023 22:59*	WG2014146
(S) 2-Fluorobiphenyl	*69.9*			*34.0-125*		*02/28/2023 22:59*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	89.2		1	02/28/2023 12:50	WG2014160

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0202	0.0448	1	02/28/2023 17:41	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	13700		6.82	11.2	1	02/28/2023 15:30	WG2014195
Arsenic	2.91		0.581	2.24	1	02/28/2023 15:30	WG2014195
Barium	110		0.0955	0.561	1	02/28/2023 15:30	WG2014195
Cadmium	0.124	J	0.0528	0.561	1	02/28/2023 15:30	WG2014195
Chromium	11.7		0.149	1.12	1	02/28/2023 15:30	WG2014195
Copper	15.7		0.448	2.24	1	02/28/2023 15:30	WG2014195
Lead	13.1		0.233	0.561	1	02/28/2023 15:30	WG2014195
Selenium	U		0.857	2.24	1	02/28/2023 15:30	WG2014195
Silver	U		0.142	1.12	1	02/28/2023 15:30	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.22	B J	1.15	3.39	27.5	02/28/2023 22:10	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*92.6*			*77.0-120*		*02/28/2023 22:10*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.49	4.48	1	02/28/2023 20:24	WG2014151
Residual Range Organics (RRO)	U		3.73	11.2	1	02/28/2023 20:24	WG2014151
(S) o-Terphenyl	*47.0*			*18.0-148*		*02/28/2023 20:24*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00604	0.0373	1	03/01/2023 01:07	WG2014199
Acenaphthylene	U		0.00526	0.0373	1	03/01/2023 01:07	WG2014199
Anthracene	U		0.00665	0.0373	1	03/01/2023 01:07	WG2014199
Benzo(a)anthracene	U		0.00658	0.0373	1	03/01/2023 01:07	WG2014199
Benzo(b)fluoranthene	U		0.00696	0.0373	1	03/01/2023 01:07	WG2014199
Benzo(k)fluoranthene	U		0.00664	0.0373	1	03/01/2023 01:07	WG2014199
Benzo(g,h,i)perylene	U		0.00683	0.0373	1	03/01/2023 01:07	WG2014199
Benzo(a)pyrene	U		0.00694	0.0373	1	03/01/2023 01:07	WG2014199
Benzoic acid	U		0.132	1.87	1	03/01/2023 01:07	WG2014199
Benzyl alcohol	U		0.0138	0.373	1	03/01/2023 01:07	WG2014199
Bis(2-chlorethoxy)methane	U		0.0112	0.373	1	03/01/2023 01:07	WG2014199
Bis(2-chloroethyl)ether	U		0.0123	0.373	1	03/01/2023 01:07	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0161	0.373	1	03/01/2023 01:07	WG2014199
4-Bromophenyl-phenylether	U		0.0131	0.373	1	03/01/2023 01:07	WG2014199
Carbazole	U		0.0115	0.373	1	03/01/2023 01:07	WG2014199
2-Chloronaphthalene	U		0.00656	0.0373	1	03/01/2023 01:07	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0135	0.373	1	03/01/2023 01:07	WG2014199
4-Chlorophenyl-phenylether	U		0.0130	0.373	1	03/01/2023 01:07	WG2014199
Chrysene	U		0.00742	0.0373	1	03/01/2023 01:07	WG2014199
Dibenz(a,h)anthracene	U		0.0103	0.0373	1	03/01/2023 01:07	WG2014199
Dibenzofuran	U		0.0122	0.373	1	03/01/2023 01:07	WG2014199
3,3-Dichlorobenzidine	U		0.0138	0.373	1	03/01/2023 01:07	WG2014199
2,4-Dinitrotoluene	U		0.0107	0.373	1	03/01/2023 01:07	WG2014199
2,6-Dinitrotoluene	U		0.0122	0.373	1	03/01/2023 01:07	WG2014199
Fluoranthene	U		0.00674	0.0373	1	03/01/2023 01:07	WG2014199
Fluorene	U		0.00608	0.0373	1	03/01/2023 01:07	WG2014199
Hexachlorobenzene	U		0.0132	0.373	1	03/01/2023 01:07	WG2014199
Hexachloro-1,3-butadiene	U		0.0126	0.373	1	03/01/2023 01:07	WG2014199
Hexachlorocyclopentadiene	U		0.0196	0.373	1	03/01/2023 01:07	WG2014199
Hexachloroethane	U		0.0147	0.373	1	03/01/2023 01:07	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0105	0.0373	1	03/01/2023 01:07	WG2014199
Isophorone	U		0.0114	0.373	1	03/01/2023 01:07	WG2014199
2-Methylnaphthalene	U		0.00484	0.0373	1	03/01/2023 01:07	WG2014199
Naphthalene	U		0.00937	0.0373	1	03/01/2023 01:07	WG2014199
2-Nitroaniline	U		0.0120	0.373	1	03/01/2023 01:07	WG2014199
3-Nitroaniline	U		0.0119	0.373	1	03/01/2023 01:07	WG2014199
4-Nitroaniline	U		0.0109	0.373	1	03/01/2023 01:07	WG2014199
Nitrobenzene	U		0.0130	0.373	1	03/01/2023 01:07	WG2014199
n-Nitrosodimethylamine	U		0.0554	0.373	1	03/01/2023 01:07	WG2014199
n-Nitrosodiphenylamine	U		0.0283	0.373	1	03/01/2023 01:07	WG2014199
n-Nitrosodi-n-propylamine	U		0.0124	0.373	1	03/01/2023 01:07	WG2014199
Phenanthrene	U		0.00741	0.0373	1	03/01/2023 01:07	WG2014199
Benzylbutyl phthalate	U		0.0117	0.373	1	03/01/2023 01:07	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0473	0.373	1	03/01/2023 01:07	WG2014199
Di-n-butyl phthalate	U		0.0128	0.373	1	03/01/2023 01:07	WG2014199
Diethyl phthalate	U		0.0123	0.373	1	03/01/2023 01:07	WG2014199
Dimethyl phthalate	U		0.0791	0.373	1	03/01/2023 01:07	WG2014199
Di-n-octyl phthalate	U		0.0252	0.373	1	03/01/2023 01:07	WG2014199
Pyrene	U		0.00726	0.0373	1	03/01/2023 01:07	WG2014199
Pyridine	U		0.0247	0.373	1	03/01/2023 01:07	WG2014199
1,2,4-Trichlorobenzene	U		0.0117	0.373	1	03/01/2023 01:07	WG2014199
4-Chloro-3-methylphenol	U		0.0121	0.373	1	03/01/2023 01:07	WG2014199
2-Chlorophenol	U		0.0123	0.373	1	03/01/2023 01:07	WG2014199
2,4-Dichlorophenol	U		0.0109	0.373	1	03/01/2023 01:07	WG2014199
2,4-Dimethylphenol	U		0.00975	0.373	1	03/01/2023 01:07	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0846	0.373	1	03/01/2023 01:07	WG2014199
2,4-Dinitrophenol	U		0.0873	0.373	1	03/01/2023 01:07	WG2014199
2-Methylphenol	U		0.0112	0.373	1	03/01/2023 01:07	WG2014199
3&4-Methyl Phenol	U		0.0117	0.373	1	03/01/2023 01:07	WG2014199
2-Nitrophenol	U		0.0133	0.373	1	03/01/2023 01:07	WG2014199
4-Nitrophenol	U		0.0117	0.373	1	03/01/2023 01:07	WG2014199
Pentachlorophenol	U		0.0100	0.373	1	03/01/2023 01:07	WG2014199
Phenol	U		0.0150	0.373	1	03/01/2023 01:07	WG2014199
2,4,5-Trichlorophenol	U		0.0127	0.373	1	03/01/2023 01:07	WG2014199
2,4,6-Trichlorophenol	U		0.0120	0.373	1	03/01/2023 01:07	WG2014199
(S) 2-Fluorophenol	*59.9*			*12.0-120*		*03/01/2023 01:07*	WG2014199
(S) Phenol-d5	*54.6*			*10.0-120*		*03/01/2023 01:07*	WG2014199
(S) Nitrobenzene-d5	*54.6*			*10.0-122*		*03/01/2023 01:07*	WG2014199
(S) 2-Fluorobiphenyl	*63.3*			*15.0-120*		*03/01/2023 01:07*	WG2014199
(S) 2,4,6-Tribromophenol	*79.0*			*10.0-127*		*03/01/2023 01:07*	WG2014199
(S) p-Terphenyl-d14	*66.0*			*10.0-120*		*03/01/2023 01:07*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00258	0.00673	1	02/28/2023 23:17	WG2014146
Acenaphthene	U		0.00234	0.00673	1	02/28/2023 23:17	WG2014146
Acenaphthylene	U		0.00242	0.00673	1	02/28/2023 23:17	WG2014146
Benzo(a)anthracene	U		0.00194	0.00673	1	02/28/2023 23:17	WG2014146
Benzo(a)pyrene	U		0.00201	0.00673	1	02/28/2023 23:17	WG2014146
Benzo(b)fluoranthene	U		0.00172	0.00673	1	02/28/2023 23:17	WG2014146
Benzo(g,h,i)perylene	U		0.00198	0.00673	1	02/28/2023 23:17	WG2014146
Benzo(k)fluoranthene	U		0.00241	0.00673	1	02/28/2023 23:17	WG2014146
Chrysene	U		0.00260	0.00673	1	02/28/2023 23:17	WG2014146
Dibenz(a,h)anthracene	U		0.00193	0.00673	1	02/28/2023 23:17	WG2014146
Fluoranthene	U		0.00254	0.00673	1	02/28/2023 23:17	WG2014146
Fluorene	U		0.00230	0.00673	1	02/28/2023 23:17	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00203	0.00673	1	02/28/2023 23:17	WG2014146
Naphthalene	U		0.00457	0.0224	1	02/28/2023 23:17	WG2014146
Phenanthrene	U		0.00259	0.00673	1	02/28/2023 23:17	WG2014146
Pyrene	U		0.00224	0.00673	1	02/28/2023 23:17	WG2014146
1-Methylnaphthalene	U		0.00503	0.0224	1	02/28/2023 23:17	WG2014146
2-Methylnaphthalene	U		0.00479	0.0224	1	02/28/2023 23:17	WG2014146
2-Chloronaphthalene	U		0.00522	0.0224	1	02/28/2023 23:17	WG2014146
(S) p-Terphenyl-d14	*55.4*			*23.0-120*		*02/28/2023 23:17*	WG2014146
(S) Nitrobenzene-d5	*83.6*			*14.0-149*		*02/28/2023 23:17*	WG2014146
(S) 2-Fluorobiphenyl	*46.5*			*34.0-125*		*02/28/2023 23:17*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	89.2		1	02/28/2023 12:50	WG2014160

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0202	0.0449	1	02/28/2023 17:44	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9270		6.82	11.2	1	02/28/2023 15:33	WG2014195
Arsenic	1.13	J	0.581	2.24	1	02/28/2023 15:33	WG2014195
Barium	97.3		0.0955	0.561	1	02/28/2023 15:33	WG2014195
Cadmium	0.127	J	0.0528	0.561	1	02/28/2023 15:33	WG2014195
Chromium	8.26		0.149	1.12	1	02/28/2023 15:33	WG2014195
Copper	11.0		0.449	2.24	1	02/28/2023 15:33	WG2014195
Lead	10.9		0.233	0.561	1	02/28/2023 15:33	WG2014195
Selenium	U		0.857	2.24	1	02/28/2023 15:33	WG2014195
Silver	U		0.142	1.12	1	02/28/2023 15:33	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.40	B J	1.07	3.14	25.3	02/28/2023 22:35	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*95.0*			*77.0-120*		*02/28/2023 22:35*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U	J3 J6	1.49	4.49	1	02/28/2023 20:37	WG2014151
Residual Range Organics (RRO)	U		3.73	11.2	1	02/28/2023 20:37	WG2014151
(S) o-Terphenyl	*47.1*			*18.0-148*		*02/28/2023 20:37*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00604	0.0373	1	03/01/2023 01:27	WG2014199
Acenaphthylene	U		0.00526	0.0373	1	03/01/2023 01:27	WG2014199
Anthracene	U		0.00665	0.0373	1	03/01/2023 01:27	WG2014199
Benzo(a)anthracene	U		0.00658	0.0373	1	03/01/2023 01:27	WG2014199
Benzo(b)fluoranthene	U		0.00696	0.0373	1	03/01/2023 01:27	WG2014199
Benzo(k)fluoranthene	U		0.00664	0.0373	1	03/01/2023 01:27	WG2014199
Benzo(g,h,i)perylene	U		0.00683	0.0373	1	03/01/2023 01:27	WG2014199
Benzo(a)pyrene	U		0.00694	0.0373	1	03/01/2023 01:27	WG2014199
Benzoic acid	U		0.132	1.87	1	03/01/2023 01:27	WG2014199
Benzyl alcohol	U		0.0138	0.373	1	03/01/2023 01:27	WG2014199
Bis(2-chlorethoxy)methane	U		0.0112	0.373	1	03/01/2023 01:27	WG2014199
Bis(2-chloroethyl)ether	U		0.0123	0.373	1	03/01/2023 01:27	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0161	0.373	1	03/01/2023 01:27	WG2014199
4-Bromophenyl-phenylether	U		0.0131	0.373	1	03/01/2023 01:27	WG2014199
Carbazole	U		0.0116	0.373	1	03/01/2023 01:27	WG2014199
2-Chloronaphthalene	U		0.00656	0.0373	1	03/01/2023 01:27	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0135	0.373	1	03/01/2023 01:27	WG2014199
4-Chlorophenyl-phenylether	U		0.0130	0.373	1	03/01/2023 01:27	WG2014199
Chrysene	U		0.00742	0.0373	1	03/01/2023 01:27	WG2014199
Dibenz(a,h)anthracene	U		0.0104	0.0373	1	03/01/2023 01:27	WG2014199
Dibenzofuran	U		0.0122	0.373	1	03/01/2023 01:27	WG2014199
3,3-Dichlorobenzidine	U		0.0138	0.373	1	03/01/2023 01:27	WG2014199
2,4-Dinitrotoluene	U		0.0107	0.373	1	03/01/2023 01:27	WG2014199
2,6-Dinitrotoluene	U		0.0122	0.373	1	03/01/2023 01:27	WG2014199
Fluoranthene	U		0.00674	0.0373	1	03/01/2023 01:27	WG2014199
Fluorene	U		0.00608	0.0373	1	03/01/2023 01:27	WG2014199
Hexachlorobenzene	U		0.0132	0.373	1	03/01/2023 01:27	WG2014199
Hexachloro-1,3-butadiene	U		0.0126	0.373	1	03/01/2023 01:27	WG2014199
Hexachlorocyclopentadiene	U		0.0196	0.373	1	03/01/2023 01:27	WG2014199
Hexachloroethane	U		0.0147	0.373	1	03/01/2023 01:27	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0106	0.0373	1	03/01/2023 01:27	WG2014199
Isophorone	U		0.0114	0.373	1	03/01/2023 01:27	WG2014199
2-Methylnaphthalene	U		0.00484	0.0373	1	03/01/2023 01:27	WG2014199
Naphthalene	U		0.00938	0.0373	1	03/01/2023 01:27	WG2014199
2-Nitroaniline	U		0.0120	0.373	1	03/01/2023 01:27	WG2014199
3-Nitroaniline	U		0.0119	0.373	1	03/01/2023 01:27	WG2014199
4-Nitroaniline	U		0.0109	0.373	1	03/01/2023 01:27	WG2014199
Nitrobenzene	U		0.0130	0.373	1	03/01/2023 01:27	WG2014199
n-Nitrosodimethylamine	U		0.0554	0.373	1	03/01/2023 01:27	WG2014199
n-Nitrosodiphenylamine	U		0.0283	0.373	1	03/01/2023 01:27	WG2014199
n-Nitrosodi-n-propylamine	U		0.0124	0.373	1	03/01/2023 01:27	WG2014199
Phenanthrene	U		0.00741	0.0373	1	03/01/2023 01:27	WG2014199
Benzylbutyl phthalate	U		0.0117	0.373	1	03/01/2023 01:27	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0473	0.373	1	03/01/2023 01:27	WG2014199
Di-n-butyl phthalate	U		0.0128	0.373	1	03/01/2023 01:27	WG2014199
Diethyl phthalate	U		0.0123	0.373	1	03/01/2023 01:27	WG2014199
Dimethyl phthalate	U		0.0792	0.373	1	03/01/2023 01:27	WG2014199
Di-n-octyl phthalate	U		0.0252	0.373	1	03/01/2023 01:27	WG2014199
Pyrene	U		0.00727	0.0373	1	03/01/2023 01:27	WG2014199
Pyridine	U		0.0247	0.373	1	03/01/2023 01:27	WG2014199
1,2,4-Trichlorobenzene	U		0.0117	0.373	1	03/01/2023 01:27	WG2014199
4-Chloro-3-methylphenol	U		0.0121	0.373	1	03/01/2023 01:27	WG2014199
2-Chlorophenol	U		0.0123	0.373	1	03/01/2023 01:27	WG2014199
2,4-Dichlorophenol	U		0.0109	0.373	1	03/01/2023 01:27	WG2014199
2,4-Dimethylphenol	U		0.00976	0.373	1	03/01/2023 01:27	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0847	0.373	1	03/01/2023 01:27	WG2014199
2,4-Dinitrophenol	U		0.0874	0.373	1	03/01/2023 01:27	WG2014199
2-Methylphenol	U		0.0112	0.373	1	03/01/2023 01:27	WG2014199
3&4-Methyl Phenol	U		0.0117	0.373	1	03/01/2023 01:27	WG2014199
2-Nitrophenol	U		0.0133	0.373	1	03/01/2023 01:27	WG2014199
4-Nitrophenol	U		0.0117	0.373	1	03/01/2023 01:27	WG2014199
Pentachlorophenol	U		0.0100	0.373	1	03/01/2023 01:27	WG2014199
Phenol	U		0.0150	0.373	1	03/01/2023 01:27	WG2014199
2,4,5-Trichlorophenol	U		0.0127	0.373	1	03/01/2023 01:27	WG2014199
2,4,6-Trichlorophenol	U		0.0120	0.373	1	03/01/2023 01:27	WG2014199
(S) 2-Fluorophenol	*59.6*			*12.0-120*		*03/01/2023 01:27*	WG2014199
(S) Phenol-d5	*54.1*			*10.0-120*		*03/01/2023 01:27*	WG2014199
(S) Nitrobenzene-d5	*54.4*			*10.0-122*		*03/01/2023 01:27*	WG2014199
(S) 2-Fluorobiphenyl	*62.3*			*15.0-120*		*03/01/2023 01:27*	WG2014199
(S) 2,4,6-Tribromophenol	*82.5*			*10.0-127*		*03/01/2023 01:27*	WG2014199
(S) p-Terphenyl-d14	*69.6*			*10.0-120*		*03/01/2023 01:27*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00258	0.00673	1	02/28/2023 23:35	WG2014146
Acenaphthene	U		0.00234	0.00673	1	02/28/2023 23:35	WG2014146
Acenaphthylene	U		0.00242	0.00673	1	02/28/2023 23:35	WG2014146
Benzo(a)anthracene	U		0.00194	0.00673	1	02/28/2023 23:35	WG2014146
Benzo(a)pyrene	U		0.00201	0.00673	1	02/28/2023 23:35	WG2014146
Benzo(b)fluoranthene	U		0.00172	0.00673	1	02/28/2023 23:35	WG2014146
Benzo(g,h,i)perylene	U		0.00198	0.00673	1	02/28/2023 23:35	WG2014146
Benzo(k)fluoranthene	U		0.00241	0.00673	1	02/28/2023 23:35	WG2014146
Chrysene	U		0.00260	0.00673	1	02/28/2023 23:35	WG2014146
Dibenz(a,h)anthracene	U		0.00193	0.00673	1	02/28/2023 23:35	WG2014146
Fluoranthene	U		0.00255	0.00673	1	02/28/2023 23:35	WG2014146
Fluorene	U		0.00230	0.00673	1	02/28/2023 23:35	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00203	0.00673	1	02/28/2023 23:35	WG2014146
Naphthalene	U		0.00458	0.0224	1	02/28/2023 23:35	WG2014146
Phenanthrene	U		0.00259	0.00673	1	02/28/2023 23:35	WG2014146
Pyrene	U		0.00224	0.00673	1	02/28/2023 23:35	WG2014146
1-Methylnaphthalene	U		0.00504	0.0224	1	02/28/2023 23:35	WG2014146
2-Methylnaphthalene	0.00500	J	0.00479	0.0224	1	02/28/2023 23:35	WG2014146
2-Chloronaphthalene	U		0.00523	0.0224	1	02/28/2023 23:35	WG2014146
(S) p-Terphenyl-d14	*51.6*			*23.0-120*		*02/28/2023 23:35*	WG2014146
(S) Nitrobenzene-d5	*77.0*			*14.0-149*		*02/28/2023 23:35*	WG2014146
(S) 2-Fluorobiphenyl	*43.1*			*34.0-125*		*02/28/2023 23:35*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	89.6		1	02/28/2023 12:50	WG2014160

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0201	0.0447	1	02/28/2023 17:46	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10700		6.79	11.2	1	02/28/2023 15:40	WG2014195
Arsenic	1.76	J	0.578	2.23	1	02/28/2023 15:40	WG2014195
Barium	103		0.0951	0.558	1	02/28/2023 15:40	WG2014195
Cadmium	0.0921	J	0.0526	0.558	1	02/28/2023 15:40	WG2014195
Chromium	14.5		0.148	1.12	1	02/28/2023 15:40	WG2014195
Copper	11.1		0.447	2.23	1	02/28/2023 15:40	WG2014195
Lead	9.69		0.232	0.558	1	02/28/2023 15:40	WG2014195
Selenium	1.08	J	0.853	2.23	1	02/28/2023 15:40	WG2014195
Silver	U		0.142	1.12	1	02/28/2023 15:40	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.44	4.26	35.5	02/28/2023 22:59	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*90.8*			*77.0-120*		*02/28/2023 22:59*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.48	4.47	1	02/28/2023 21:16	WG2014151
Residual Range Organics (RRO)	U		3.72	11.2	1	02/28/2023 21:16	WG2014151
(S) o-Terphenyl	*41.4*			*18.0-148*		*02/28/2023 21:16*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00602	0.0372	1	03/01/2023 01:48	WG2014199
Acenaphthylene	U		0.00524	0.0372	1	03/01/2023 01:48	WG2014199
Anthracene	U		0.00662	0.0372	1	03/01/2023 01:48	WG2014199
Benzo(a)anthracene	U		0.00655	0.0372	1	03/01/2023 01:48	WG2014199
Benzo(b)fluoranthene	U		0.00693	0.0372	1	03/01/2023 01:48	WG2014199
Benzo(k)fluoranthene	U		0.00661	0.0372	1	03/01/2023 01:48	WG2014199
Benzo(g,h,i)perylene	U		0.00680	0.0372	1	03/01/2023 01:48	WG2014199
Benzo(a)pyrene	U		0.00691	0.0372	1	03/01/2023 01:48	WG2014199
Benzoic acid	U		0.132	1.86	1	03/01/2023 01:48	WG2014199
Benzyl alcohol	U		0.0137	0.372	1	03/01/2023 01:48	WG2014199
Bis(2-chlorethoxy)methane	U		0.0112	0.372	1	03/01/2023 01:48	WG2014199
Bis(2-chloroethyl)ether	U		0.0123	0.372	1	03/01/2023 01:48	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0161	0.372	1	03/01/2023 01:48	WG2014199
4-Bromophenyl-phenylether	U		0.0131	0.372	1	03/01/2023 01:48	WG2014199
Carbazole	U		0.0115	0.372	1	03/01/2023 01:48	WG2014199
2-Chloronaphthalene	U		0.00653	0.0372	1	03/01/2023 01:48	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0134	0.372	1	03/01/2023 01:48	WG2014199
4-Chlorophenyl-phenylether	U		0.0130	0.372	1	03/01/2023 01:48	WG2014199
Chrysene	U		0.00739	0.0372	1	03/01/2023 01:48	WG2014199
Dibenz(a,h)anthracene	U		0.0103	0.0372	1	03/01/2023 01:48	WG2014199
Dibenzofuran	U		0.0122	0.372	1	03/01/2023 01:48	WG2014199
3,3-Dichlorobenzidine	U		0.0137	0.372	1	03/01/2023 01:48	WG2014199
2,4-Dinitrotoluene	U		0.0107	0.372	1	03/01/2023 01:48	WG2014199
2,6-Dinitrotoluene	U		0.0122	0.372	1	03/01/2023 01:48	WG2014199
Fluoranthene	U		0.00671	0.0372	1	03/01/2023 01:48	WG2014199
Fluorene	U		0.00605	0.0372	1	03/01/2023 01:48	WG2014199
Hexachlorobenzene	U		0.0132	0.372	1	03/01/2023 01:48	WG2014199
Hexachloro-1,3-butadiene	U		0.0125	0.372	1	03/01/2023 01:48	WG2014199
Hexachlorocyclopentadiene	U		0.0195	0.372	1	03/01/2023 01:48	WG2014199
Hexachloroethane	U		0.0146	0.372	1	03/01/2023 01:48	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0105	0.0372	1	03/01/2023 01:48	WG2014199
Isophorone	U		0.0114	0.372	1	03/01/2023 01:48	WG2014199
2-Methylnaphthalene	U		0.00482	0.0372	1	03/01/2023 01:48	WG2014199
Naphthalene	U		0.00933	0.0372	1	03/01/2023 01:48	WG2014199
2-Nitroaniline	U		0.0119	0.372	1	03/01/2023 01:48	WG2014199
3-Nitroaniline	U		0.0118	0.372	1	03/01/2023 01:48	WG2014199
4-Nitroaniline	U		0.0108	0.372	1	03/01/2023 01:48	WG2014199
Nitrobenzene	U		0.0130	0.372	1	03/01/2023 01:48	WG2014199
n-Nitrosodimethylamine	U		0.0552	0.372	1	03/01/2023 01:48	WG2014199
n-Nitrosodiphenylamine	U		0.0281	0.372	1	03/01/2023 01:48	WG2014199
n-Nitrosodi-n-propylamine	U		0.0124	0.372	1	03/01/2023 01:48	WG2014199
Phenanthrene	U		0.00738	0.0372	1	03/01/2023 01:48	WG2014199
Benzylbutyl phthalate	U		0.0116	0.372	1	03/01/2023 01:48	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0471	0.372	1	03/01/2023 01:48	WG2014199
Di-n-butyl phthalate	U		0.0127	0.372	1	03/01/2023 01:48	WG2014199
Diethyl phthalate	U		0.0123	0.372	1	03/01/2023 01:48	WG2014199
Dimethyl phthalate	U		0.0788	0.372	1	03/01/2023 01:48	WG2014199
Di-n-octyl phthalate	U		0.0251	0.372	1	03/01/2023 01:48	WG2014199
Pyrene	U		0.00724	0.0372	1	03/01/2023 01:48	WG2014199
Pyridine	U		0.0246	0.372	1	03/01/2023 01:48	WG2014199
1,2,4-Trichlorobenzene	U		0.0116	0.372	1	03/01/2023 01:48	WG2014199
4-Chloro-3-methylphenol	U		0.0121	0.372	1	03/01/2023 01:48	WG2014199
2-Chlorophenol	U		0.0123	0.372	1	03/01/2023 01:48	WG2014199
2,4-Dichlorophenol	U		0.0108	0.372	1	03/01/2023 01:48	WG2014199
2,4-Dimethylphenol	U		0.00971	0.372	1	03/01/2023 01:48	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0843	0.372	1	03/01/2023 01:48	WG2014199
2,4-Dinitrophenol	U		0.0870	0.372	1	03/01/2023 01:48	WG2014199
2-Methylphenol	U		0.0112	0.372	1	03/01/2023 01:48	WG2014199
3&4-Methyl Phenol	U		0.0116	0.372	1	03/01/2023 01:48	WG2014199
2-Nitrophenol	U		0.0133	0.372	1	03/01/2023 01:48	WG2014199
4-Nitrophenol	U		0.0116	0.372	1	03/01/2023 01:48	WG2014199
Pentachlorophenol	U		0.0100	0.372	1	03/01/2023 01:48	WG2014199
Phenol	U		0.0150	0.372	1	03/01/2023 01:48	WG2014199
2,4,5-Trichlorophenol	U		0.0126	0.372	1	03/01/2023 01:48	WG2014199
2,4,6-Trichlorophenol	U		0.0119	0.372	1	03/01/2023 01:48	WG2014199
(S) 2-Fluorophenol	*63.6*			*12.0-120*		*03/01/2023 01:48*	WG2014199
(S) Phenol-d5	*57.8*			*10.0-120*		*03/01/2023 01:48*	WG2014199
(S) Nitrobenzene-d5	*56.9*			*10.0-122*		*03/01/2023 01:48*	WG2014199
(S) 2-Fluorobiphenyl	*69.0*			*15.0-120*		*03/01/2023 01:48*	WG2014199
(S) 2,4,6-Tribromophenol	*85.4*			*10.0-127*		*03/01/2023 01:48*	WG2014199
(S) p-Terphenyl-d14	*69.0*			*10.0-120*		*03/01/2023 01:48*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00257	0.00670	1	02/28/2023 23:52	WG2014146
Acenaphthene	U		0.00233	0.00670	1	02/28/2023 23:52	WG2014146
Acenaphthylene	U		0.00241	0.00670	1	02/28/2023 23:52	WG2014146
Benzo(a)anthracene	U		0.00193	0.00670	1	02/28/2023 23:52	WG2014146
Benzo(a)pyrene	U		0.00200	0.00670	1	02/28/2023 23:52	WG2014146
Benzo(b)fluoranthene	U		0.00171	0.00670	1	02/28/2023 23:52	WG2014146
Benzo(g,h,i)perylene	U		0.00198	0.00670	1	02/28/2023 23:52	WG2014146
Benzo(k)fluoranthene	U		0.00240	0.00670	1	02/28/2023 23:52	WG2014146
Chrysene	U		0.00259	0.00670	1	02/28/2023 23:52	WG2014146
Dibenz(a,h)anthracene	U		0.00192	0.00670	1	02/28/2023 23:52	WG2014146
Fluoranthene	U		0.00253	0.00670	1	02/28/2023 23:52	WG2014146
Fluorene	U		0.00229	0.00670	1	02/28/2023 23:52	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00202	0.00670	1	02/28/2023 23:52	WG2014146
Naphthalene	U		0.00456	0.0223	1	02/28/2023 23:52	WG2014146
Phenanthrene	U		0.00258	0.00670	1	02/28/2023 23:52	WG2014146
Pyrene	U		0.00223	0.00670	1	02/28/2023 23:52	WG2014146
1-Methylnaphthalene	U		0.00501	0.0223	1	02/28/2023 23:52	WG2014146
2-Methylnaphthalene	U		0.00477	0.0223	1	02/28/2023 23:52	WG2014146
2-Chloronaphthalene	U		0.00520	0.0223	1	02/28/2023 23:52	WG2014146
(S) p-Terphenyl-d14	*75.7*			*23.0-120*		*02/28/2023 23:52*	WG2014146
(S) Nitrobenzene-d5	*74.9*			*14.0-149*		*02/28/2023 23:52*	WG2014146
(S) 2-Fluorobiphenyl	*66.2*			*34.0-125*		*02/28/2023 23:52*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.6		1	02/28/2023 12:50	WG2014160

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0203	0.0452	1	02/28/2023 17:49	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11600		6.87	11.3	1	02/28/2023 15:43	WG2014195
Arsenic	1.51	J	0.585	2.26	1	02/28/2023 15:43	WG2014195
Barium	75.6		0.0962	0.565	1	02/28/2023 15:43	WG2014195
Cadmium	0.0998	J	0.0532	0.565	1	02/28/2023 15:43	WG2014195
Chromium	10.7		0.150	1.13	1	02/28/2023 15:43	WG2014195
Copper	14.4		0.452	2.26	1	02/28/2023 15:43	WG2014195
Lead	10.6		0.235	0.565	1	02/28/2023 15:43	WG2014195
Selenium	U		0.863	2.26	1	02/28/2023 15:43	WG2014195
Silver	U		0.143	1.13	1	02/28/2023 15:43	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	U		1.08	3.17	25	02/28/2023 23:24	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*90.6*			*77.0-120*		*02/28/2023 23:24*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.50	4.52	1	02/28/2023 21:29	WG2014151
Residual Range Organics (RRO)	U		3.76	11.3	1	02/28/2023 21:29	WG2014151
(S) o-Terphenyl	*53.4*			*18.0-148*		*02/28/2023 21:29*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00609	0.0376	1	03/01/2023 02:08	WG2014199
Acenaphthylene	U		0.00530	0.0376	1	03/01/2023 02:08	WG2014199
Anthracene	U		0.00670	0.0376	1	03/01/2023 02:08	WG2014199
Benzo(a)anthracene	U		0.00663	0.0376	1	03/01/2023 02:08	WG2014199
Benzo(b)fluoranthene	U		0.00701	0.0376	1	03/01/2023 02:08	WG2014199
Benzo(k)fluoranthene	U		0.00668	0.0376	1	03/01/2023 02:08	WG2014199
Benzo(g,h,i)perylene	U		0.00688	0.0376	1	03/01/2023 02:08	WG2014199
Benzo(a)pyrene	U		0.00699	0.0376	1	03/01/2023 02:08	WG2014199
Benzoic acid	U		0.133	1.89	1	03/01/2023 02:08	WG2014199
Benzyl alcohol	U		0.0139	0.376	1	03/01/2023 02:08	WG2014199
Bis(2-chlorethoxy)methane	U		0.0113	0.376	1	03/01/2023 02:08	WG2014199
Bis(2-chloroethyl)ether	U		0.0124	0.376	1	03/01/2023 02:08	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0163	0.376	1	03/01/2023 02:08	WG2014199
4-Bromophenyl-phenylether	U		0.0132	0.376	1	03/01/2023 02:08	WG2014199
Carbazole	U		0.0116	0.376	1	03/01/2023 02:08	WG2014199
2-Chloronaphthalene	U		0.00661	0.0376	1	03/01/2023 02:08	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0135	0.376	1	03/01/2023 02:08	WG2014199
4-Chlorophenyl-phenylether	U		0.0131	0.376	1	03/01/2023 02:08	WG2014199
Chrysene	U		0.00747	0.0376	1	03/01/2023 02:08	WG2014199
Dibenz(a,h)anthracene	U		0.0104	0.0376	1	03/01/2023 02:08	WG2014199
Dibenzofuran	U		0.0123	0.376	1	03/01/2023 02:08	WG2014199
3,3-Dichlorobenzidine	U		0.0139	0.376	1	03/01/2023 02:08	WG2014199
2,4-Dinitrotoluene	U		0.0108	0.376	1	03/01/2023 02:08	WG2014199
2,6-Dinitrotoluene	U		0.0123	0.376	1	03/01/2023 02:08	WG2014199
Fluoranthene	U		0.00679	0.0376	1	03/01/2023 02:08	WG2014199
Fluorene	U		0.00612	0.0376	1	03/01/2023 02:08	WG2014199
Hexachlorobenzene	U		0.0133	0.376	1	03/01/2023 02:08	WG2014199
Hexachloro-1,3-butadiene	U		0.0126	0.376	1	03/01/2023 02:08	WG2014199
Hexachlorocyclopentadiene	U		0.0198	0.376	1	03/01/2023 02:08	WG2014199
Hexachloroethane	U		0.0148	0.376	1	03/01/2023 02:08	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0106	0.0376	1	03/01/2023 02:08	WG2014199
Isophorone	U		0.0115	0.376	1	03/01/2023 02:08	WG2014199
2-Methylnaphthalene	U		0.00488	0.0376	1	03/01/2023 02:08	WG2014199
Naphthalene	U		0.00944	0.0376	1	03/01/2023 02:08	WG2014199
2-Nitroaniline	U		0.0121	0.376	1	03/01/2023 02:08	WG2014199
3-Nitroaniline	U		0.0120	0.376	1	03/01/2023 02:08	WG2014199
4-Nitroaniline	U		0.0110	0.376	1	03/01/2023 02:08	WG2014199
Nitrobenzene	U		0.0131	0.376	1	03/01/2023 02:08	WG2014199
n-Nitrosodimethylamine	U		0.0558	0.376	1	03/01/2023 02:08	WG2014199
n-Nitrosodiphenylamine	U		0.0285	0.376	1	03/01/2023 02:08	WG2014199
n-Nitrosodi-n-propylamine	U		0.0125	0.376	1	03/01/2023 02:08	WG2014199
Phenanthrene	U		0.00746	0.0376	1	03/01/2023 02:08	WG2014199
Benzylbutyl phthalate	U		0.0117	0.376	1	03/01/2023 02:08	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0476	0.376	1	03/01/2023 02:08	WG2014199
Di-n-butyl phthalate	U		0.0129	0.376	1	03/01/2023 02:08	WG2014199
Diethyl phthalate	U		0.0124	0.376	1	03/01/2023 02:08	WG2014199
Dimethyl phthalate	U		0.0797	0.376	1	03/01/2023 02:08	WG2014199
Di-n-octyl phthalate	U		0.0254	0.376	1	03/01/2023 02:08	WG2014199
Pyrene	U		0.00732	0.0376	1	03/01/2023 02:08	WG2014199
Pyridine	U		0.0248	0.376	1	03/01/2023 02:08	WG2014199
1,2,4-Trichlorobenzene	U		0.0117	0.376	1	03/01/2023 02:08	WG2014199
4-Chloro-3-methylphenol	U		0.0122	0.376	1	03/01/2023 02:08	WG2014199
2-Chlorophenol	U		0.0124	0.376	1	03/01/2023 02:08	WG2014199
2,4-Dichlorophenol	U		0.0110	0.376	1	03/01/2023 02:08	WG2014199
2,4-Dimethylphenol	U		0.00982	0.376	1	03/01/2023 02:08	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0852	0.376	1	03/01/2023 02:08	WG2014199
2,4-Dinitrophenol	U		0.0880	0.376	1	03/01/2023 02:08	WG2014199
2-Methylphenol	U		0.0113	0.376	1	03/01/2023 02:08	WG2014199
3&4-Methyl Phenol	U		0.0117	0.376	1	03/01/2023 02:08	WG2014199
2-Nitrophenol	U		0.0134	0.376	1	03/01/2023 02:08	WG2014199
4-Nitrophenol	U		0.0117	0.376	1	03/01/2023 02:08	WG2014199
Pentachlorophenol	U		0.0101	0.376	1	03/01/2023 02:08	WG2014199
Phenol	U		0.0151	0.376	1	03/01/2023 02:08	WG2014199
2,4,5-Trichlorophenol	U		0.0128	0.376	1	03/01/2023 02:08	WG2014199
2,4,6-Trichlorophenol	U		0.0121	0.376	1	03/01/2023 02:08	WG2014199
(S) 2-Fluorophenol	*60.1*			*12.0-120*		*03/01/2023 02:08*	WG2014199
(S) Phenol-d5	*54.2*			*10.0-120*		*03/01/2023 02:08*	WG2014199
(S) Nitrobenzene-d5	*55.1*			*10.0-122*		*03/01/2023 02:08*	WG2014199
(S) 2-Fluorobiphenyl	*63.8*			*15.0-120*		*03/01/2023 02:08*	WG2014199
(S) 2,4,6-Tribromophenol	*81.3*			*10.0-127*		*03/01/2023 02:08*	WG2014199
(S) p-Terphenyl-d14	*65.9*			*10.0-120*		*03/01/2023 02:08*	WG2014199

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00260	0.00677	1	03/01/2023 00:10	WG2014146
Acenaphthene	U		0.00236	0.00677	1	03/01/2023 00:10	WG2014146
Acenaphthylene	U		0.00244	0.00677	1	03/01/2023 00:10	WG2014146
Benzo(a)anthracene	U		0.00195	0.00677	1	03/01/2023 00:10	WG2014146
Benzo(a)pyrene	U		0.00202	0.00677	1	03/01/2023 00:10	WG2014146
Benzo(b)fluoranthene	U		0.00173	0.00677	1	03/01/2023 00:10	WG2014146
Benzo(g,h,i)perylene	U		0.00200	0.00677	1	03/01/2023 00:10	WG2014146
Benzo(k)fluoranthene	U		0.00243	0.00677	1	03/01/2023 00:10	WG2014146
Chrysene	U		0.00262	0.00677	1	03/01/2023 00:10	WG2014146
Dibenz(a,h)anthracene	U		0.00194	0.00677	1	03/01/2023 00:10	WG2014146
Fluoranthene	U		0.00256	0.00677	1	03/01/2023 00:10	WG2014146
Fluorene	U		0.00231	0.00677	1	03/01/2023 00:10	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00204	0.00677	1	03/01/2023 00:10	WG2014146
Naphthalene	U		0.00461	0.0226	1	03/01/2023 00:10	WG2014146
Phenanthrene	U		0.00261	0.00677	1	03/01/2023 00:10	WG2014146
Pyrene	U		0.00226	0.00677	1	03/01/2023 00:10	WG2014146
1-Methylnaphthalene	U		0.00507	0.0226	1	03/01/2023 00:10	WG2014146
2-Methylnaphthalene	U		0.00482	0.0226	1	03/01/2023 00:10	WG2014146
2-Chloronaphthalene	U		0.00526	0.0226	1	03/01/2023 00:10	WG2014146
(S) p-Terphenyl-d14	*65.6*			*23.0-120*		*03/01/2023 00:10*	WG2014146
(S) Nitrobenzene-d5	*61.6*			*14.0-149*		*03/01/2023 00:10*	WG2014146
(S) 2-Fluorobiphenyl	*55.1*			*34.0-125*		*03/01/2023 00:10*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.6		1	02/28/2023 12:50	WG2014160

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0208	0.0462	1	02/28/2023 17:51	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	11300		7.02	11.5	1	02/28/2023 15:46	WG2014195
Arsenic	2.47		0.598	2.31	1	02/28/2023 15:46	WG2014195
Barium	132		0.0983	0.577	1	02/28/2023 15:46	WG2014195
Cadmium	0.176	J	0.0544	0.577	1	02/28/2023 15:46	WG2014195
Chromium	9.58		0.153	1.15	1	02/28/2023 15:46	WG2014195
Copper	11.4		0.462	2.31	1	02/28/2023 15:46	WG2014195
Lead	12.4		0.240	0.577	1	02/28/2023 15:46	WG2014195
Selenium	1.22	J	0.882	2.31	1	02/28/2023 15:46	WG2014195
Silver	U		0.147	1.15	1	02/28/2023 15:46	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.17	B J	1.13	3.33	25.5	02/28/2023 23:49	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*91.5*			*77.0-120*		*02/28/2023 23:49*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.53	4.62	1	02/28/2023 21:43	WG2014151
Residual Range Organics (RRO)	U		3.84	11.5	1	02/28/2023 21:43	WG2014151
(S) o-Terphenyl	*42.1*			*18.0-148*		*02/28/2023 21:43*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00622	0.0384	1	03/01/2023 02:49	WG2014199
Acenaphthylene	U		0.00541	0.0384	1	03/01/2023 02:49	WG2014199
Anthracene	U		0.00684	0.0384	1	03/01/2023 02:49	WG2014199
Benzo(a)anthracene	U		0.00677	0.0384	1	03/01/2023 02:49	WG2014199
Benzo(b)fluoranthene	U		0.00717	0.0384	1	03/01/2023 02:49	WG2014199
Benzo(k)fluoranthene	U		0.00683	0.0384	1	03/01/2023 02:49	WG2014199
Benzo(g,h,i)perylene	U		0.00703	0.0384	1	03/01/2023 02:49	WG2014199
Benzo(a)pyrene	U		0.00714	0.0384	1	03/01/2023 02:49	WG2014199
Benzoic acid	U		0.136	1.93	1	03/01/2023 02:49	WG2014199
Benzyl alcohol	U		0.0142	0.384	1	03/01/2023 02:49	WG2014199
Bis(2-chlorethoxy)methane	U		0.0115	0.384	1	03/01/2023 02:49	WG2014199
Bis(2-chloroethyl)ether	U		0.0127	0.384	1	03/01/2023 02:49	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0166	0.384	1	03/01/2023 02:49	WG2014199
4-Bromophenyl-phenylether	U		0.0135	0.384	1	03/01/2023 02:49	WG2014199
Carbazole	U		0.0119	0.384	1	03/01/2023 02:49	WG2014199
2-Chloronaphthalene	U		0.00675	0.0384	1	03/01/2023 02:49	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0138	0.384	1	03/01/2023 02:49	WG2014199
4-Chlorophenyl-phenylether	U		0.0134	0.384	1	03/01/2023 02:49	WG2014199
Chrysene	U		0.00764	0.0384	1	03/01/2023 02:49	WG2014199
Dibenz(a,h)anthracene	U		0.0107	0.0384	1	03/01/2023 02:49	WG2014199
Dibenzofuran	U		0.0126	0.384	1	03/01/2023 02:49	WG2014199
3,3-Dichlorobenzidine	U		0.0142	0.384	1	03/01/2023 02:49	WG2014199
2,4-Dinitrotoluene	U		0.0110	0.384	1	03/01/2023 02:49	WG2014199
2,6-Dinitrotoluene	U		0.0126	0.384	1	03/01/2023 02:49	WG2014199
Fluoranthene	U		0.00694	0.0384	1	03/01/2023 02:49	WG2014199
Fluorene	U		0.00626	0.0384	1	03/01/2023 02:49	WG2014199
Hexachlorobenzene	U		0.0136	0.384	1	03/01/2023 02:49	WG2014199
Hexachloro-1,3-butadiene	U		0.0129	0.384	1	03/01/2023 02:49	WG2014199
Hexachlorocyclopentadiene	U		0.0202	0.384	1	03/01/2023 02:49	WG2014199
Hexachloroethane	U		0.0151	0.384	1	03/01/2023 02:49	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0109	0.0384	1	03/01/2023 02:49	WG2014199
Isophorone	U		0.0118	0.384	1	03/01/2023 02:49	WG2014199
2-Methylnaphthalene	U		0.00499	0.0384	1	03/01/2023 02:49	WG2014199
Naphthalene	U		0.00965	0.0384	1	03/01/2023 02:49	WG2014199
2-Nitroaniline	U		0.0123	0.384	1	03/01/2023 02:49	WG2014199
3-Nitroaniline	U		0.0122	0.384	1	03/01/2023 02:49	WG2014199
4-Nitroaniline	U		0.0112	0.384	1	03/01/2023 02:49	WG2014199
Nitrobenzene	U		0.0134	0.384	1	03/01/2023 02:49	WG2014199
n-Nitrosodimethylamine	U		0.0570	0.384	1	03/01/2023 02:49	WG2014199
n-Nitrosodiphenylamine	U		0.0291	0.384	1	03/01/2023 02:49	WG2014199
n-Nitrosodi-n-propylamine	U		0.0128	0.384	1	03/01/2023 02:49	WG2014199
Phenanthrene	U		0.00763	0.0384	1	03/01/2023 02:49	WG2014199
Benzylbutyl phthalate	U		0.0120	0.384	1	03/01/2023 02:49	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0487	0.384	1	03/01/2023 02:49	WG2014199
Di-n-butyl phthalate	U		0.0132	0.384	1	03/01/2023 02:49	WG2014199
Diethyl phthalate	U		0.0127	0.384	1	03/01/2023 02:49	WG2014199
Dimethyl phthalate	U		0.0815	0.384	1	03/01/2023 02:49	WG2014199
Di-n-octyl phthalate	U		0.0260	0.384	1	03/01/2023 02:49	WG2014199
Pyrene	U		0.00748	0.0384	1	03/01/2023 02:49	WG2014199
Pyridine	U		0.0254	0.384	1	03/01/2023 02:49	WG2014199
1,2,4-Trichlorobenzene	U		0.0120	0.384	1	03/01/2023 02:49	WG2014199
4-Chloro-3-methylphenol	U		0.0125	0.384	1	03/01/2023 02:49	WG2014199
2-Chlorophenol	U		0.0127	0.384	1	03/01/2023 02:49	WG2014199
2,4-Dichlorophenol	U		0.0112	0.384	1	03/01/2023 02:49	WG2014199
2,4-Dimethylphenol	U		0.0100	0.384	1	03/01/2023 02:49	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0871	0.384	1	03/01/2023 02:49	WG2014199
2,4-Dinitrophenol	U		0.0899	0.384	1	03/01/2023 02:49	WG2014199
2-Methylphenol	U		0.0115	0.384	1	03/01/2023 02:49	WG2014199
3&4-Methyl Phenol	U		0.0120	0.384	1	03/01/2023 02:49	WG2014199
2-Nitrophenol	U		0.0137	0.384	1	03/01/2023 02:49	WG2014199
4-Nitrophenol	U		0.0120	0.384	1	03/01/2023 02:49	WG2014199
Pentachlorophenol	U		0.0103	0.384	1	03/01/2023 02:49	WG2014199
Phenol	U		0.0155	0.384	1	03/01/2023 02:49	WG2014199
2,4,5-Trichlorophenol	U		0.0130	0.384	1	03/01/2023 02:49	WG2014199
2,4,6-Trichlorophenol	U		0.0123	0.384	1	03/01/2023 02:49	WG2014199
(S) 2-Fluorophenol	*57.9*			*12.0-120*		*03/01/2023 02:49*	WG2014199
(S) Phenol-d5	*52.8*			*10.0-120*		*03/01/2023 02:49*	WG2014199
(S) Nitrobenzene-d5	*51.9*			*10.0-122*		*03/01/2023 02:49*	WG2014199
(S) 2-Fluorobiphenyl	*62.1*			*15.0-120*		*03/01/2023 02:49*	WG2014199
(S) 2,4,6-Tribromophenol	*75.0*			*10.0-127*		*03/01/2023 02:49*	WG2014199
(S) p-Terphenyl-d14	*61.5*			*10.0-120*		*03/01/2023 02:49*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00265	0.00692	1	03/01/2023 00:28	WG2014146
Acenaphthene	U		0.00241	0.00692	1	03/01/2023 00:28	WG2014146
Acenaphthylene	U		0.00249	0.00692	1	03/01/2023 00:28	WG2014146
Benzo(a)anthracene	U		0.00200	0.00692	1	03/01/2023 00:28	WG2014146
Benzo(a)pyrene	U		0.00207	0.00692	1	03/01/2023 00:28	WG2014146
Benzo(b)fluoranthene	U		0.00177	0.00692	1	03/01/2023 00:28	WG2014146
Benzo(g,h,i)perylene	U		0.00204	0.00692	1	03/01/2023 00:28	WG2014146
Benzo(k)fluoranthene	U		0.00248	0.00692	1	03/01/2023 00:28	WG2014146
Chrysene	U		0.00268	0.00692	1	03/01/2023 00:28	WG2014146
Dibenz(a,h)anthracene	U		0.00199	0.00692	1	03/01/2023 00:28	WG2014146
Fluoranthene	U		0.00262	0.00692	1	03/01/2023 00:28	WG2014146
Fluorene	U		0.00237	0.00692	1	03/01/2023 00:28	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00209	0.00692	1	03/01/2023 00:28	WG2014146
Naphthalene	U		0.00471	0.0231	1	03/01/2023 00:28	WG2014146
Phenanthrene	U		0.00267	0.00692	1	03/01/2023 00:28	WG2014146
Pyrene	U		0.00231	0.00692	1	03/01/2023 00:28	WG2014146
1-Methylnaphthalene	U		0.00518	0.0231	1	03/01/2023 00:28	WG2014146
2-Methylnaphthalene	U		0.00493	0.0231	1	03/01/2023 00:28	WG2014146
2-Chloronaphthalene	U		0.00538	0.0231	1	03/01/2023 00:28	WG2014146
(S) p-Terphenyl-d14	*72.6*			*23.0-120*		*03/01/2023 00:28*	WG2014146
(S) Nitrobenzene-d5	*83.9*			*14.0-149*		*03/01/2023 00:28*	WG2014146
(S) 2-Fluorobiphenyl	*55.1*			*34.0-125*		*03/01/2023 00:28*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.8		1	02/28/2023 12:50	WG2014160

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0203	0.0450	1	02/28/2023 17:54	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9800		6.85	11.3	1	02/28/2023 15:48	WG2014195
Arsenic	2.57		0.583	2.25	1	02/28/2023 15:48	WG2014195
Barium	119		0.0959	0.563	1	02/28/2023 15:48	WG2014195
Cadmium	0.272	J	0.0530	0.563	1	02/28/2023 15:48	WG2014195
Chromium	8.24		0.150	1.13	1	02/28/2023 15:48	WG2014195
Copper	9.48		0.450	2.25	1	02/28/2023 15:48	WG2014195
Lead	12.2		0.234	0.563	1	02/28/2023 15:48	WG2014195
Selenium	U		0.860	2.25	1	02/28/2023 15:48	WG2014195
Silver	U		0.143	1.13	1	02/28/2023 15:48	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.44	B J	1.06	3.13	25	03/01/2023 00:14	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*94.6*			*77.0-120*		*03/01/2023 00:14*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.50	4.50	1	02/28/2023 21:55	WG2014151
Residual Range Organics (RRO)	U		3.75	11.3	1	02/28/2023 21:55	WG2014151
(S) o-Terphenyl	*47.9*			*18.0-148*		*02/28/2023 21:55*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00607	0.0375	1	03/01/2023 03:09	WG2014199
Acenaphthylene	U		0.00528	0.0375	1	03/01/2023 03:09	WG2014199
Anthracene	U		0.00668	0.0375	1	03/01/2023 03:09	WG2014199
Benzo(a)anthracene	U		0.00661	0.0375	1	03/01/2023 03:09	WG2014199
Benzo(b)fluoranthene	U		0.00699	0.0375	1	03/01/2023 03:09	WG2014199
Benzo(k)fluoranthene	U		0.00667	0.0375	1	03/01/2023 03:09	WG2014199
Benzo(g,h,i)perylene	U		0.00686	0.0375	1	03/01/2023 03:09	WG2014199
Benzo(a)pyrene	U		0.00697	0.0375	1	03/01/2023 03:09	WG2014199
Benzoic acid	U		0.133	1.88	1	03/01/2023 03:09	WG2014199
Benzyl alcohol	U		0.0139	0.375	1	03/01/2023 03:09	WG2014199
Bis(2-chlorethoxy)methane	U		0.0113	0.375	1	03/01/2023 03:09	WG2014199
Bis(2-chloroethyl)ether	U		0.0124	0.375	1	03/01/2023 03:09	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0162	0.375	1	03/01/2023 03:09	WG2014199
4-Bromophenyl-phenylether	U		0.0132	0.375	1	03/01/2023 03:09	WG2014199
Carbazole	U		0.0116	0.375	1	03/01/2023 03:09	WG2014199
2-Chloronaphthalene	U		0.00659	0.0375	1	03/01/2023 03:09	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0135	0.375	1	03/01/2023 03:09	WG2014199
4-Chlorophenyl-phenylether	U		0.0131	0.375	1	03/01/2023 03:09	WG2014199
Chrysene	U		0.00745	0.0375	1	03/01/2023 03:09	WG2014199
Dibenz(a,h)anthracene	U		0.0104	0.0375	1	03/01/2023 03:09	WG2014199
Dibenzofuran	U		0.0123	0.375	1	03/01/2023 03:09	WG2014199
3,3-Dichlorobenzidine	U		0.0139	0.375	1	03/01/2023 03:09	WG2014199
2,4-Dinitrotoluene	U		0.0108	0.375	1	03/01/2023 03:09	WG2014199
2,6-Dinitrotoluene	U		0.0123	0.375	1	03/01/2023 03:09	WG2014199
Fluoranthene	U		0.00677	0.0375	1	03/01/2023 03:09	WG2014199
Fluorene	U		0.00610	0.0375	1	03/01/2023 03:09	WG2014199
Hexachlorobenzene	U		0.0133	0.375	1	03/01/2023 03:09	WG2014199
Hexachloro-1,3-butadiene	U		0.0126	0.375	1	03/01/2023 03:09	WG2014199
Hexachlorocyclopentadiene	U		0.0197	0.375	1	03/01/2023 03:09	WG2014199
Hexachloroethane	U		0.0148	0.375	1	03/01/2023 03:09	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0106	0.0375	1	03/01/2023 03:09	WG2014199
Isophorone	U		0.0115	0.375	1	03/01/2023 03:09	WG2014199
2-Methylnaphthalene	U		0.00486	0.0375	1	03/01/2023 03:09	WG2014199
Naphthalene	U		0.00941	0.0375	1	03/01/2023 03:09	WG2014199
2-Nitroaniline	U		0.0120	0.375	1	03/01/2023 03:09	WG2014199
3-Nitroaniline	U		0.0119	0.375	1	03/01/2023 03:09	WG2014199
4-Nitroaniline	U		0.0109	0.375	1	03/01/2023 03:09	WG2014199
Nitrobenzene	U		0.0131	0.375	1	03/01/2023 03:09	WG2014199
n-Nitrosodimethylamine	U		0.0556	0.375	1	03/01/2023 03:09	WG2014199
n-Nitrosodiphenylamine	U		0.0284	0.375	1	03/01/2023 03:09	WG2014199
n-Nitrosodi-n-propylamine	U		0.0125	0.375	1	03/01/2023 03:09	WG2014199
Phenanthrene	U		0.00744	0.0375	1	03/01/2023 03:09	WG2014199
Benzylbutyl phthalate	U		0.0117	0.375	1	03/01/2023 03:09	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0475	0.375	1	03/01/2023 03:09	WG2014199
Di-n-butyl phthalate	U		0.0128	0.375	1	03/01/2023 03:09	WG2014199
Diethyl phthalate	U		0.0124	0.375	1	03/01/2023 03:09	WG2014199
Dimethyl phthalate	U		0.0795	0.375	1	03/01/2023 03:09	WG2014199
Di-n-octyl phthalate	U		0.0253	0.375	1	03/01/2023 03:09	WG2014199
Pyrene	U		0.00730	0.0375	1	03/01/2023 03:09	WG2014199
Pyridine	U		0.0248	0.375	1	03/01/2023 03:09	WG2014199
1,2,4-Trichlorobenzene	U		0.0117	0.375	1	03/01/2023 03:09	WG2014199
4-Chloro-3-methylphenol	U		0.0122	0.375	1	03/01/2023 03:09	WG2014199
2-Chlorophenol	U		0.0124	0.375	1	03/01/2023 03:09	WG2014199
2,4-Dichlorophenol	U		0.0109	0.375	1	03/01/2023 03:09	WG2014199
2,4-Dimethylphenol	U		0.00980	0.375	1	03/01/2023 03:09	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0850	0.375	1	03/01/2023 03:09	WG2014199
2,4-Dinitrophenol	U		0.0877	0.375	1	03/01/2023 03:09	WG2014199
2-Methylphenol	U		0.0113	0.375	1	03/01/2023 03:09	WG2014199
3&4-Methyl Phenol	U		0.0117	0.375	1	03/01/2023 03:09	WG2014199
2-Nitrophenol	U		0.0134	0.375	1	03/01/2023 03:09	WG2014199
4-Nitrophenol	U		0.0117	0.375	1	03/01/2023 03:09	WG2014199
Pentachlorophenol	U		0.0101	0.375	1	03/01/2023 03:09	WG2014199
Phenol	U		0.0151	0.375	1	03/01/2023 03:09	WG2014199
2,4,5-Trichlorophenol	U		0.0127	0.375	1	03/01/2023 03:09	WG2014199
2,4,6-Trichlorophenol	U		0.0120	0.375	1	03/01/2023 03:09	WG2014199
(S) 2-Fluorophenol	*59.3*			*12.0-120*		*03/01/2023 03:09*	WG2014199
(S) Phenol-d5	*53.0*			*10.0-120*		*03/01/2023 03:09*	WG2014199
(S) Nitrobenzene-d5	*52.7*			*10.0-122*		*03/01/2023 03:09*	WG2014199
(S) 2-Fluorobiphenyl	*62.9*			*15.0-120*		*03/01/2023 03:09*	WG2014199
(S) 2,4,6-Tribromophenol	*78.4*			*10.0-127*		*03/01/2023 03:09*	WG2014199
(S) p-Terphenyl-d14	*62.3*			*10.0-120*		*03/01/2023 03:09*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00259	0.00676	1	03/01/2023 00:46	WG2014146
Acenaphthene	U		0.00235	0.00676	1	03/01/2023 00:46	WG2014146
Acenaphthylene	U		0.00243	0.00676	1	03/01/2023 00:46	WG2014146
Benzo(a)anthracene	U		0.00195	0.00676	1	03/01/2023 00:46	WG2014146
Benzo(a)pyrene	U		0.00202	0.00676	1	03/01/2023 00:46	WG2014146
Benzo(b)fluoranthene	U		0.00172	0.00676	1	03/01/2023 00:46	WG2014146
Benzo(g,h,i)perylene	U		0.00199	0.00676	1	03/01/2023 00:46	WG2014146
Benzo(k)fluoranthene	U		0.00242	0.00676	1	03/01/2023 00:46	WG2014146
Chrysene	U		0.00261	0.00676	1	03/01/2023 00:46	WG2014146
Dibenz(a,h)anthracene	U		0.00194	0.00676	1	03/01/2023 00:46	WG2014146
Fluoranthene	U		0.00256	0.00676	1	03/01/2023 00:46	WG2014146
Fluorene	U		0.00231	0.00676	1	03/01/2023 00:46	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00204	0.00676	1	03/01/2023 00:46	WG2014146
Naphthalene	U		0.00459	0.0225	1	03/01/2023 00:46	WG2014146
Phenanthrene	U		0.00260	0.00676	1	03/01/2023 00:46	WG2014146
Pyrene	U		0.00225	0.00676	1	03/01/2023 00:46	WG2014146
1-Methylnaphthalene	U		0.00506	0.0225	1	03/01/2023 00:46	WG2014146
2-Methylnaphthalene	U		0.00481	0.0225	1	03/01/2023 00:46	WG2014146
2-Chloronaphthalene	U		0.00525	0.0225	1	03/01/2023 00:46	WG2014146
(S) p-Terphenyl-d14	*79.1*			*23.0-120*		*03/01/2023 00:46*	WG2014146
(S) Nitrobenzene-d5	*93.9*			*14.0-149*		*03/01/2023 00:46*	WG2014146
(S) 2-Fluorobiphenyl	*72.9*			*34.0-125*		*03/01/2023 00:46*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.8		1	02/28/2023 12:56	WG2014161

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0210	0.0466	1	02/28/2023 17:56	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	14600		7.08	11.6	1	02/28/2023 15:51	WG2014195
Arsenic	4.90		0.603	2.33	1	02/28/2023 15:51	WG2014195
Barium	168		0.0992	0.582	1	02/28/2023 15:51	WG2014195
Cadmium	0.458	J	0.0549	0.582	1	02/28/2023 15:51	WG2014195
Chromium	12.6		0.155	1.16	1	02/28/2023 15:51	WG2014195
Copper	17.0		0.466	2.33	1	02/28/2023 15:51	WG2014195
Lead	20.9		0.242	0.582	1	02/28/2023 15:51	WG2014195
Selenium	1.37	J	0.890	2.33	1	02/28/2023 15:51	WG2014195
Silver	U		0.148	1.16	1	02/28/2023 15:51	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.30	B J	1.30	3.83	29.3	03/01/2023 00:38	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*95.7*			*77.0-120*		*03/01/2023 00:38*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.55	4.66	1	02/28/2023 22:08	WG2014151
Residual Range Organics (RRO)	U		3.88	11.6	1	02/28/2023 22:08	WG2014151
(S) o-Terphenyl	*71.2*			*18.0-148*		*02/28/2023 22:08*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00628	0.0388	1	03/01/2023 03:30	WG2014199
Acenaphthylene	U		0.00546	0.0388	1	03/01/2023 03:30	WG2014199
Anthracene	U		0.00691	0.0388	1	03/01/2023 03:30	WG2014199
Benzo(a)anthracene	U		0.00684	0.0388	1	03/01/2023 03:30	WG2014199
Benzo(b)fluoranthene	U		0.00723	0.0388	1	03/01/2023 03:30	WG2014199
Benzo(k)fluoranthene	U		0.00690	0.0388	1	03/01/2023 03:30	WG2014199
Benzo(g,h,i)perylene	U		0.00709	0.0388	1	03/01/2023 03:30	WG2014199
Benzo(a)pyrene	U		0.00721	0.0388	1	03/01/2023 03:30	WG2014199
Benzoic acid	U		0.137	1.95	1	03/01/2023 03:30	WG2014199
Benzyl alcohol	U		0.0143	0.388	1	03/01/2023 03:30	WG2014199
Bis(2-chlorethoxy)methane	U		0.0116	0.388	1	03/01/2023 03:30	WG2014199
Bis(2-chloroethyl)ether	U		0.0128	0.388	1	03/01/2023 03:30	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0168	0.388	1	03/01/2023 03:30	WG2014199
4-Bromophenyl-phenylether	U		0.0136	0.388	1	03/01/2023 03:30	WG2014199
Carbazole	U		0.0120	0.388	1	03/01/2023 03:30	WG2014199
2-Chloronaphthalene	U		0.00681	0.0388	1	03/01/2023 03:30	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0140	0.388	1	03/01/2023 03:30	WG2014199
4-Chlorophenyl-phenylether	U		0.0135	0.388	1	03/01/2023 03:30	WG2014199
Chrysene	U		0.00771	0.0388	1	03/01/2023 03:30	WG2014199
Dibenz(a,h)anthracene	U		0.0108	0.0388	1	03/01/2023 03:30	WG2014199
Dibenzofuran	U		0.0127	0.388	1	03/01/2023 03:30	WG2014199
3,3-Dichlorobenzidine	U		0.0143	0.388	1	03/01/2023 03:30	WG2014199
2,4-Dinitrotoluene	U		0.0111	0.388	1	03/01/2023 03:30	WG2014199
2,6-Dinitrotoluene	U		0.0127	0.388	1	03/01/2023 03:30	WG2014199
Fluoranthene	U		0.00700	0.0388	1	03/01/2023 03:30	WG2014199
Fluorene	U		0.00631	0.0388	1	03/01/2023 03:30	WG2014199
Hexachlorobenzene	U		0.0137	0.388	1	03/01/2023 03:30	WG2014199
Hexachloro-1,3-butadiene	U		0.0130	0.388	1	03/01/2023 03:30	WG2014199
Hexachlorocyclopentadiene	U		0.0204	0.388	1	03/01/2023 03:30	WG2014199
Hexachloroethane	U		0.0153	0.388	1	03/01/2023 03:30	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0110	0.0388	1	03/01/2023 03:30	WG2014199
Isophorone	U		0.0119	0.388	1	03/01/2023 03:30	WG2014199
2-Methylnaphthalene	U		0.00503	0.0388	1	03/01/2023 03:30	WG2014199
Naphthalene	U		0.00974	0.0388	1	03/01/2023 03:30	WG2014199
2-Nitroaniline	U		0.0125	0.388	1	03/01/2023 03:30	WG2014199
3-Nitroaniline	U		0.0123	0.388	1	03/01/2023 03:30	WG2014199
4-Nitroaniline	U		0.0113	0.388	1	03/01/2023 03:30	WG2014199
Nitrobenzene	U		0.0135	0.388	1	03/01/2023 03:30	WG2014199
n-Nitrosodimethylamine	U		0.0575	0.388	1	03/01/2023 03:30	WG2014199
n-Nitrosodiphenylamine	U		0.0294	0.388	1	03/01/2023 03:30	WG2014199
n-Nitrosodi-n-propylamine	U		0.0129	0.388	1	03/01/2023 03:30	WG2014199
Phenanthrene	U		0.00770	0.0388	1	03/01/2023 03:30	WG2014199
Benzylbutyl phthalate	U		0.0121	0.388	1	03/01/2023 03:30	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0492	0.388	1	03/01/2023 03:30	WG2014199
Di-n-butyl phthalate	U		0.0133	0.388	1	03/01/2023 03:30	WG2014199
Diethyl phthalate	U		0.0128	0.388	1	03/01/2023 03:30	WG2014199
Dimethyl phthalate	U		0.0822	0.388	1	03/01/2023 03:30	WG2014199
Di-n-octyl phthalate	U		0.0262	0.388	1	03/01/2023 03:30	WG2014199
Pyrene	U		0.00755	0.0388	1	03/01/2023 03:30	WG2014199
Pyridine	U		0.0256	0.388	1	03/01/2023 03:30	WG2014199
1,2,4-Trichlorobenzene	U		0.0121	0.388	1	03/01/2023 03:30	WG2014199
4-Chloro-3-methylphenol	U		0.0126	0.388	1	03/01/2023 03:30	WG2014199
2-Chlorophenol	U		0.0128	0.388	1	03/01/2023 03:30	WG2014199
2,4-Dichlorophenol	U		0.0113	0.388	1	03/01/2023 03:30	WG2014199
2,4-Dimethylphenol	U		0.0101	0.388	1	03/01/2023 03:30	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0879	0.388	1	03/01/2023 03:30	WG2014199
2,4-Dinitrophenol	U		0.0907	0.388	1	03/01/2023 03:30	WG2014199
2-Methylphenol	U		0.0116	0.388	1	03/01/2023 03:30	WG2014199
3&4-Methyl Phenol	U		0.0121	0.388	1	03/01/2023 03:30	WG2014199
2-Nitrophenol	U		0.0139	0.388	1	03/01/2023 03:30	WG2014199
4-Nitrophenol	U		0.0121	0.388	1	03/01/2023 03:30	WG2014199
Pentachlorophenol	U		0.0104	0.388	1	03/01/2023 03:30	WG2014199
Phenol	U		0.0156	0.388	1	03/01/2023 03:30	WG2014199
2,4,5-Trichlorophenol	U		0.0132	0.388	1	03/01/2023 03:30	WG2014199
2,4,6-Trichlorophenol	U		0.0125	0.388	1	03/01/2023 03:30	WG2014199
(S) 2-Fluorophenol	*63.9*			*12.0-120*		*03/01/2023 03:30*	WG2014199
(S) Phenol-d5	*58.7*			*10.0-120*		*03/01/2023 03:30*	WG2014199
(S) Nitrobenzene-d5	*57.5*			*10.0-122*		*03/01/2023 03:30*	WG2014199
(S) 2-Fluorobiphenyl	*65.7*			*15.0-120*		*03/01/2023 03:30*	WG2014199
(S) 2,4,6-Tribromophenol	*84.8*			*10.0-127*		*03/01/2023 03:30*	WG2014199
(S) p-Terphenyl-d14	*63.0*			*10.0-120*		*03/01/2023 03:30*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00268	0.00699	1	03/01/2023 01:03	WG2014146
Acenaphthene	U		0.00243	0.00699	1	03/01/2023 01:03	WG2014146
Acenaphthylene	U		0.00252	0.00699	1	03/01/2023 01:03	WG2014146
Benzo(a)anthracene	U		0.00202	0.00699	1	03/01/2023 01:03	WG2014146
Benzo(a)pyrene	U		0.00209	0.00699	1	03/01/2023 01:03	WG2014146
Benzo(b)fluoranthene	U		0.00178	0.00699	1	03/01/2023 01:03	WG2014146
Benzo(g,h,i)perylene	U		0.00206	0.00699	1	03/01/2023 01:03	WG2014146
Benzo(k)fluoranthene	U		0.00250	0.00699	1	03/01/2023 01:03	WG2014146
Chrysene	U		0.00270	0.00699	1	03/01/2023 01:03	WG2014146
Dibenz(a,h)anthracene	U		0.00200	0.00699	1	03/01/2023 01:03	WG2014146
Fluoranthene	U		0.00264	0.00699	1	03/01/2023 01:03	WG2014146
Fluorene	U		0.00239	0.00699	1	03/01/2023 01:03	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00211	0.00699	1	03/01/2023 01:03	WG2014146
Naphthalene	U		0.00475	0.0233	1	03/01/2023 01:03	WG2014146
Phenanthrene	U		0.00269	0.00699	1	03/01/2023 01:03	WG2014146
Pyrene	U		0.00233	0.00699	1	03/01/2023 01:03	WG2014146
1-Methylnaphthalene	U		0.00523	0.0233	1	03/01/2023 01:03	WG2014146
2-Methylnaphthalene	U		0.00497	0.0233	1	03/01/2023 01:03	WG2014146
2-Chloronaphthalene	U		0.00543	0.0233	1	03/01/2023 01:03	WG2014146
(S) p-Terphenyl-d14	*83.4*			*23.0-120*		*03/01/2023 01:03*	WG2014146
(S) Nitrobenzene-d5	*91.6*			*14.0-149*		*03/01/2023 01:03*	WG2014146
(S) 2-Fluorobiphenyl	*75.4*			*34.0-125*		*03/01/2023 01:03*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.1		1	02/28/2023 12:56	WG2014161

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0204	0.0454	1	02/28/2023 17:59	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	10700		6.90	11.3	1	02/28/2023 15:54	WG2014195
Arsenic	4.12		0.588	2.27	1	02/28/2023 15:54	WG2014195
Barium	107		0.0967	0.567	1	02/28/2023 15:54	WG2014195
Cadmium	0.255	J	0.0534	0.567	1	02/28/2023 15:54	WG2014195
Chromium	9.14		0.151	1.13	1	02/28/2023 15:54	WG2014195
Copper	13.5		0.454	2.27	1	02/28/2023 15:54	WG2014195
Lead	14.1		0.236	0.567	1	02/28/2023 15:54	WG2014195
Selenium	U		0.867	2.27	1	02/28/2023 15:54	WG2014195
Silver	U		0.144	1.13	1	02/28/2023 15:54	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.28	B J	1.10	3.24	25	03/01/2023 14:57	WG2014774
(S) a,a,a-Trifluorotoluene(FID)	*105*			*77.0-120*		*03/01/2023 14:57*	WG2014774

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.51	4.54	1	02/28/2023 22:21	WG2014151
Residual Range Organics (RRO)	U		3.78	11.3	1	02/28/2023 22:21	WG2014151
(S) o-Terphenyl	*49.2*			*18.0-148*		*02/28/2023 22:21*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00612	0.0378	1	03/01/2023 05:12	WG2014199
Acenaphthylene	U		0.00532	0.0378	1	03/01/2023 05:12	WG2014199
Anthracene	U		0.00673	0.0378	1	03/01/2023 05:12	WG2014199
Benzo(a)anthracene	U		0.00666	0.0378	1	03/01/2023 05:12	WG2014199
Benzo(b)fluoranthene	U		0.00705	0.0378	1	03/01/2023 05:12	WG2014199
Benzo(k)fluoranthene	U		0.00672	0.0378	1	03/01/2023 05:12	WG2014199
Benzo(g,h,i)perylene	U		0.00691	0.0378	1	03/01/2023 05:12	WG2014199
Benzo(a)pyrene	U		0.00702	0.0378	1	03/01/2023 05:12	WG2014199
Benzoic acid	U		0.134	1.90	1	03/01/2023 05:12	WG2014199
Benzyl alcohol	U		0.0140	0.378	1	03/01/2023 05:12	WG2014199
Bis(2-chlorethoxy)methane	U		0.0113	0.378	1	03/01/2023 05:12	WG2014199
Bis(2-chloroethyl)ether	U		0.0125	0.378	1	03/01/2023 05:12	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0163	0.378	1	03/01/2023 05:12	WG2014199
4-Bromophenyl-phenylether	U		0.0133	0.378	1	03/01/2023 05:12	WG2014199
Carbazole	U		0.0117	0.378	1	03/01/2023 05:12	WG2014199
2-Chloronaphthalene	U		0.00664	0.0378	1	03/01/2023 05:12	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0136	0.378	1	03/01/2023 05:12	WG2014199
4-Chlorophenyl-phenylether	U		0.0132	0.378	1	03/01/2023 05:12	WG2014199
Chrysene	U		0.00751	0.0378	1	03/01/2023 05:12	WG2014199
Dibenz(a,h)anthracene	U		0.0105	0.0378	1	03/01/2023 05:12	WG2014199
Dibenzofuran	U		0.0124	0.378	1	03/01/2023 05:12	WG2014199
3,3-Dichlorobenzidine	U		0.0140	0.378	1	03/01/2023 05:12	WG2014199
2,4-Dinitrotoluene	U		0.0108	0.378	1	03/01/2023 05:12	WG2014199
2,6-Dinitrotoluene	U		0.0124	0.378	1	03/01/2023 05:12	WG2014199
Fluoranthene	U		0.00682	0.0378	1	03/01/2023 05:12	WG2014199
Fluorene	U		0.00615	0.0378	1	03/01/2023 05:12	WG2014199
Hexachlorobenzene	U		0.0134	0.378	1	03/01/2023 05:12	WG2014199
Hexachloro-1,3-butadiene	U		0.0127	0.378	1	03/01/2023 05:12	WG2014199
Hexachlorocyclopentadiene	U		0.0199	0.378	1	03/01/2023 05:12	WG2014199
Hexachloroethane	U		0.0149	0.378	1	03/01/2023 05:12	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0107	0.0378	1	03/01/2023 05:12	WG2014199
Isophorone	U		0.0116	0.378	1	03/01/2023 05:12	WG2014199
2-Methylnaphthalene	U		0.00490	0.0378	1	03/01/2023 05:12	WG2014199
Naphthalene	U		0.00949	0.0378	1	03/01/2023 05:12	WG2014199
2-Nitroaniline	U		0.0121	0.378	1	03/01/2023 05:12	WG2014199
3-Nitroaniline	U		0.0120	0.378	1	03/01/2023 05:12	WG2014199
4-Nitroaniline	U		0.0110	0.378	1	03/01/2023 05:12	WG2014199
Nitrobenzene	U		0.0132	0.378	1	03/01/2023 05:12	WG2014199
n-Nitrosodimethylamine	U		0.0561	0.378	1	03/01/2023 05:12	WG2014199
n-Nitrosodiphenylamine	U		0.0286	0.378	1	03/01/2023 05:12	WG2014199
n-Nitrosodi-n-propylamine	U		0.0126	0.378	1	03/01/2023 05:12	WG2014199
Phenanthrene	U		0.00750	0.0378	1	03/01/2023 05:12	WG2014199
Benzylbutyl phthalate	U		0.0118	0.378	1	03/01/2023 05:12	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0479	0.378	1	03/01/2023 05:12	WG2014199
Di-n-butyl phthalate	U		0.0129	0.378	1	03/01/2023 05:12	WG2014199
Diethyl phthalate	U		0.0125	0.378	1	03/01/2023 05:12	WG2014199
Dimethyl phthalate	U		0.0801	0.378	1	03/01/2023 05:12	WG2014199
Di-n-octyl phthalate	U		0.0255	0.378	1	03/01/2023 05:12	WG2014199
Pyrene	U		0.00735	0.0378	1	03/01/2023 05:12	WG2014199
Pyridine	U		0.0250	0.378	1	03/01/2023 05:12	WG2014199
1,2,4-Trichlorobenzene	U		0.0118	0.378	1	03/01/2023 05:12	WG2014199
4-Chloro-3-methylphenol	U		0.0123	0.378	1	03/01/2023 05:12	WG2014199
2-Chlorophenol	U		0.0125	0.378	1	03/01/2023 05:12	WG2014199
2,4-Dichlorophenol	U		0.0110	0.378	1	03/01/2023 05:12	WG2014199
2,4-Dimethylphenol	U		0.00987	0.378	1	03/01/2023 05:12	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0857	0.378	1	03/01/2023 05:12	WG2014199
2,4-Dinitrophenol	U		0.0884	0.378	1	03/01/2023 05:12	WG2014199
2-Methylphenol	U		0.0113	0.378	1	03/01/2023 05:12	WG2014199
3&4-Methyl Phenol	U		0.0118	0.378	1	03/01/2023 05:12	WG2014199
2-Nitrophenol	U		0.0135	0.378	1	03/01/2023 05:12	WG2014199
4-Nitrophenol	U		0.0118	0.378	1	03/01/2023 05:12	WG2014199
Pentachlorophenol	U		0.0102	0.378	1	03/01/2023 05:12	WG2014199
Phenol	U		0.0152	0.378	1	03/01/2023 05:12	WG2014199
2,4,5-Trichlorophenol	U		0.0128	0.378	1	03/01/2023 05:12	WG2014199
2,4,6-Trichlorophenol	U		0.0121	0.378	1	03/01/2023 05:12	WG2014199
(S) 2-Fluorophenol	*55.2*			*12.0-120*		*03/01/2023 05:12*	WG2014199
(S) Phenol-d5	*50.3*			*10.0-120*		*03/01/2023 05:12*	WG2014199
(S) Nitrobenzene-d5	*49.7*			*10.0-122*		*03/01/2023 05:12*	WG2014199
(S) 2-Fluorobiphenyl	*58.5*			*15.0-120*		*03/01/2023 05:12*	WG2014199
(S) 2,4,6-Tribromophenol	*74.8*			*10.0-127*		*03/01/2023 05:12*	WG2014199
(S) p-Terphenyl-d14	*59.5*			*10.0-120*		*03/01/2023 05:12*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00261	0.00681	1	03/01/2023 01:21	WG2014146
Acenaphthene	U		0.00237	0.00681	1	03/01/2023 01:21	WG2014146
Acenaphthylene	U		0.00245	0.00681	1	03/01/2023 01:21	WG2014146
Benzo(a)anthracene	U		0.00196	0.00681	1	03/01/2023 01:21	WG2014146
Benzo(a)pyrene	U		0.00203	0.00681	1	03/01/2023 01:21	WG2014146
Benzo(b)fluoranthene	U		0.00174	0.00681	1	03/01/2023 01:21	WG2014146
Benzo(g,h,i)perylene	U		0.00201	0.00681	1	03/01/2023 01:21	WG2014146
Benzo(k)fluoranthene	U		0.00244	0.00681	1	03/01/2023 01:21	WG2014146
Chrysene	U		0.00263	0.00681	1	03/01/2023 01:21	WG2014146
Dibenz(a,h)anthracene	U		0.00195	0.00681	1	03/01/2023 01:21	WG2014146
Fluoranthene	U		0.00258	0.00681	1	03/01/2023 01:21	WG2014146
Fluorene	U		0.00233	0.00681	1	03/01/2023 01:21	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00205	0.00681	1	03/01/2023 01:21	WG2014146
Naphthalene	U		0.00463	0.0227	1	03/01/2023 01:21	WG2014146
Phenanthrene	U		0.00262	0.00681	1	03/01/2023 01:21	WG2014146
Pyrene	U		0.00227	0.00681	1	03/01/2023 01:21	WG2014146
1-Methylnaphthalene	U		0.00509	0.0227	1	03/01/2023 01:21	WG2014146
2-Methylnaphthalene	U		0.00485	0.0227	1	03/01/2023 01:21	WG2014146
2-Chloronaphthalene	U		0.00529	0.0227	1	03/01/2023 01:21	WG2014146
(S) p-Terphenyl-d14	*49.9*			*23.0-120*		*03/01/2023 01:21*	WG2014146
(S) Nitrobenzene-d5	*87.1*			*14.0-149*		*03/01/2023 01:21*	WG2014146
(S) 2-Fluorobiphenyl	*38.4*			*34.0-125*		*03/01/2023 01:21*	WG2014146

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.2		1	02/28/2023 12:56	WG2014161

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.0197	0.0439	1	02/28/2023 18:01	WG2014197

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Aluminum	9770	J3 V	6.67	11.0	1	02/28/2023 15:14	WG2014195
Arsenic	2.98		0.568	2.19	1	02/28/2023 15:14	WG2014195
Barium	103		0.0935	0.549	1	02/28/2023 15:14	WG2014195
Cadmium	0.225	J	0.0517	0.549	1	02/28/2023 15:14	WG2014195
Chromium	7.85		0.146	1.10	1	02/28/2023 15:14	WG2014195
Copper	11.5		0.439	2.19	1	02/28/2023 15:14	WG2014195
Lead	11.8		0.228	0.549	1	02/28/2023 15:14	WG2014195
Selenium	U		0.838	2.19	1	02/28/2023 15:14	WG2014195
Silver	U		0.139	1.10	1	02/28/2023 15:14	WG2014195

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Gasoline Range Organics-NWTPH	1.48	B J	1.04	3.07	25.8	03/01/2023 01:03	WG2014258
(S) a,a,a-Trifluorotoluene(FID)	*96.5*			*77.0-120*		*03/01/2023 01:03*	WG2014258

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Diesel Range Organics (DRO)	U		1.46	4.39	1	02/28/2023 22:34	WG2014151
Residual Range Organics (RRO)	U		3.65	11.0	1	02/28/2023 22:34	WG2014151
(S) o-Terphenyl	*59.5*			*18.0-148*		*02/28/2023 22:34*	WG2014151

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acenaphthene	U		0.00591	0.0365	1	03/01/2023 03:50	WG2014199
Acenaphthylene	U		0.00515	0.0365	1	03/01/2023 03:50	WG2014199
Anthracene	U		0.00651	0.0365	1	03/01/2023 03:50	WG2014199
Benzo(a)anthracene	U		0.00644	0.0365	1	03/01/2023 03:50	WG2014199
Benzo(b)fluoranthene	U		0.00681	0.0365	1	03/01/2023 03:50	WG2014199
Benzo(k)fluoranthene	U		0.00649	0.0365	1	03/01/2023 03:50	WG2014199
Benzo(g,h,i)perylene	U		0.00668	0.0365	1	03/01/2023 03:50	WG2014199
Benzo(a)pyrene	U		0.00679	0.0365	1	03/01/2023 03:50	WG2014199
Benzoic acid	U		0.129	1.83	1	03/01/2023 03:50	WG2014199
Benzyl alcohol	U		0.0135	0.365	1	03/01/2023 03:50	WG2014199
Bis(2-chlorethoxy)methane	U		0.0110	0.365	1	03/01/2023 03:50	WG2014199
Bis(2-chloroethyl)ether	U		0.0121	0.365	1	03/01/2023 03:50	WG2014199
2,2-Oxybis(1-Chloropropane)	U		0.0158	0.365	1	03/01/2023 03:50	WG2014199
4-Bromophenyl-phenylether	U		0.0128	0.365	1	03/01/2023 03:50	WG2014199
Carbazole	U		0.0113	0.365	1	03/01/2023 03:50	WG2014199
2-Chloronaphthalene	U		0.00642	0.0365	1	03/01/2023 03:50	WG2014199

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chloroaniline	U		0.0132	0.365	1	03/01/2023 03:50	WG2014199
4-Chlorophenyl-phenylether	U		0.0127	0.365	1	03/01/2023 03:50	WG2014199
Chrysene	U		0.00726	0.0365	1	03/01/2023 03:50	WG2014199
Dibenz(a,h)anthracene	U		0.0101	0.0365	1	03/01/2023 03:50	WG2014199
Dibenzofuran	U		0.0120	0.365	1	03/01/2023 03:50	WG2014199
3,3-Dichlorobenzidine	U		0.0135	0.365	1	03/01/2023 03:50	WG2014199
2,4-Dinitrotoluene	U		0.0105	0.365	1	03/01/2023 03:50	WG2014199
2,6-Dinitrotoluene	U		0.0120	0.365	1	03/01/2023 03:50	WG2014199
Fluoranthene	U		0.00659	0.0365	1	03/01/2023 03:50	WG2014199
Fluorene	U		0.00595	0.0365	1	03/01/2023 03:50	WG2014199
Hexachlorobenzene	U		0.0129	0.365	1	03/01/2023 03:50	WG2014199
Hexachloro-1,3-butadiene	U		0.0123	0.365	1	03/01/2023 03:50	WG2014199
Hexachlorocyclopentadiene	U		0.0192	0.365	1	03/01/2023 03:50	WG2014199
Hexachloroethane	U		0.0144	0.365	1	03/01/2023 03:50	WG2014199
Indeno(1,2,3-cd)pyrene	U		0.0103	0.0365	1	03/01/2023 03:50	WG2014199
Isophorone	U		0.0112	0.365	1	03/01/2023 03:50	WG2014199
2-Methylnaphthalene	U		0.00474	0.0365	1	03/01/2023 03:50	WG2014199
Naphthalene	U		0.00917	0.0365	1	03/01/2023 03:50	WG2014199
2-Nitroaniline	U		0.0117	0.365	1	03/01/2023 03:50	WG2014199
3-Nitroaniline	U		0.0116	0.365	1	03/01/2023 03:50	WG2014199
4-Nitroaniline	U		0.0107	0.365	1	03/01/2023 03:50	WG2014199
Nitrobenzene	U		0.0127	0.365	1	03/01/2023 03:50	WG2014199
n-Nitrosodimethylamine	U		0.0542	0.365	1	03/01/2023 03:50	WG2014199
n-Nitrosodiphenylamine	U		0.0276	0.365	1	03/01/2023 03:50	WG2014199
n-Nitrosodi-n-propylamine	U		0.0122	0.365	1	03/01/2023 03:50	WG2014199
Phenanthrene	U		0.00725	0.0365	1	03/01/2023 03:50	WG2014199
Benzylbutyl phthalate	U		0.0114	0.365	1	03/01/2023 03:50	WG2014199
Bis(2-ethylhexyl)phthalate	U		0.0463	0.365	1	03/01/2023 03:50	WG2014199
Di-n-butyl phthalate	U		0.0125	0.365	1	03/01/2023 03:50	WG2014199
Diethyl phthalate	U		0.0121	0.365	1	03/01/2023 03:50	WG2014199
Dimethyl phthalate	U		0.0775	0.365	1	03/01/2023 03:50	WG2014199
Di-n-octyl phthalate	U		0.0247	0.365	1	03/01/2023 03:50	WG2014199
Pyrene	U		0.00711	0.0365	1	03/01/2023 03:50	WG2014199
Pyridine	U		0.0241	0.365	1	03/01/2023 03:50	WG2014199
1,2,4-Trichlorobenzene	U		0.0114	0.365	1	03/01/2023 03:50	WG2014199
4-Chloro-3-methylphenol	U		0.0118	0.365	1	03/01/2023 03:50	WG2014199
2-Chlorophenol	U		0.0121	0.365	1	03/01/2023 03:50	WG2014199
2,4-Dichlorophenol	U		0.0106	0.365	1	03/01/2023 03:50	WG2014199
2,4-Dimethylphenol	U		0.00954	0.365	1	03/01/2023 03:50	WG2014199
4,6-Dinitro-2-methylphenol	U		0.0828	0.365	1	03/01/2023 03:50	WG2014199
2,4-Dinitrophenol	U		0.0855	0.365	1	03/01/2023 03:50	WG2014199
2-Methylphenol	U		0.0110	0.365	1	03/01/2023 03:50	WG2014199
3&4-Methyl Phenol	U		0.0114	0.365	1	03/01/2023 03:50	WG2014199
2-Nitrophenol	U		0.0131	0.365	1	03/01/2023 03:50	WG2014199
4-Nitrophenol	U		0.0114	0.365	1	03/01/2023 03:50	WG2014199
Pentachlorophenol	U		0.00983	0.365	1	03/01/2023 03:50	WG2014199
Phenol	U		0.0147	0.365	1	03/01/2023 03:50	WG2014199
2,4,5-Trichlorophenol	U		0.0124	0.365	1	03/01/2023 03:50	WG2014199
2,4,6-Trichlorophenol	U		0.0117	0.365	1	03/01/2023 03:50	WG2014199
(S) 2-Fluorophenol	*61.3*			*12.0-120*		*03/01/2023 03:50*	WG2014199
(S) Phenol-d5	*55.9*			*10.0-120*		*03/01/2023 03:50*	WG2014199
(S) Nitrobenzene-d5	*56.0*			*10.0-122*		*03/01/2023 03:50*	WG2014199
(S) 2-Fluorobiphenyl	*65.4*			*15.0-120*		*03/01/2023 03:50*	WG2014199
(S) 2,4,6-Tribromophenol	*83.0*			*10.0-127*		*03/01/2023 03:50*	WG2014199
(S) p-Terphenyl-d14	*62.0*			*10.0-120*		*03/01/2023 03:50*	WG2014199

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00252	0.00658	1	03/01/2023 01:40	WG2014146
Acenaphthene	U		0.00229	0.00658	1	03/01/2023 01:40	WG2014146
Acenaphthylene	U		0.00237	0.00658	1	03/01/2023 01:40	WG2014146
Benzo(a)anthracene	U		0.00190	0.00658	1	03/01/2023 01:40	WG2014146
Benzo(a)pyrene	U		0.00196	0.00658	1	03/01/2023 01:40	WG2014146
Benzo(b)fluoranthene	U		0.00168	0.00658	1	03/01/2023 01:40	WG2014146
Benzo(g,h,i)perylene	U		0.00194	0.00658	1	03/01/2023 01:40	WG2014146
Benzo(k)fluoranthene	U		0.00236	0.00658	1	03/01/2023 01:40	WG2014146
Chrysene	U		0.00255	0.00658	1	03/01/2023 01:40	WG2014146
Dibenz(a,h)anthracene	U		0.00189	0.00658	1	03/01/2023 01:40	WG2014146
Fluoranthene	U		0.00249	0.00658	1	03/01/2023 01:40	WG2014146
Fluorene	U		0.00225	0.00658	1	03/01/2023 01:40	WG2014146
Indeno(1,2,3-cd)pyrene	U		0.00199	0.00658	1	03/01/2023 01:40	WG2014146
Naphthalene	U		0.00448	0.0219	1	03/01/2023 01:40	WG2014146
Phenanthrene	U		0.00253	0.00658	1	03/01/2023 01:40	WG2014146
Pyrene	U		0.00219	0.00658	1	03/01/2023 01:40	WG2014146
1-Methylnaphthalene	U		0.00493	0.0219	1	03/01/2023 01:40	WG2014146
2-Methylnaphthalene	U		0.00468	0.0219	1	03/01/2023 01:40	WG2014146
2-Chloronaphthalene	U		0.00511	0.0219	1	03/01/2023 01:40	WG2014146
(S) p-Terphenyl-d14	*49.0*			*23.0-120*		*03/01/2023 01:40*	WG2014146
(S) Nitrobenzene-d5	*85.9*			*14.0-149*		*03/01/2023 01:40*	WG2014146
(S) 2-Fluorobiphenyl	*40.8*			*34.0-125*		*03/01/2023 01:40*	WG2014146

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	0.0390	B J	0.0316	0.100	1	03/01/2023 00:51	WG2014576
(S) a,a,a-Trifluorotoluene(FID)	*97.5*			*78.0-120*		*03/01/2023 00:51*	WG2014576

Method Blank (MB)

(MB) R3896005-1 02/28/23 12:50

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Total Solids	0.000			

L1588269-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1588269-20 02/28/23 12:50 • (DUP) R3896005-3 02/28/23 12:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	87.4	89.4	1	2.19		10

Laboratory Control Sample (LCS)

(LCS) R3896005-2 02/28/23 12:50

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

Method Blank (MB)

(MB) R3896007-1 02/28/23 12:56

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1589835-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1589835-01 02/28/23 12:56 • (DUP) R3896007-3 02/28/23 12:56

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	81.2	81.7	1	0.604		10

Laboratory Control Sample (LCS)

(LCS) R3896007-2 02/28/23 12:56

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

QUALITY CONTROL SUMMARY

L1589831-01,02,03,04,05,06,07,08,09,10

Method Blank (MB)

(MB) R3895901-1 02/28/23 17:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3895901-2 02/28/23 17:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.528	106	80.0-120	

L1588269-20 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588269-20 02/28/23 17:16 • (MS) R3895901-3 02/28/23 17:19 • (MSD) R3895901-4 02/28/23 17:21

Analyte	Spike Amount (dry) mg/kg	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.572	0.0251	0.704	0.693	119	117	1	75.0-125			1.59	20

Method Blank (MB)

(MB) R3895884-1 02/28/23 15:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.08	10.0
Arsenic	U		0.518	2.00
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Chromium	U		0.133	1.00
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Selenium	U		0.764	2.00
Silver	U		0.127	1.00

Laboratory Control Sample (LCS)

(LCS) R3895884-2 02/28/23 15:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	953	95.3	80.0-120	
Arsenic	100	94.0	94.0	80.0-120	
Barium	100	99.1	99.1	80.0-120	
Cadmium	100	97.7	97.7	80.0-120	
Chromium	100	98.3	98.3	80.0-120	
Copper	100	98.3	98.3	80.0-120	
Lead	100	96.9	96.9	80.0-120	
Selenium	100	97.0	97.0	80.0-120	
Silver	20.0	18.1	90.4	80.0-120	

L1589831-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1589831-10 02/28/23 15:14 • (MS) R3895884-5 02/28/23 15:22 • (MSD) R3895884-6 02/28/23 15:24

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1100	9770	11600	8560	164	0.000	1	75.0-125	V	J3 V	29.9	20
Arsenic	110	2.98	105	103	93.0	91.0	1	75.0-125			2.11	20
Barium	110	103	207	189	94.7	78.3	1	75.0-125			9.08	20
Cadmium	110	0.225	107	107	97.1	97.2	1	75.0-125			0.107	20
Chromium	110	7.85	112	110	95.3	93.6	1	75.0-125			1.70	20
Copper	110	11.5	119	116	98.1	95.3	1	75.0-125			2.58	20
Lead	110	11.8	120	116	98.7	95.1	1	75.0-125			3.38	20
Selenium	110	U	106	103	96.4	94.1	1	75.0-125			2.49	20

L1589831-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1589831-10 02/28/23 15:14 • (MS) R3895884-5 02/28/23 15:22 • (MSD) R3895884-6 02/28/23 15:24

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Silver	21.9	U	20.0	19.8	91.3	90.3	1	75.0-125			1.05	20

Method Blank (MB)

(MB) R3895973-2 02/28/23 21:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPHG C6 - C12	1.21	J	0.848	2.50
(S) a,a,a-Trifluorotoluene(FID)	*91.5*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3895973-1 02/28/23 19:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPHG C6 - C12	5.50	5.37	97.6	71.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*95.8*	*77.0-120*	

L1588733-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588733-02 03/01/23 04:20 • (MS) R3895973-3 03/01/23 06:23 • (MSD) R3895973-4 03/01/23 06:47

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	1100	66.3	1040	1140	88.5	97.6	200	50.0-150			9.17	27
(S) a,a,a-Trifluorotoluene(FID)					*96.3*	*97.3*		*77.0-120*				

Method Blank (MB)

(MB) R3896259-2 03/01/23 12:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPHG C6 - C12	0.851	J	0.848	2.50
(S) a,a,a-Trifluorotoluene(FID)	*104*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3896259-1 03/01/23 10:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPHG C6 - C12	5.50	5.27	95.8	71.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*116*	*77.0-120*	

Method Blank (MB)

(MB) R3896053-3 02/28/23 21:41

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Gasoline Range Organics-NWTPH	0.0534	J	0.0316	0.100
(S) a,a,a-Trifluorotoluene(FID)	*97.4*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3896053-1 02/28/23 19:11

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5.50	5.42	98.5	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*102*	*78.0-120*	

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3895932-2 02/28/23 19:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Diesel Range Organics (DRO)	U		1.33	4.00
Residual Range Organics (RRO)	U		3.33	10.0
(S) o-Terphenyl	*66.1*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3895932-1 02/28/23 19:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Diesel Range Organics (DRO)	50.0	35.4	70.8	50.0-150	
(S) o-Terphenyl			*83.6*	*18.0-148*	

L1589831-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1589831-03 02/28/23 20:37 • (MS) R3895932-3 02/28/23 20:50 • (MSD) R3895932-4 02/28/23 21:03

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	56.1	U	29.8	21.3	53.2	38.0	1	50.0-150		J3 J6	33.3	20
(S) o-Terphenyl					*49.2*	*40.8*		*18.0-148*				

Method Blank (MB)

(MB) R3896244-2 03/01/23 00:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00539	0.0333
Acenaphthylene	U		0.00469	0.0333
Anthracene	U		0.00593	0.0333
Benzo(a)anthracene	U		0.00587	0.0333
Benzo(b)fluoranthene	U		0.00621	0.0333
Benzo(k)fluoranthene	U		0.00592	0.0333
Benzo(g,h,i)perylene	U		0.00609	0.0333
Benzo(a)pyrene	U		0.00619	0.0333
Benzoic Acid	U		0.118	1.67
Benzyl Alcohol	U		0.0123	0.333
Bis(2-chlorethoxy)methane	U		0.0100	0.333
Bis(2-chloroethyl)ether	U		0.0110	0.333
2,2-oxybis(1-chloropropane)	U		0.0144	0.333
4-Bromophenyl-phenylether	U		0.0117	0.333
Carbazole	U		0.0103	0.333
2-Chloronaphthalene	U		0.00585	0.0333
4-Chloroaniline	U		0.0120	0.333
4-Chlorophenyl-phenylether	U		0.0116	0.333
Chrysene	U		0.00662	0.0333
Dibenz(a,h)anthracene	U		0.00923	0.0333
Dibenzofuran	U		0.0109	0.333
3,3-Dichlorobenzidine	U		0.0123	0.333
2,4-Dinitrotoluene	U		0.00955	0.333
2,6-Dinitrotoluene	U		0.0109	0.333
Fluoranthene	U		0.00601	0.0333
Fluorene	U		0.00542	0.0333
Hexachlorobenzene	U		0.0118	0.333
Hexachloro-1,3-butadiene	U		0.0112	0.333
Hexachlorocyclopentadiene	U		0.0175	0.333
Hexachloroethane	U		0.0131	0.333
Indeno(1,2,3-cd)pyrene	U		0.00941	0.0333
Isophorone	U		0.0102	0.333
2-Methylnaphthalene	U		0.00432	0.0333
Naphthalene	U		0.00836	0.0333
2-Nitroaniline	U		0.0107	0.333
3-Nitroaniline	U		0.0106	0.333
4-Nitroaniline	U		0.00971	0.333
Nitrobenzene	U		0.0116	0.333
n-Nitrosodimethylamine	U		0.0494	0.333
n-Nitrosodiphenylamine	U		0.0252	0.333

Method Blank (MB)

(MB) R3896244-2 03/01/23 00:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
n-Nitrosodi-n-propylamine	U		0.0111	0.333
Phenanthrene	U		0.00661	0.0333
Benzylbutyl phthalate	U		0.0104	0.333
Bis(2-ethylhexyl)phthalate	U		0.0422	0.333
Di-n-butyl phthalate	U		0.0114	0.333
Diethyl phthalate	U		0.0110	0.333
Dimethyl phthalate	U		0.0706	0.333
Di-n-octyl phthalate	U		0.0225	0.333
Pyrene	U		0.00648	0.0333
Pyridine	U		0.0220	0.333
1,2,4-Trichlorobenzene	U		0.0104	0.333
4-Chloro-3-methylphenol	U		0.0108	0.333
2-Chlorophenol	U		0.0110	0.333
2,4-Dichlorophenol	U		0.00970	0.333
2,4-Dimethylphenol	U		0.00870	0.333
4,6-Dinitro-2-methylphenol	U		0.0755	0.333
2,4-Dinitrophenol	U		0.0779	0.333
2-Methylphenol	U		0.0100	0.333
3&4-Methyl Phenol	U		0.0104	0.333
2-Nitrophenol	U		0.0119	0.333
4-Nitrophenol	U		0.0104	0.333
Pentachlorophenol	U		0.00896	0.333
Phenol	U		0.0134	0.333
2,4,5-Trichlorophenol	U		0.0113	0.333
2,4,6-Trichlorophenol	U		0.0107	0.333
(S) 2-Fluorophenol	*75.7*			*12.0-120*
(S) Phenol-d5	*68.2*			*10.0-120*
(S) Nitrobenzene-d5	*67.6*			*10.0-122*
(S) 2-Fluorobiphenyl	*79.6*			*15.0-120*
(S) 2,4,6-Tribromophenol	*89.0*			*10.0-127*
(S) p-Terphenyl-d14	*82.3*			*10.0-120*

Laboratory Control Sample (LCS)

(LCS) R3896244-1 02/28/23 23:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.666	0.454	68.2	38.0-120	
Acenaphthylene	0.666	0.503	75.5	40.0-120	

Laboratory Control Sample (LCS)

(LCS) R3896244-1 02/28/23 23:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.666	0.509	76.4	42.0-120	
Benzo(a)anthracene	0.666	0.553	83.0	44.0-120	
Benzo(b)fluoranthene	0.666	0.517	77.6	43.0-120	
Benzo(k)fluoranthene	0.666	0.503	75.5	44.0-120	
Benzo(g,h,i)perylene	0.666	0.661	99.2	43.0-120	
Benzo(a)pyrene	0.666	0.583	87.5	45.0-120	
Benzoic Acid	1.33	0.346	26.0	10.0-120	
Benzyl Alcohol	0.666	0.413	62.0	10.0-120	
Bis(2-chlorethoxy)methane	0.666	0.363	54.5	20.0-120	
Bis(2-chloroethyl)ether	0.666	0.321	48.2	16.0-120	
2,2-Oxybis(1-Chloropropane)	0.666	0.422	63.4	23.0-120	
4-Bromophenyl-phenylether	0.666	0.540	81.1	40.0-120	
Carbazole	0.666	0.498	74.8	48.0-120	
2-Chloronaphthalene	0.666	0.473	71.0	35.0-120	
4-Chloroaniline	0.666	0.292	43.8	18.0-120	
4-Chlorophenyl-phenylether	0.666	0.481	72.2	40.0-120	
Chrysene	0.666	0.538	80.8	43.0-120	
Dibenz(a,h)anthracene	0.666	0.651	97.7	44.0-120	
Dibenzofuran	0.666	0.479	71.9	44.0-120	
3,3-Dichlorobenzidine	1.33	1.04	78.2	28.0-120	
2,4-Dinitrotoluene	0.666	0.556	83.5	45.0-120	
2,6-Dinitrotoluene	0.666	0.487	73.1	42.0-120	
Fluoranthene	0.666	0.523	78.5	44.0-120	
Fluorene	0.666	0.474	71.2	41.0-120	
Hexachlorobenzene	0.666	0.548	82.3	39.0-120	
Hexachloro-1,3-butadiene	0.666	0.420	63.1	15.0-120	
Hexachlorocyclopentadiene	0.666	0.476	71.5	15.0-120	
Hexachloroethane	0.666	0.388	58.3	17.0-120	
Indeno(1,2,3-cd)pyrene	0.666	0.618	92.8	45.0-120	
Isophorone	0.666	0.363	54.5	23.0-120	
2-Methylnaphthalene	0.666	0.394	59.2	34.0-120	
Naphthalene	0.666	0.374	56.2	18.0-120	
2-Nitroaniline	0.666	0.539	80.9	46.0-120	
3-Nitroaniline	0.666	0.500	75.1	36.0-120	
4-Nitroaniline	0.666	0.777	117	36.0-120	
Nitrobenzene	0.666	0.348	52.3	17.0-120	
n-Nitrosodimethylamine	0.666	0.368	55.3	10.0-125	
n-Nitrosodiphenylamine	0.666	0.462	69.4	40.0-120	
n-Nitrosodi-n-propylamine	0.666	0.417	62.6	26.0-120	
Phenanthrene	0.666	0.501	75.2	42.0-120	

Laboratory Control Sample (LCS)

(LCS) R3896244-1 02/28/23 23:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzylbutyl phthalate	0.666	0.506	76.0	40.0-120	
Bis(2-ethylhexyl)phthalate	0.666	0.512	76.9	41.0-120	
Di-n-butyl phthalate	0.666	0.484	72.7	43.0-120	
Diethyl phthalate	0.666	0.495	74.3	43.0-120	
Dimethyl phthalate	0.666	0.490	73.6	43.0-120	
Di-n-octyl phthalate	0.666	0.517	77.6	40.0-120	
Pyrene	0.666	0.489	73.4	41.0-120	
Pyridine	0.666	0.255	38.3	10.0-120	
1,2,4-Trichlorobenzene	0.666	0.393	59.0	17.0-120	
4-Chloro-3-methylphenol	0.666	0.367	55.1	28.0-120	
2-Chlorophenol	0.666	0.438	65.8	28.0-120	
2,4-Dichlorophenol	0.666	0.399	59.9	25.0-120	
2,4-Dimethylphenol	0.666	0.376	56.5	15.0-120	
4,6-Dinitro-2-methylphenol	0.666	0.566	85.0	16.0-120	
2,4-Dinitrophenol	0.666	0.439	65.9	10.0-120	
2-Methylphenol	0.666	0.431	64.7	35.0-120	
3&4-Methyl Phenol	0.666	0.483	72.5	42.0-120	
2-Nitrophenol	0.666	0.441	66.2	20.0-120	
4-Nitrophenol	0.666	0.630	94.6	27.0-120	
Pentachlorophenol	0.666	0.442	66.4	29.0-120	
Phenol	0.666	0.425	63.8	28.0-120	
2,4,5-Trichlorophenol	0.666	0.452	67.9	38.0-120	
2,4,6-Trichlorophenol	0.666	0.473	71.0	37.0-120	
(S) 2-Fluorophenol			*69.2*	*12.0-120*	
(S) Phenol-d5			*66.4*	*10.0-120*	
(S) Nitrobenzene-d5			*52.9*	*10.0-122*	
(S) 2-Fluorobiphenyl			*74.8*	*15.0-120*	
(S) 2,4,6-Tribromophenol			*97.7*	*10.0-127*	
(S) p-Terphenyl-d14			*79.3*	*10.0-120*	

L1588269-19 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588269-19 03/01/23 06:55 • (MS) R3896244-3 03/01/23 07:15 • (MSD) R3896244-4 03/01/23 07:36

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.710	U	0.478	0.532	67.3	74.5	2	18.0-120			10.7	32
Acenaphthylene	0.710	U	0.504	0.563	70.9	78.8	2	25.0-120			11.1	32
Anthracene	0.710	U	0.571	0.562	80.3	78.6	2	22.0-120			1.55	29
Benzo(a)anthracene	0.710	U	0.618	0.594	87.0	83.1	2	25.0-120			3.99	29

L1588269-19 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588269-19 03/01/23 06:55 • (MS) R3896244-3 03/01/23 07:15 • (MSD) R3896244-4 03/01/23 07:36

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzo(b)fluoranthene	0.710	U	0.620	0.605	87.3	84.6	2	19.0-122			2.51	31
Benzo(k)fluoranthene	0.710	U	0.580	0.561	81.7	78.5	2	23.0-120			3.47	30
Benzo(g,h,i)perylene	0.710	U	0.398	0.365	56.0	51.1	2	10.0-120			8.65	33
Benzo(a)pyrene	0.710	U	0.654	0.627	92.1	87.7	2	24.0-120			4.29	30
Benzoic Acid	1.42	U	1.33	1.33	93.8	93.1	2	10.0-152			0.000	40
Benzyl Alcohol	0.710	U	0.440	0.469	61.9	65.7	2	10.0-136			6.53	40
Bis(2-chlorethoxy)methane	0.710	U	0.409	0.420	57.6	58.8	2	10.0-120			2.65	34
Bis(2-chloroethyl)ether	0.710	U	0.334	0.369	47.1	51.7	2	10.0-120			10.0	40
2,2-Oxybis(1-Chloropropane)	0.710	U	0.430	0.475	60.5	66.5	2	10.0-120			9.96	40
4-Bromophenyl-phenylether	0.710	U	0.653	0.600	92.0	84.0	2	27.0-120			8.42	30
Carbazole	0.710	U	0.539	0.554	75.9	77.5	2	31.0-120			2.82	24
2-Chloronaphthalene	0.710	U	0.472	0.529	66.4	74.0	2	20.0-120			11.4	32
4-Chloroaniline	0.710	U	0.423	0.324	59.6	45.4	2	10.0-120			26.5	36
4-Chlorophenyl-phenylether	0.710	U	0.501	0.571	70.6	79.8	2	24.0-120			12.9	29
Chrysene	0.710	U	0.606	0.587	85.3	82.2	2	21.0-120			3.13	29
Dibenz(a,h)anthracene	0.710	U	0.463	0.440	65.2	61.5	2	10.0-120			5.12	32
Dibenzofuran	0.710	U	0.489	0.546	68.9	76.5	2	24.0-120			11.0	30
3,3-Dichlorobenzidine	1.42	U	1.04	1.11	73.5	77.7	2	10.0-120			6.33	34
2,4-Dinitrotoluene	0.710	U	0.574	0.646	80.8	90.5	2	30.0-120			11.9	31
2,6-Dinitrotoluene	0.710	U	0.498	0.560	70.1	78.3	2	25.0-120			11.6	31
Fluoranthene	0.710	0.0181	0.623	0.605	85.2	82.1	2	18.0-126			3.04	32
Fluorene	0.710	U	0.502	0.556	70.7	77.8	2	25.0-120			10.2	30
Hexachlorobenzene	0.710	U	0.596	0.602	83.9	84.3	2	27.0-120			1.10	28
Hexachloro-1,3-butadiene	0.710	U	0.483	0.491	68.0	68.8	2	10.0-120			1.81	38
Hexachlorocyclopentadiene	0.710	U	0.0523	U	7.37	4.94	2	10.0-120	J6	J6	38.9	40
Hexachloroethane	0.710	U	0.317	0.320	44.6	44.8	2	10.0-120			1.04	40
Indeno(1,2,3-cd)pyrene	0.710	U	0.442	0.400	62.2	56.0	2	10.0-120			9.92	32
Isophorone	0.710	U	0.443	0.460	62.4	64.3	2	13.0-120			3.65	34
2-Methylnaphthalene	0.710	U	0.456	0.469	64.2	65.7	2	10.0-120			2.85	37
Naphthalene	0.710	U	0.439	0.449	61.8	62.8	2	10.0-120			2.23	35
2-Nitroaniline	0.710	U	0.517	0.571	72.8	79.8	2	24.0-120			9.91	30
3-Nitroaniline	0.710	U	0.648	0.556	91.2	77.8	2	11.0-120			15.2	32
4-Nitroaniline	0.710	U	0.698	0.820	98.3	115	2	15.0-120			16.1	31
Nitrobenzene	0.710	U	0.401	0.411	56.5	57.5	2	10.0-120			2.44	36
n-Nitrosodimethylamine	0.710	U	0.369	0.379	52.0	53.1	2	10.0-127			2.64	40
n-Nitrosodiphenylamine	0.710	U	0.624	0.671	87.9	93.8	2	17.0-120			7.13	29
n-Nitrosodi-n-propylamine	0.710	U	0.473	0.509	66.6	71.2	2	10.0-120			7.39	37
Phenanthrene	0.710	0.0168	0.557	0.568	76.1	77.2	2	17.0-120			1.95	31
Benzylbutyl phthalate	0.710	U	0.561	0.567	78.9	79.4	2	23.0-120			1.17	30

L1588269-19 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588269-19 03/01/23 06:55 • (MS) R3896244-3 03/01/23 07:15 • (MSD) R3896244-4 03/01/23 07:36

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bis(2-ethylhexyl)phthalate	0.710	U	0.566	0.574	79.7	80.3	2	17.0-126			1.35	30
Di-n-butyl phthalate	0.710	U	0.537	0.543	75.5	76.0	2	30.0-120			1.22	29
Diethyl phthalate	0.710	U	0.504	0.564	70.9	78.9	2	26.0-120			11.3	28
Dimethyl phthalate	0.710	U	0.491	0.549	69.2	76.8	2	25.0-120			11.0	29
Di-n-octyl phthalate	0.710	U	0.666	0.667	93.8	93.4	2	21.0-123			0.165	29
Pyrene	0.710	0.0241	0.573	0.542	77.3	72.5	2	16.0-121			5.52	32
Pyridine	0.710	U	0.298	0.320	42.0	44.8	2	10.0-120			7.12	40
1,2,4-Trichlorobenzene	0.710	U	0.457	0.467	64.4	65.4	2	12.0-120			2.14	37
4-Chloro-3-methylphenol	0.710	U	0.453	0.457	63.8	64.0	2	15.0-120			0.966	30
2-Chlorophenol	0.710	U	0.466	0.488	65.6	68.3	2	15.0-120			4.61	37
2,4-Dichlorophenol	0.710	U	0.491	0.495	69.2	69.2	2	20.0-120			0.669	31
2,4-Dimethylphenol	0.710	U	0.462	0.469	65.0	65.7	2	10.0-120			1.65	33
4,6-Dinitro-2-methylphenol	0.710	U	0.319	U	44.9	0.000	2	10.0-120		J3 J6	200	39
2,4-Dinitrophenol	0.710	U	0.319	0.286	44.9	40.0	2	10.0-121			10.9	40
2-Methylphenol	0.710	U	0.458	0.483	64.6	67.5	2	11.0-120			5.14	40
3&4-Methyl Phenol	0.710	U	0.515	0.545	72.4	76.3	2	12.0-123			5.81	38
2-Nitrophenol	0.710	U	0.482	0.517	67.8	72.3	2	12.0-120			7.05	39
4-Nitrophenol	0.710	U	0.644	0.735	90.7	103	2	10.0-137			13.2	32
Pentachlorophenol	0.710	U	0.539	0.517	75.9	72.3	2	10.0-160			4.17	31
Phenol	0.710	U	0.428	0.458	60.2	64.2	2	12.0-120			6.95	38
2,4,5-Trichlorophenol	0.710	U	0.473	0.520	66.6	72.8	2	20.0-120			9.52	30
2,4,6-Trichlorophenol	0.710	U	0.509	0.547	71.7	76.6	2	19.0-120			7.28	32
(S) 2-Fluorophenol					*67.1*	*70.3*		*12.0-120*				
(S) Phenol-d5					*64.0*	*65.9*		*10.0-120*				
(S) Nitrobenzene-d5					*61.0*	*57.8*		*10.0-122*				
(S) 2-Fluorobiphenyl					*70.6*	*76.3*		*15.0-120*				
(S) 2,4,6-Tribromophenol					*102*	*99.4*		*10.0-127*				
(S) p-Terphenyl-d14					*74.0*	*75.1*		*10.0-120*				

Sample Narrative:

OS: Dilution due to matrix impact during extract concentration procedure

MS: Dilution due to matrix impact during extract concentration procedure

MSD: Dilution due to matrix impact during extract concentration procedure

Method Blank (MB)

(MB) R3896057-2 02/28/23 22:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) p-Terphenyl-d14	*95.1*			*23.0-120*
(S) Nitrobenzene-d5	*97.1*			*14.0-149*
(S) 2-Fluorobiphenyl	*85.5*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3896057-1 02/28/23 22:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0670	83.8	50.0-126	
Acenaphthene	0.0800	0.0660	82.5	50.0-120	
Acenaphthylene	0.0800	0.0688	86.0	50.0-120	
Benzo(a)anthracene	0.0800	0.0735	91.9	45.0-120	
Benzo(a)pyrene	0.0800	0.0614	76.8	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0702	87.8	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0604	75.5	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0631	78.9	49.0-125	
Chrysene	0.0800	0.0712	89.0	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0612	76.5	47.0-125	
Fluoranthene	0.0800	0.0709	88.6	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3896057-1 02/28/23 22:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0691	86.4	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0678	84.8	46.0-125	
Naphthalene	0.0800	0.0639	79.9	50.0-120	
Phenanthrene	0.0800	0.0661	82.6	47.0-120	
Pyrene	0.0800	0.0755	94.4	43.0-123	
1-Methylnaphthalene	0.0800	0.0663	82.9	51.0-121	
2-Methylnaphthalene	0.0800	0.0690	86.3	50.0-120	
2-Chloronaphthalene	0.0800	0.0638	79.8	50.0-120	
(S) p-Terphenyl-d14			*83.5*	*23.0-120*	
(S) Nitrobenzene-d5			*101*	*14.0-149*	
(S) 2-Fluorobiphenyl			*80.7*	*34.0-125*	

L1588236-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588236-10 03/01/23 04:19 • (MS) R3896057-3 03/01/23 04:37 • (MSD) R3896057-4 03/01/23 04:54

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.104	U	0.114	0.113	109	107	1	10.0-145			0.845	30
Acenaphthene	0.104	U	0.0672	0.0797	64.7	75.6	1	14.0-127			17.1	27
Acenaphthylene	0.104	U	0.0852	0.103	82.1	97.7	1	21.0-124			18.9	25
Benzo(a)anthracene	0.104	0.0366	0.139	0.173	98.9	130	1	10.0-139			21.8	30
Benzo(a)pyrene	0.104	0.0810	0.162	0.210	78.6	123	1	10.0-141			25.6	31
Benzo(b)fluoranthene	0.104	0.107	0.191	0.244	81.2	130	1	10.0-140			24.5	36
Benzo(g,h,i)perylene	0.104	0.126	0.188	0.217	60.3	86.5	1	10.0-140			14.1	33
Benzo(k)fluoranthene	0.104	0.0207	0.0921	0.119	68.8	93.4	1	10.0-137			25.6	31
Chrysene	0.104	0.192	0.108	0.138	0.000	0.000	1	10.0-145	J6	J6	23.9	30
Dibenz(a,h)anthracene	0.104	U	0.0782	0.0880	75.4	83.5	1	10.0-132			11.8	31
Fluoranthene	0.104	0.0587	0.136	0.180	74.7	115	1	10.0-153			27.8	33
Fluorene	0.104	U	0.0841	0.103	81.1	97.4	1	11.0-130			19.9	29
Indeno(1,2,3-cd)pyrene	0.104	0.0758	0.152	0.175	73.0	93.9	1	10.0-137			14.2	32
Naphthalene	0.104	0.0216	0.0982	0.121	73.8	94.8	1	10.0-135			21.3	27
Phenanthrene	0.104	0.0760	0.161	0.221	82.0	138	1	10.0-144		J3	31.4	31
Pyrene	0.104	0.466	0.446	0.598	0.000	126	1	10.0-148	V		29.0	35
1-Methylnaphthalene	0.104	U	0.134	0.191	129	181	1	10.0-142		J3 J5	35.4	28
2-Methylnaphthalene	0.104	0.0543	0.146	0.197	88.4	135	1	10.0-137		J3	29.5	28
2-Chloronaphthalene	0.104	U	0.0653	0.0696	62.9	66.1	1	29.0-120			6.48	24
(S) p-Terphenyl-d14					*84.2*	*80.1*		*23.0-120*				
(S) Nitrobenzene-d5					*79.8*	*87.8*		*14.0-149*				
(S) 2-Fluorobiphenyl					*63.4*	*62.4*		*34.0-125*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:	Billing Information:	Pres Chk	Analysis / Container / Preservative										Chain of Custody Page 1 of 2
UPRR - Golder Associates **18300 NE Union Hill Rd #200** **Redmond, WA 98052**	**John DeJong** **1400 W 52nd Ave** **Denver, CO 80221**		*Metals 8ozClr-NoPres	NWTPHDX w/o SGT 8ozClr-NoPres	NWTPHGX 40mlAmb/MeOH10ml/Syr	SV8270 8ozClr-NoPres	SV8270PAHSIM 8ozClr-NoPres						Pace PEOPLE ADVANCING SCIENCE **MT JULIET, TN** 12065 Lebanon Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf
Report to: **Ted Norton**	Email To: **tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com**												SDG # L1588831 Tab F215
Project Description: **Trentwood WA-Aluminum Dross II**	City/State Collected: Trentwood, WA	Please Circle: (PT) MT CT ET											
Phone: **425-833-0777**	Client Project # **2494**	Lab Project # **UPRRGOLD-2494**											Acctnum: **UPRRGOLD** Template: **T223916**
Collected by (print): James Roman	Site/Facility ID # **IMPORTED BACKFILL SOIL AND**	P.O. #											Prelogin: **P981897** PM: **829 - Brittnie L Boyd**
Collected by (signature):	***Rush?*** (Lab MUST Be Notified) ___ Same Day ___ Five Day X Next Day ___ 5 Day (Rad Only) ___ Two Day ___ 10 Day (Rad Only) ___ Three Day	**Quote #** Date Results Needed 3/21/2023											PB: AR 2.23.23
Immediately Packed on Ice N ___ Y X													Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs										Remarks	Sample # (lab only)
BF5-2494-Q1-Q22723	G	SS	-	2-27-2023	1100	3	X	X	X	X	X						-01
BF5-2494-Q2-Q22723			-		1110	3	X	X	X	X	X						-02
BF5-2494-Q3-Q22723			-		1120	3	X	X	X	X	X						-03
BF5-2494-Q4-Q22723			-		1130	3	X	X	X	X	X						-04
BF5-2494-Q5-Q22723			-		1140	3	X	X	X	X	X						-05
TS2-2494-Q1-Q22723	G	SS	-	2-27-2023	1215	3	X	X	X	X	X						-06
TS2-2494-Q2-Q22723			-		1220	3	X	X	X	X	X						-07
TS2-2494-Q3-Q22723			-		1230	3	X	X	X	X	X						-08
TS2-2494-Q4-Q22723			-		1245	3	X	X	X	X	X						-09
TS2-2494-Q5-Q22723			-		1255	3	X	X	X	X	X						-10

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: *Metals = Al, Ag, As, Ba, Cd, Cr, Cu, Hg, Pb, Se by 6010/7471
Custody seal

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____
Tracking #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCl / MeOH TBR	Sample Receipt Checklist
	2/27/2023	1530			COC Seal Present/Intact: NP Y N COC Signed/Accurate: Y N Bottles arrive intact: Y N Correct bottles used: Y N Sufficient volume sent: Y N If Applicable VOA Zero Headspace: Y N Preservation Correct/Checked: Y N RAD Screen <0.5 mR/hr: Y N
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4 °C 1.7-0=1.4 Bottles Received: 30	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 2.28.23 Time: 0845	Hold: Condition: NCF / OK

Company Name/Address:
UPRR - Golder Associates

18300 NE Union Hill Rd #200
Redmond, WA 98052

Billing Information:
John DeJong
1400 W 52nd Ave
Denver, CO 80221

Pres Chk

Report to:
Ted Norton

Email To: **tnorton@golder.com;UPRR-Sysdat@ghd.com;james.roman@wsp.com**

Project Description:
Trentwood WA-Aluminum Dross II

City/State Collected: Trentwood, WA

Please Circle: (PT) MT CT ET

Phone: **425-833-0777**

Client Project # **2494**

Lab Project # **UPRRGOLD-2494**

Collected by (print): James Roman

Site/Facility ID # **IMPORTED BACKFILL SOIL AND**

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
X Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: 3-1-2023

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Metals 8ozClr-NoPres	NWTPHDX w/o SGT 8ozClr-NoPres	NWTPHGX 40mlAmb/MeOH 10ml/Sr- 5% HCl	SV8270 8ozClr-NoPres	SV8270PAHSIM 8ozClr-NoPres					Remarks	Sample # (lab only)
TB-2494-3-022723	-	SS	-	2-27-2023	1200	1			/								-11
		SS															
		SS															
		SS															
		SS															
		SS															
		SS															
		SS															
		SS															
		SS															

Chain of Custody Page 2 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1589831

Table #

Acctnum: **UPRRGOLD**
Template: **T223916**
Prelogin: **P981897**
PM: **829 - Brittnie L Boyd**
PB: LPZ 2.23.23

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:*Metals = Al, Ag, As, Ba, Cd, Cr, Cu, Hg, Pb, Se

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCl / MeoH TBR	
	2/27/2023	1530		/	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.7 °C Bottles Received: 1	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 2.28.23 Time: 0750	Hold: / Condition: NCF / OK

ok based on the data Ecology provided. However, our contractor is anxious to start bringing in topsoil, and even more concerned about an approval that would allow them to do so. Do you have an idea when you might be able to provide a response so I can help the contractor schedule their work?

Thank you,

Ted Norton
Sr. Lead Consultant, Environmental Scientist

T: +1 425 833 0777
C: +1 206 755 4970

WSP GOLDER

From: Norton, Ted
Sent: Wednesday, March 22, 2023 3:12 PM
To: Treccani, Sandra <satr461@ecy.wa.gov>
Cc: John DeJong <john.dejong@up.com>
Subject: FW: Trentwood Barium Background Concentrtion

Hello Sandy, the attached letter provides a background concentration for barium based on the USGS report data you provided. I used ProUCL to calculate the 95% Students-t UCL for barium to establish a background concentration. We look forward to your review and response to the letter.

Again, thank you for your help on this issue.

Best regards,

Ted Norton
Sr. Lead Consultant, Environmental Scientist

T: +1 425 833 0777
C: +1 206 755 4970

WSP GOLDER

-LAEmHhHzdJzBITWfa4Hgs7pbKt

ATTACHMENT G

ProUCL Output for Compliance Evaluation

ATTACHMENT G1

1	**Normal UCL Statistics for Uncensored Full Data Sets**											
2	Compliance Unit P1 - Arsenic											
3	User Selected Options											
4	Date/Time of Computation	ProUCL 5.18/29/2023 5:53:50 PM										
5	From File	Pentzer Compliance Data 082923.xls										
6	Full Precision	OFF										
7	Confidence Coefficient	95%										
8												
9												
10	**As**											
11												
12	**General Statistics**											
13	Total Number of Observations	39			Number of Distinct Observations	38						
14					Number of Missing Observations	0						
15	Minimum	2.98			Mean	7.048						
16	Maximum	13.7			Median	6.93						
17	SD	2.05			SD of logged Data	0.304						
18	Coefficient of Variation	0.291			Skewness	0.764						
19												
20	**Normal GOF Test**											
21	Shapiro Wilk Test Statistic	0.924			**Shapiro Wilk GOF Test**							
22	5% Shapiro Wilk Critical Value	0.939			Data Not Normal at 5% Significance Level							
23	Lilliefors Test Statistic	0.14			**Lilliefors GOF Test**							
24	5% Lilliefors Critical Value	0.14			Data appear Normal at 5% Significance Level							
25	**Data appear Approximate Normal at 5% Significance Level**											
26												
27	**Assuming Normal Distribution**											
28	**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**							
29	95% Student's-t UCL	7.602			95% Adjusted-CLT UCL (Chen-1995)	7.631						
30					95% Modified-t UCL (Johnson-1978)	7.608						
31												
32	**Suggested UCL to Use**											
33	95% Student's-t UCL	7.602										
34												
35	When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test											
36	When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL											
37												
38	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
39	Recommendations are based upon data size, data distribution, and skewness.											
40	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
41	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
42												

Nonparametric UCL Statistics for Uncensored Full Data Sets

Compliance Unit P1 - Copper

User Selected Options	
Date/Time of Computation	ProUCL 5.18/29/2023 5:58:45 PM
From File	Pentzer Compliance Data 082923.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Cu

General Statistics

Total Number of Observations	39	Number of Distinct Observations	34
		Number of Missing Observations	0
Minimum	8.51	Mean	30.26
Maximum	140	Median	24
SD	23.01	Std. Error of Mean	3.685
Coefficient of Variation	0.76	Skewness	3.679
Mean of logged Data	3.266	SD of logged Data	0.481

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	36.47	95% Adjusted-CLT UCL (Chen-1995)	38.64
		95% Modified-t UCL (Johnson-1978)	36.84

Nonparametric Distribution Free UCLs

95% CLT UCL	36.32	95% Jackknife UCL	36.47
95% Standard Bootstrap UCL	36.25	95% Bootstrap-t UCL	44.44
95% Hall's Bootstrap UCL	67	95% Percentile Bootstrap UCL	36.57
95% BCA Bootstrap UCL	39.21		
90% Chebyshev(Mean, Sd) UCL	41.32	95% Chebyshev(Mean, Sd) UCL	46.32
97.5% Chebyshev(Mean, Sd) UCL	53.27	99% Chebyshev(Mean, Sd) UCL	66.93

Suggested UCL to Use

95% Student's-t UCL	36.47	or 95% Modified-t UCL	36.84

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ATTACHMENT G2

1	**Normal UCL Statistics for Uncensored Full Data Sets**											
2	Compliance Unit W1 - Arsenic											
3	User Selected Options											
4	Date/Time of Computation	ProUCL 5.18/29/2023 6:03:12 PM										
5	From File	WSDOT Compliance data 082923.xls										
6	Full Precision	OFF										
7	Confidence Coefficient	95%										
8												
9												
10	**As**											
11												
12	**General Statistics**											
13	Total Number of Observations	82				Number of Distinct Observations	73					
14						Number of Missing Observations	0					
15	Minimum	0.825				Mean	9.399					
16	Maximum	15				Median	9.06					
17	SD	3.086				SD of logged Data	0.446					
18	Coefficient of Variation	0.328				Skewness	-0.26					
19												
20	**Normal GOF Test**											
21	Shapiro Wilk Test Statistic	0.97				**Normal GOF Test**						
22	5% Shapiro Wilk P Value	0.199				Data appear Normal at 5% Significance Level						
23	Lilliefors Test Statistic	0.0565				**Lilliefors GOF Test**						
24	5% Lilliefors Critical Value	0.098				Data appear Normal at 5% Significance Level						
25	**Data appear Normal at 5% Significance Level**											
26												
27	**Assuming Normal Distribution**											
28	**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**						
29	95% Student's-t UCL	9.966				95% Adjusted-CLT UCL (Chen-1995)	9.949					
30						95% Modified-t UCL (Johnson-1978)	9.964					
31												
32	**Suggested UCL to Use**											
33	95% Student's-t UCL	9.966										
34												
35	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
36	Recommendations are based upon data size, data distribution, and skewness.											
37	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
38	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
39												
40	**Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be**											
41	**reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.**											
42												

1	**Normal UCL Statistics for Uncensored Full Data Sets**											
2	Compliance Unit W1 - Barium											
3	User Selected Options											
4	Date/Time of Computation	ProUCL 5.18/29/2023 6:05:33 PM										
5	From File	WSDOT Compliance data 082923.xls										
6	Full Precision	OFF										
7	Confidence Coefficient	95%										
8												
9												
10	**Ba**											
11												
12	**General Statistics**											
13	Total Number of Observations	82				Number of Distinct Observations	77					
14						Number of Missing Observations	0					
15	Minimum	24.9				Mean	73.39					
16	Maximum	176				Median	69.4					
17	SD	26.67				SD of logged Data	0.359					
18	Coefficient of Variation	0.363				Skewness	0.984					
19												
20	**Normal GOF Test**											
21	Shapiro Wilk Test Statistic	0.95				**Normal GOF Test**						
22	5% Shapiro Wilk P Value	0.00829				Data Not Normal at 5% Significance Level						
23	Lilliefors Test Statistic	0.0875				**Lilliefors GOF Test**						
24	5% Lilliefors Critical Value	0.098				Data appear Normal at 5% Significance Level						
25	**Data appear Approximate Normal at 5% Significance Level**											
26												
27	**Assuming Normal Distribution**											
28	**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**						
29	95% Student's-t UCL	78.29				95% Adjusted-CLT UCL (Chen-1995)	78.58					
30						95% Modified-t UCL (Johnson-1978)	78.35					
31												
32	**Suggested UCL to Use**											
33	95% Student's-t UCL	78.29										
34												
35	When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test											
36	When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL											
37												
38	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
39	Recommendations are based upon data size, data distribution, and skewness.											
40	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
41	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
42												

Nonparametric UCL Statistics for Uncensored Full Data Sets

Compliance Unit W1 - Copper

User Selected Options	
Date/Time of Computation	ProUCL 5.18/29/2023 6:09:35 PM
From File	WSDOT Compliance data 082923.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Cu

General Statistics

Total Number of Observations	82	Number of Distinct Observations	75
		Number of Missing Observations	0
Minimum	9.58	Mean	37.31
Maximum	136	Median	27.2
SD	25.47	Std. Error of Mean	2.813
Coefficient of Variation	0.683	Skewness	2.006
Mean of logged Data	3.448	SD of logged Data	0.561

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	41.99	95% Adjusted-CLT UCL (Chen-1995)	42.6
		95% Modified-t UCL (Johnson-1978)	42.09

Nonparametric Distribution Free UCLs

95% CLT UCL	41.94	95% Jackknife UCL	41.99
95% Standard Bootstrap UCL	42.07	95% Bootstrap-t UCL	42.9
95% Hall's Bootstrap UCL	42.64	95% Percentile Bootstrap UCL	42.11
95% BCA Bootstrap UCL	42.73		
90% Chebyshev(Mean, Sd) UCL	45.75	95% Chebyshev(Mean, Sd) UCL	49.57
97.5% Chebyshev(Mean, Sd) UCL	54.88	99% Chebyshev(Mean, Sd) UCL	65.3

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	49.57		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Nonparametric UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.18/29/2023 9:31:27 PM
From File	WSDOT Compliance data 082923.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Hg

General Statistics

Total Number of Observations	82	Number of Distinct Observations	50
		Number of Missing Observations	0
Minimum	0.018	Mean	0.0368
Maximum	0.302	Median	0.019
SD	0.043	Std. Error of Mean	0.00474
Coefficient of Variation	1.168	Skewness	4.204
Mean of logged Data	-3.583	SD of logged Data	0.63

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	0.0447	95% Adjusted-CLT UCL (Chen-1995)	0.0469
		95% Modified-t UCL (Johnson-1978)	0.0451

Nonparametric Distribution Free UCLs

95% CLT UCL	0.0446	95% Jackknife UCL	0.0447
95% Standard Bootstrap UCL	0.0444	95% Bootstrap-t UCL	0.0496
95% Hall's Bootstrap UCL	0.0545	95% Percentile Bootstrap UCL	0.0448
95% BCA Bootstrap UCL	0.0475		
90% Chebyshev(Mean, Sd) UCL	0.051	95% Chebyshev(Mean, Sd) UCL	0.0575
97.5% Chebyshev(Mean, Sd) UCL	0.0664	99% Chebyshev(Mean, Sd) UCL	0.084

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	0.0575		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ATTACHMENT G3

Nonparametric UCL Statistics for Uncensored Full Data Sets

Stormwater Infiltration Area - Aluminum

User Selected Options	
Date/Time of Computation	ProUCL 5.18/30/2023 8:19:06 PM
From File	Kemira storm compliance data.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

AL

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	2160	Mean	5703
Maximum	22000	Median	2725
SD	6877	Std. Error of Mean	2431
Coefficient of Variation	1.206	Skewness	2.433
Mean of logged Data	8.26	SD of logged Data	0.821

Note: Sample size is small (e.g., <10), if data are collected using ISM approach
you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options.

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	10309	95% Adjusted-CLT UCL (Chen-1995)	11936
		95% Modified-t UCL (Johnson-1978)	10658

Nonparametric Distribution Free UCLs

95% CLT UCL	9702	95% Jackknife UCL	10309
95% Standard Bootstrap UCL	9490	95% Bootstrap-t UCL	69082
95% Hall's Bootstrap UCL	36844	95% Percentile Bootstrap UCL	9864
95% BCA Bootstrap UCL	12263		
90% Chebyshev(Mean, Sd) UCL	12997	95% Chebyshev(Mean, Sd) UCL	16301
97.5% Chebyshev(Mean, Sd) UCL	20887	99% Chebyshev(Mean, Sd) UCL	29895

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	16301		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

1	**Lognormal UCL Statistics for Uncensored Full Data Sets**										
2	Stormwater Infiltration Area - Copper										
3	User Selected Options										
4	Date/Time of Computation	ProUCL 5.18/30/2023 8:13:35 PM									
5	From File	Kemira storm compliance data.xls									
6	Full Precision	OFF									
7	Confidence Coefficient	95%									
8	Number of Bootstrap Operations	2000									
9											
10											
11	**Cu**										
12											
13	**General Statistics**										
14	Total Number of Observations	8					Number of Distinct Observations	8			
15							Number of Missing Observations	0			
16	Minimum	19.7					Mean	32.6			
17	Maximum	78.7					Median	25.2			
18	SD	19.97					Std. Error of Mean	7.06			
19	Coefficient of Variation	0.613					Skewness	2.209			
20											
21	**Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use**										
22	**guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.**										
23	**For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).**										
24	**Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1**										
25											
26	**Lognormal GOF Test**										
27	Shapiro Wilk Test Statistic	0.809					**Shapiro Wilk Lognormal GOF Test**				
28	5% Shapiro Wilk Critical Value	0.818					Data Not Lognormal at 5% Significance Level				
29	Lilliefors Test Statistic	0.275					**Lilliefors Lognormal GOF Test**				
30	5% Lilliefors Critical Value	0.283					Data appear Lognormal at 5% Significance Level				
31	**Data appear Approximate Lognormal at 5% Significance Level**										
32											
33	**Logged Statistics**										
34	Minimum of Logged Data	2.981					Mean of logged Data	3.369			
35	Maximum of Logged Data	4.366					SD of logged Data	0.471			
36											
37	**Lognormal Maximum likelihood Estimates (MLEs)**										
38	MLE Mean	32.45					MLE Standard Deviation	16.18			
39	MLE Median	29.04					MLE Skewness	1.62			
40	MLE Coefficient of Variation	0.499					80% MLE Quantile	43.17			
41	90% MLE Quantile	53.12					95% MLE Quantile	63.04			
42	99% MLE Quantile	86.91									
43											
44	**Lognormal Minimum Variance Unbiased Estimates (MVUEs)**										
45	MVUE Mean	31.97					MVUE SD	15.22			
46	MVUE Median	28.64					MVUE SEM	5.374			
47											
48	**Assuming Lognormal Distribution**										
49	95% H-UCL	48.93					90% Chebyshev (MVUE) UCL	48.09			
50	95% Chebyshev (MVUE) UCL	55.4					97.5% Chebyshev (MVUE) UCL	65.53			
51	99% Chebyshev (MVUE) UCL	85.44									

52											
53	**Nonparametric Distribution Free UCLs**										
54					95% CLT UCL	44.21			95% Jackknife UCL	45.98	
55					95% Standard Bootstrap UCL	43.01			95% Bootstrap-t UCL	86.78	
56					95% Hall's Bootstrap UCL	99.07			95% Percentile Bootstrap UCL	44.54	
57					95% BCA Bootstrap UCL	49.95					
58					90% Chebyshev(Mean, Sd) UCL	53.78			95% Chebyshev(Mean, Sd) UCL	63.38	
59					97.5% Chebyshev(Mean, Sd) UCL	76.69			99% Chebyshev(Mean, Sd) UCL	102.8	
60											
61	**Suggested UCL to Use**										
62					95% Student's-t UCL	45.98			or 95% Modified-t UCL	46.9	
63					or 95% H-UCL	48.93					
64											
65	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.										
66	Recommendations are based upon data size, data distribution, and skewness.										
67	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).										
68	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.										
69											
70	**ProUCL computes and outputs H-statistic based UCLs for historical reasons only.**										
71	**H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.**										
72	**It is therefore recommended to avoid the use of H-statistic based 95% UCLs.**										
73	**Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.**										
74											

ATTACHMENT H

Environmental Covenant

ENVIRONMENTAL COVENANT

After Recording Return
Original Signed Covenant to:
Sandra Treccani
Toxics Cleanup Program
Department of Ecology
4601 N Monroe
Spokane, WA 99205

Environmental Covenant

Grantor: Union Pacific Railroad Company
Grantee: State of Washington, Department of Ecology (hereafter "Ecology")
Brief Legal Description: portions of 45114.9030 and 45114.9181 as described in Exhibit A
Tax Parcel Nos.: 45114.9030 and 45114.9181

RECITALS

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

b. The Property that is the subject of this Covenant is part or all of a site commonly known as Aluminum Recycling Trentwood, Facility/Site ID 628. The Property is legally described in Exhibit A, and illustrated in Exhibit B, both of which are attached (hereafter "Property"). If there are differences between these two Exhibits, the legal description in Exhibit A shall prevail.

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

Medium	Principal Contaminants Present
Soil	Aluminum, arsenic, barium, chromium (total), copper, mercury

d. It is the purpose of this Covenant to restrict certain activities and uses of the Property to protect human health and the environment and the integrity of remedial actions conducted at the site. Records describing the extent of residual contamination and remedial actions conducted are available through Ecology. This includes the following document:

- Final Cleanup Action Report, Union Pacific Railroad, Aluminum Recycling Trentwood Site, May 3 2024

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

COVENANT

Union Pacific Railroad Company, as Grantor and fee simple owner of the Property hereby grants to the Washington State Department of Ecology, and its successors and assignees, the following covenants. Furthermore, it is the intent of the Grantor that such covenants shall supersede any prior interests the Grantor has in the property and run with the land and be binding on all current and future owners of any portion of, or interest in, the Property.

Section 1. General Restrictions and Requirements.

The following general restrictions and requirements shall apply to the Property:

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

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

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

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

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

Section 2. Specific Prohibitions and Requirements.

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

a. Land use.

The remedial action for the Property is based on a cleanup designed for industrial property. As such, the Property shall be used in perpetuity only for industrial uses, as that term is defined in the rules promulgated under Chapter 70.105D RCW. Prohibited uses on the Property include but are not limited to residential uses, childcare facilities, K-12 public or private schools, parks, grazing of animals, growing of food crops, and non-industrial commercial uses.

b. Containment of soil/waste materials.

The remedial action for the Property is based on containing contaminated soil under a cap consisting of geotextile materials overlain by a minimum of six inches of gravel and located as illustrated in Exhibit B. The primary purpose of this cap is to prevent direct contact of humans or ecological receptors with contaminated soil, and to minimize transport potential by wind or stormwater runoff. As such, the following restrictions shall apply within the area illustrated in Exhibit B:

Except as provided in Section 2.c below, any activity on the Property that will compromise the integrity of the cap including: drilling; digging; piercing the cap with sampling device, post, stake or similar device; grading; excavation; installation of underground utilities; removal of the cap; or,

application of loads in excess of the cap load bearing capacity, is prohibited without prior written approval by Ecology. The Grantor shall report to Ecology within forty-eight (48) hours of the discovery of any damage to the cap. Unless an alternative plan has been approved by Ecology in writing, the Grantor shall promptly repair the damage and submit a report documenting this work to Ecology within thirty (30) days of completing the repairs.

The Grantor covenants and agrees that it shall annually, or at another time as approved in writing by Ecology, inspect the cap and report within thirty (30) days of the inspection the condition of the cap and any changes to the cap that would impair its performance.

c. **Railroad Use.**

For the purposes of this Section 2, removal and replacement of rails, ties, and ballast associated with routine rail and railroad tie maintenance shall not be considered subject to the restrictions and requirements under this Section 2. In general, except as restricted by Section 1, railroad operations, construction, or maintenance activities may occur without Ecology notification so long as appropriate health and safety procedures are implemented and all media are managed in compliance with applicable MTCA regulations.

Section 3. Access.

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

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

i. Before entering the Property, all Ecology representatives who will be performing work on the Property are required to participate in Union Pacific's eRailsafe Program. All representatives must be able to provide proof of completion of this program prior to entry to the Property.

ii. Grantor has a Controlled Access Policy, a security program intended to provide a safe workplace and maintain the integrity and security of railroad facilities. Except in emergencies, Ecology agrees to notify the Grantor at least seven (7) days in advance of Ecology commencing its work, and will specifically include in that notice any plans for Ecology representatives or Ecology equipment to be within twenty-five (25) feet of any track, or will be near enough to any track that any equipment extension (such as, but not limited to, a crane boom) will reach to within twenty-five (25) feet of any track. Upon receipt of such notice, the Grantor will determine and inform Ecology whether a flagman or Union Pacific Railroad Company official needs to be present and whether Ecology needs to implement any special protective or safety measures;

iii. Before commencing work, Ecology shall participate in a job briefing conducted by the Grantor, unless an emergency prevents such participation. The briefing will specify the type of Union Pacific Railroad Company On-Track Safety for the type of work being performed and provide any special instructions relating to the work zone around machines and minimum distances. During the job briefing, Ecology will note the limits of track authority, which

tracks may or may not be fouled, and clearing the track.[1]

The following safety rules shall be followed by Ecology's authorized representatives at the site:

1. Ecology representatives shall maintain a distance of at least twenty-five (25) feet to any track unless the determination discussed in the paragraph above has identified the conditions under which a closer distance is allowed, or Ecology has entered the site in response to an emergency.

2. Ecology shall take reasonable measures to keep its job site free from safety and health hazards and ensure that its on-site representatives are competent and adequately trained in all safety and health aspects of the job. Ecology shall promptly notify the Grantor of any U.S. Occupational Safety and Health Administration reportable injuries that occur to any Ecology representative during the work performed on the job site.

3. No Ecology representative accessing the site shall at that time use, be under the influence of, or have in their possession any beverage, legally obtained marijuana, or illegally obtained drug, narcotic or other substance that may inhibit the safe performance of work.

4. Ecology representatives shall be suitably dressed to perform their duties safely and in a manner that will not unduly interfere with their vision, hearing, or free use of their hands or feet. Ecology representatives shall wear the following appropriate personal protective equipment as specified by Union Pacific Railroad Company:

- An orange, reflectorized vest, or similar orange reflectorized workwear approved by the Grantor;
- Only waist-length shirts with sleeves and trousers that cover the entire leg; If flare-legged trousers are worn, the trouser bottoms must be tied to prevent catching;
- Sturdy and protective footwear;
- Protective head gear that means American National Standard Z89.1 latest revision. It is suggested that all hardhats be affixed with Ecology's log or name;
- Eye protection that meets American National Standard for occupational and educational eye and face protection, Z87.1 latest revision; and,
- Hearing protection which affords enough attenuation to give protection from noise levels that will be occurring on the job site.

iv. In the event Grantor implements railroad safety requirements and directives that are not in effect at the time this Covenant becomes effective, and these requirements or directives may affect access provisions under this Section 3, Grantor shall notify the Grantee. Grantor and Grantee shall then discuss Grantee's compliance with such requirements, and, if needed and agreeable to both parties, amend the Covenant in accordance with Section 5.

[1] The limits of track authority relate to who at the railyard has authority over the tracks (e.g., maintenance of way, engineering, transportation) and how far (in distance) such authority extends. Track fouling typically means any access within twenty (20) feet of the tracks, including people and equipment. Clearing the tracks would occur if the authority changed and everyone present needed to leave the accessed area to accommodate train passage.

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

Section 4. Notice Requirements.

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

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

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

NOTICE: THIS PROPERTY IS SUBJECT TO AN ENVIRONMENTAL COVENANT GRANTED TO THE WASHINGTON STATE DEPARTMENT OF ECOLOGY ON [DATE] AND RECORDED WITH THE SPOKANE COUNTY AUDITOR UNDER RECORDING NUMBER [RECORDING NUMBER]. USES AND ACTIVITIES ON THIS PROPERTY MUST COMPLY WITH THAT COVENANT, A COMPLETE COPY OF WHICH IS ATTACHED TO THIS DOCUMENT.

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

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

c. Emergencies. For any emergency or significant change in site conditions due to Acts of Nature (for example, flood or fire) resulting in a violation of this Covenant, the Grantor is authorized to respond to such an event in accordance with state and federal law. The Grantor must notify Ecology in writing of the event and response actions planned or taken as soon as practical but no later than within 24 hours of the discovery of the event.

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

Chris Goble Assistant Vice President, Real Estate Union Pacific Railroad Company 1400 Douglas St Mail Stop 1690 Omaha, NE 68179 With a copy to: John DeJong 4315 E. Sprague Ave.	Environmental Covenants Coordinator Washington State Department of Ecology Toxics Cleanup Program P.O. Box 47600 Olympia, WA 98504 – 7600 (360) 407-6000 ToxicsCleanupProgramHQ@ecy.wa.gov

Spokane Valley, WA 99212 509.866.8329 John.DeJong@up.com	

Section 5. Modification or Termination.

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

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

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

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

c. By signing this agreement, per RCW 64.70.100, the original signatories to this agreement, other than Ecology, agree to waive all rights to sign amendments to and termination of this Covenant.

Section 6. Enforcement and Construction.

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

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

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

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

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

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

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

The undersigned Grantor warrants he/she holds the title to the Property and has authority to execute this Covenant.

EXECUTED this _____ day of _____, 20___.

_____

by: _____

Title: _____

CORPORATE ACKNOWLEDGMENT

STATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, acknowledged that **he/she** is the _____ of the corporation that executed the within and foregoing instrument, and signed said instrument by free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that **he/she** was authorized to execute said instrument for said corporation.

_____
Notary Public in and for the State of Washington
Residing at _____
My appointment expires _____

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

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

_____

by: _____

Title: _____

Dated: _____

STATE ACKNOWLEDGMENT

STATE OF _____

COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, acknowledged that **he/she** is the _____ of the state agency that executed the within and foregoing instrument, and signed said instrument by free and voluntary act and deed, for the uses and purposes therein mentioned, and on oath stated that **he/she** was authorized to execute said instrument for said state agency.

_____
Notary Public in and for the State of Washington

Residing at _____

My appointment expires _____

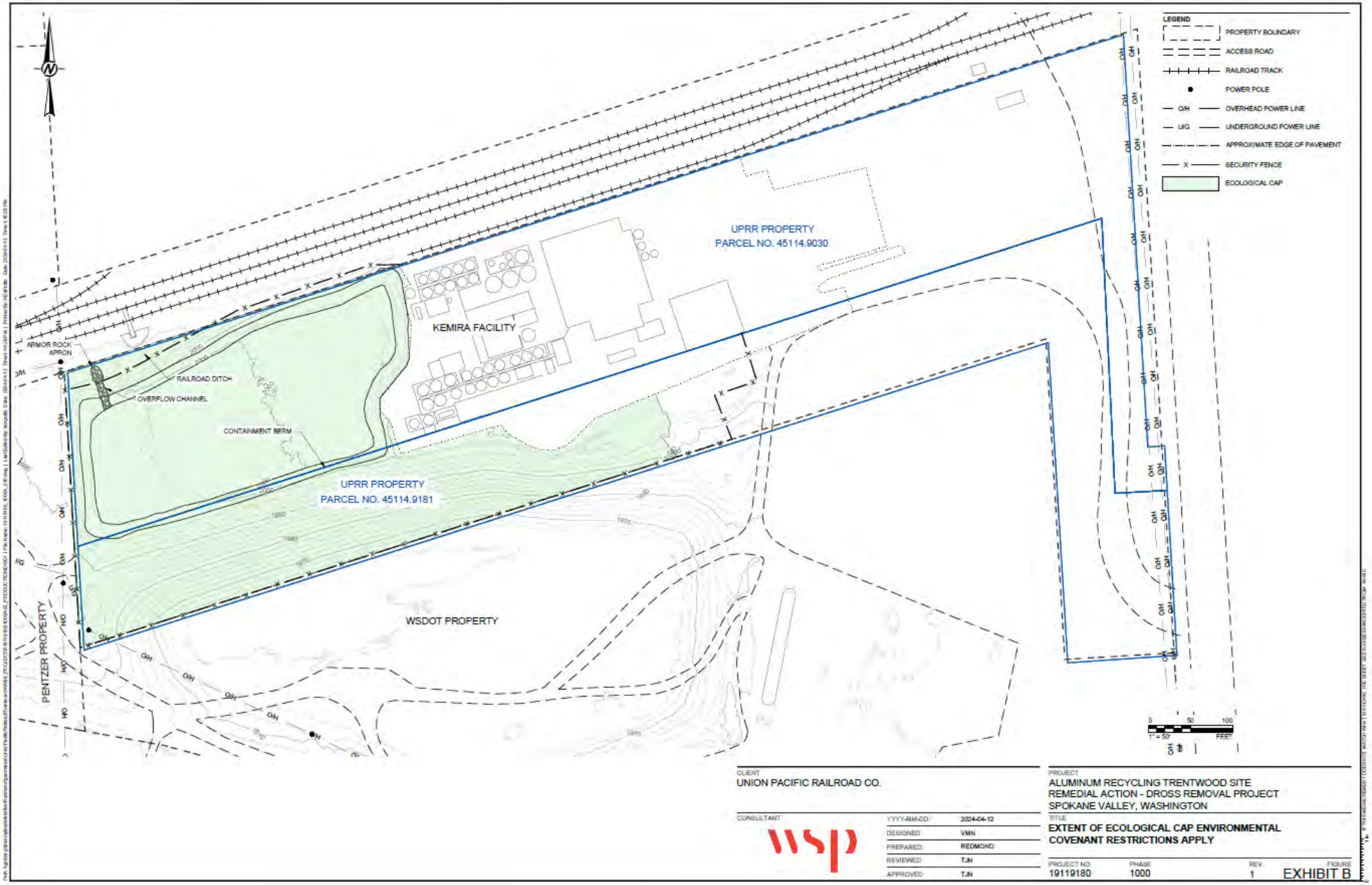
Exhibit A

LEGAL DESCRIPTION

11-25-44: PTN OF LT 8 IN SE1/4 LYG N OF LN DRN PAR WITH & 200FT DIST SLY WHEN MEAS AT R/A FROM SLY SPO INT RY R/W LN; ALSO E 100FT OF N575FT OF LT8 (UNION PACIFIC RR LEASE S182508) and
11-25-44: PART OF GOVERNMENT LOT 8, DESCRIBED AS FOLLOWS: BEGINNING AT THE INTERSECTION OF THE WEST LINE OF SAID GOVERNMENT LOT 8 AND A LINE DRAWN PARALLEL WITH AND 200FT SOUTHEASTERLY, WHENMEASURED AT RIGHT ANGLES AND/OR RADIALLY, FROM THE SOUTHEASTERLY RIGHT OF WAY LINE OF THE SPOKANE INTERNATIONAL RAILWAY; THENCE N74°53’E ALONG SAID PARALLEL LINE A DISTANCE OF 1275.71FT; THENCES00°47’E 326.53FT; THENCE N89°13’E 70.00FT, MORE OR LESS, TO A POINT ON THE WESTERLY RIGHT OF WAY LINE OF SULLIVAN ROAD, WHICH POINT IS 30.00FT WESTERLY, WHEN MEASURED AT RIGHT ANGLES, FROM THE EASTLINE OF SAID SECTION 11; THENCE S00°47’E ALONG SAID WESTERLY RIGHT OF WAY LINE 193.47FT; THENCE S89°13’W 130FT; THENCE N00°47’W 380.81FT; THENCE S74°53’W 1213.78FT, MORE OR LESS, TO THE SAID WEST LINEOF SAID GOVERNMENT LOT 8, THENCE N00°54’W ALONG SAID WEST LINE TO THE POINT OF BEGINNING. (AFN 9112310430)

Exhibit B

PROPERTY MAP



CLIENT
UNION PACIFIC RAILROAD CO.

CONSULTANT
wsp

YYYY-MM-DD	2024-04-12
DESIGNED	VMN
PREPARED	REDMOND
REVIEWED	TJN
APPROVED	TJN

PROJECT
ALUMINUM RECYCLING TRENTWOOD SITE
REMEDIAL ACTION - DROSS REMOVAL PROJECT
SPOKANE VALLEY, WASHINGTON

TITLE
EXTENT OF ECOLOGICAL CAP ENVIRONMENTAL COVENANT RESTRICTIONS APPLY

PROJECT NO.	PHASE	REV.	FIGURE
19119180	1000	1	EXHIBIT B

wsp.com